

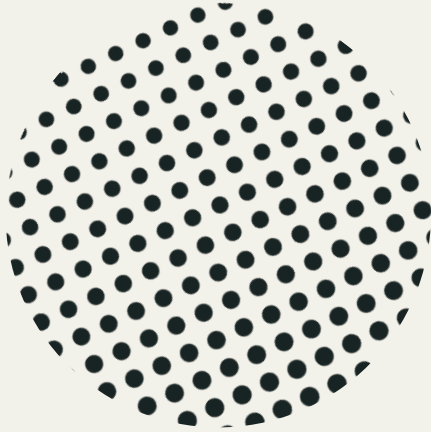
23 - 25 OCT '25



THEATRE ABOUT SCIENCE

INTERNATIONAL
CONFERENCE

COIMBRA, PT



Book of Abstracts

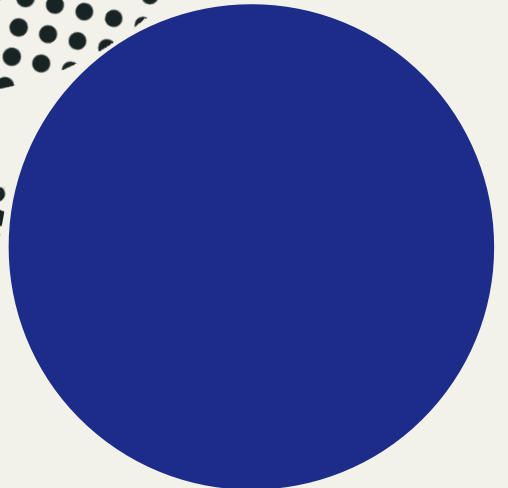
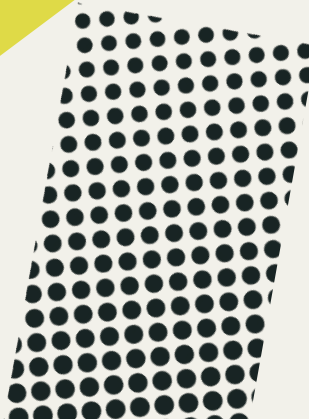
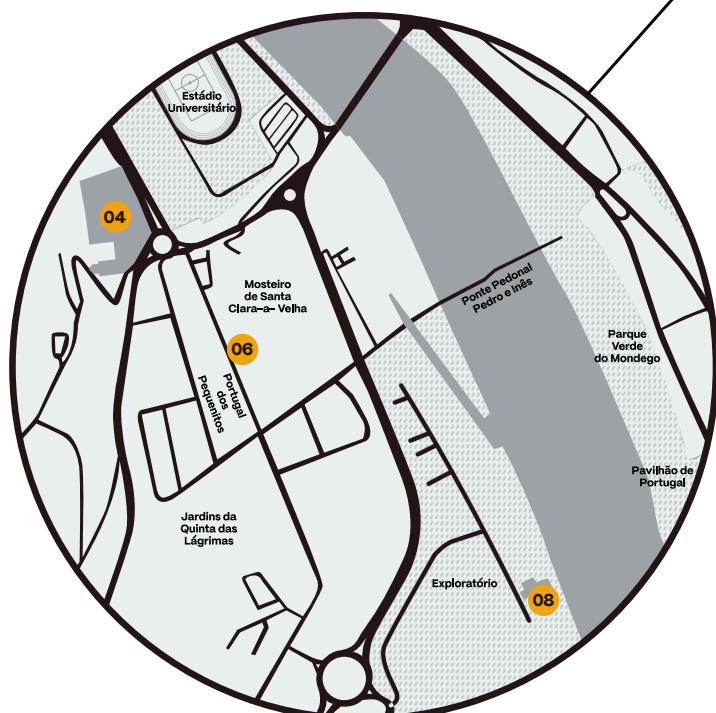
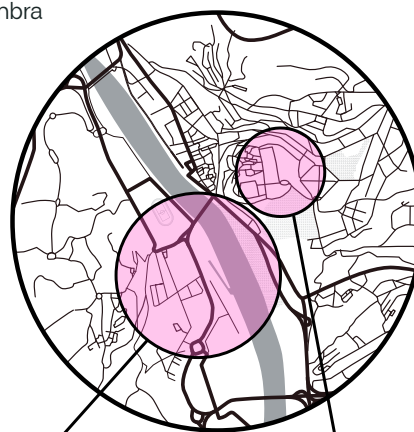


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Venues

- 01**  **AIII** - Anfiteatro III (FLUC)
FLUC, 4º piso - Largo da Porta Férrea
- 02**  **CABB** - Casa das Artes Bissaya Barreto
Rua Castro Matoso 17
- 03**  **CC** - Casa das Caldeiras
Rua Padre António Vieira 5
- 04**  **CSF** - Convento São Francisco
Avenida da Guarda Inglesa, 1a
- 05**  **FLUC** - Faculdade de Letras da Universidade de Coimbra
Largo da Porta Férrea
- 06**  **GSC** - Galeria Santa Clara
Rua António Augusto Gonçalves, 67
- 07**  **RCC** - Rómulo Centro de Ciência
Departamento de Física, Rua Larga
- 08**  **RPM** - Restaurante Piscinas do Mondego
Rotunda das Lages - Santa Clara - Parque
- 09**  **SB** - Sala B
Between Laboratório Chimico and Departamento de Arquitectura
- 10**  **SH** - Auditório 2 do Student Hub
Rua Larga, 2
- 11**  **TAGV** - Teatro Académico de Gil Vicente
Praça da República
- 12**  **TPQ** - Teatro Paulo Quintela (FLUC)
FLUC, 3º piso - Largo da Porta Férrea



Programme

Keynote Speaker 60 min

Performance Art Installation 180 min

Oral Presentation 10 min

Theatre 60 to 160 min

Short Performance 30 min

Film 60 min

Workshop 90 min

22 oct Wednesday

6:00 ^{PM}
CC **Welcome Drink**

9:00 ^{PM}
CC **Film**
Theatre of Debate
A Picture of Health

23 oct Thursday

8:00 ^{AM}
TPQ **Registration**

9:00 ^{AM}
TPQ **Opening Ceremony**

9:30 ^{AM}
TPQ **Keynote Speaker**
Moderator: Mário Montenegro

Elisabeth Bouchaud
Playwrighting about science

10:30 ^{AM}
TPQ **Short Performance**
Julie Dirwimmer
Unclassifiable

10:30 ^{AM}
AIII **Short Performance**
Fred Kempner
The Theatre and Entropy - A short play and discussion

11:00 ^{AM}
FLUC **Coffee Break**

11:30 ^{AM}
TPQ **Oral Presentations**
Moderator: Fernando Matos Oliveira

Enric Pérez Canals
Amber, the story of an electron

Dr. Martyna Groth
Robotic Theatre: art+science encounters

Dr. Judith Johnson
Trisomy 21: writing theatre about science in a learning-disabled led theatre context



Suresh Nampuri
Uncertain lies the Gaze

Boyd Branch, Piotr Mirowski
**Digital Theatre of the Oppressed:
AI literacy through applied science theatre for young audiences**

11:30^{AM}
AIII

Oral Presentations

Moderator: Daniel Gamito-Marques

Linéia Soares *et al*
Science and art: deepening the possibilities for scientific literacy

Daniel Abdalla
**Before the land of little rain:
indigeneity and environment in Mary Austin's early-twentieth-century folk drama**

Vince LiCata
When science is the story

Sarah Angliss *et al*
**Giant - the opera stage as a space for uncertainty and nuance
when exploring medical ethics. A case study**

1:00^{PM}
FLUC

Lunch

2:30^{PM}
CABB

Workshop

Dr. Judith Johnson, Nigel Townsend
Theatre of Debate workshop focussing on end of life care

2:30^{PM}
SH

Workshop

Francisco Forte *et al*
Playback Theatre - When my stories become ours

2:30^{PM}
RCC

Workshop

Elen Evans
**Can we communicate
science through poetry and performance?**

4:00^{PM}
FLUC

Coffee Break

4:30^{PM}
TPQ

Short Performance

Miriam Flick
Micro*Scope

4:30^{PM}
AIII

Short Performance

Dulce Ferreira, Joaquim Pereira de Almeida
The power of Quantum Mechanics in curing all ills

5:00^{PM}
TPQ

Oral Presentations

Moderator: Sara Varela Amaral

Edward Duca *et al*
Voices of Valletta: science theatre with communities

Isabel Silva *et al*
**Radio theater as an art-based intervention program:
opportunities and challenges in the psychosocial adjustment of imprisoned people**

Wyn Griffiths, Dr. Lindsay Keith
**Immersive transdisciplinary theatre as a vehicle for social transformation:
evaluating the space plague community co-design approach**

Frank Kupper
Can we talk? Dialogue theatre across divides



5:00 PM
AIII

Oral Presentations

Moderator: Clara Barata

João Miguel Ferreira

Theatre about science in the middle of the Atlantic

Karina Omuro Lupetti, Tiago Botassin

Ouroboros: communicating science with theater over 20 years

Júlio Martin da Fonseca

Theater and science in university theater

Karina Omuro Lupetti

Science on Stage: 18 years connecting university and society through art, science and education

6:00 PM
SB

Performance Art Installation

Eunice Gonçalves Duarte

Goethe's Dark Room

Open to the public during the three days of the conference,
from 6:00 PM to 8:00 PM. Only two people are allowed at a time.

9:00 PM
CSF

Theatre

Marionet

THE VIRTUOSO

24 oct Friday

9:00 AM
TPQ

Keynote Speaker

Moderator: Sara Varela Amaral

Arthur I. Miller

Science as theatre, theatre as science

10:00 AM
TPQ

Short Performance

David Quang Pham

Turnover: A New Leaf - A plant-based musical

10:00 AM
AIII

Short Performance

Tim Chartier, Tanya Chartier

Mime-matics: exploring mathematics through the art of mime

10:30 AM
AIII

Short Performance

Maria Elisa Teixeira *et al*

Chemistry of Sensations: a chemical play for high school students

11:00 AM
FLUC

Coffee Break

11:30 AM
TPQ

Oral Presentations

Moderator: Ana Santos Carvalho

Elena Sorba *et al*

Bringing statistics to life: theatre as a tool for statistical literacy

Stephen Abbott

Why did Alan Turing propose a theater exercise as his test for intelligence?

Andrea Zardi *et al*

Somatosensory signature of ballet and contemporary dance observation: a dialogue between dance and neuroscience

Hugo Soares, Beatriz Medori

Milagre! Armando de Lacerda, an experimental phonetician on the stage



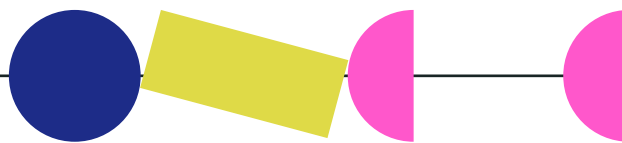
11:30 AM AIII	Oral Presentations Moderator: Clara Barata Anatolii Kozlov, Helene Scott-Fordsmand Theatre for science: notes from TheCultureLab project Sally Robertson, Lindsay Bytof Science on stage: exploring actor and audience engagement with scientific themes through theatre using a community college production of a new adaptation of An Enemy of the People Thelma Lopes <i>et al</i> Theatre about science according to young brazilian students Daniel Erice The art and science of asking questions. Experiential visit to the exhibition 'SHIMABUKU: Octopus, Citrus, Human'
1:00 PM FLUC	Lunch
2:30 PM SH	Keynote Speaker Moderator: Mário Montenegro Alex Mermikides Performance and the Future Doctor
3:30 PM SH	Short Performance Jessica Ammirati Physics from my father
3:30 PM AIII	Short Performance Daniel Gamito-Marques The Science of Nazism
4:00 PM FLUC	Coffee Break
4:30 PM SH	Oral Presentations Moderator: Sara Varela Amaral Emma de Beus Mind the gap: <i>Next to Normal</i> as a bridge of empathy Ricardo Pires das Neves <i>et al</i> <i>Stem Cells Rock!</i> A musical talk show about science Julie Dirwimmer <i>Government of Space-Time 42</i>: a podcast made of science, politics and theatre
4:30 PM AIII	Oral Presentations Moderator: Ana Santos Carvalho Dwaynica A. Greaves Measuring interpersonal coordination during a live theatre rehearsal and performance Daniela Pereira <i>et al</i> <i>TheatAr</i>: a science outreach event on the intersection of theater and neuroscience Mariana R. P. Alves Becoming Oscillation: developmental biology meets dance
5:30 PM TPQ	Theatre Arthur I. Miller SYNCHRONICITY
6:00 PM SB	Performance Art Installation Eunice Gonçalves Duarte Goethe's Dark Room



9:30 PM
TAGV

Theatre
Marcus du Sautoy
THE AXIOM OF CHOICE

25 oct Saturday



9:00 AM
TPQ

Keynote Speaker
Moderator: Fernando Matos Oliveira

Marcus du Sautoy
Maths on stage: the dramatic life of numbers

10:00 AM
TPQ

Short Performance
Nathan Jerpe *et al*
Digestive reasoning: A specimen

10:00 AM
AIII

Short Performance
Vince LiCata
HumAnimalia

10:30 AM
TPQ

Short Performance
Marta Condesso, Pedro Pombo
Science on the wings of storytelling

10:30 AM
AIII

Short Performance
Costantino Manes *et al*
'Fish in troubled waters': theatre meets young researchers to raise awareness on the impacts of dams on fish and rivers (RIBES project)

11:00 AM
FLUC

Coffee Break

11:30 AM
TPQ

Oral Presentations
Moderator: Sara Varela Amaral

Dimitar Uzunov
Please ASK! – Art science kick: kick-off new methodologies in performing art and science collaboration

Carla Almeida
GACT - a Brazilian collective focused on exploring theatre within the realm of science communication

Andrea Brunello
The unexplored abilities of scientists as storytellers: the Open Mike experience

Rossella Spiga, Francesco Fontani
Astronomers on stage: the immersive journey of 'The planets'

Abigail Bender
Are you smarter than a comedian?

11:30 AM
AIII

Oral Presentations
Moderator: Clara Barata

Hugo Direito Dias, Alexandra Nobre
Waste on stage: everything in its place

Jessamyn Fairfield *et al*
Improvised theatre for climate crisis. Engagement in Irish rural communities



Giulia Innocenti Malini
**Participatory performing arts as resources
to expand knowledge of inequalities produced
or increased by conditions of environmental injustice**

Pamella de Caprio Villanova
Lecture performance about waste problem: the Goddess Reduza

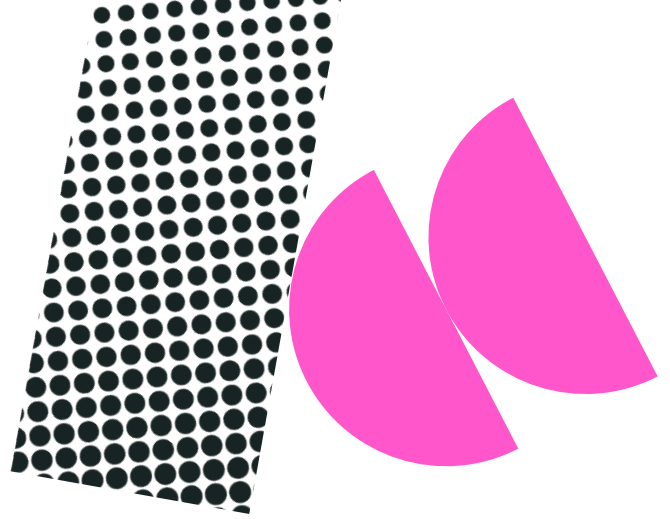
1:00 PM FLUC	Lunch
2:30 PM CABB	Workshop Alexandra Polido Theatre for socio-ecological transformation
2:30 PM SH	Workshop Nell Hardy <i>et al</i> Trauma-conscious communication training for researchers: an actor's process
2:30 PM RCC	Workshop Emma Weitkamp <i>et al</i> Sparking exchange: exploring the needs of the science performance community
4:00 PM FLUC	Coffee Break
4:30 PM AIII	Closing Session
5:00 PM TPQ	Theatre Belén Pasqualini CHRISTIANE: UN BIO-MUSICAL CIENTÍFICO
6:00 PM SB	Performance Art Installation Eunice Gonçalves Duarte Goethe's Dark Room
8:00 PM RPM	Conference Dinner
10:30 PM GSC	After Party

26 oct Sunday

8:30 AM **Guided Tour to the University of Coimbra**



Keynote Speakers



Alexandra Mermikides

D'Oyly Carte Senior Lecture in Arts and Health in the GKT Schools of Medical Education, King's College London. Researches the interface between theatre and medicine through publications (the Routledge Companion to Performance and Medicine, 2024, Performance, Medicine and the Human, 2020, Performance and the Medical Body 2016) and making performances in collaboration with medical specialists and patients. Her work has featured in The Guardian, Times Higher Educational Supplement and on This Week (BBC Radio 4).



Arthur I. Miller

Arthur I. Miller is Professor Emeritus of the History and Philosophy of Science at University College London. Originally a physicist, his research interests include creativity, the interplay between art and science, artificial intelligence, and theatre. His many critically acclaimed books include Einstein, Picasso: Space, Time, and the Beauty that Causes Havoc, nominated for the Pulitzer Prize. His latest book is The Artist in the Machine: The World of AI-Powered Creativity. A regular broadcaster and lecturer, he writes for The Guardian, The New York Times, Scientific American, Wired and Nautilus.

His new play, **Synchronicity**, recreates the intriguing encounters between the analyst Carl Jung and the brilliant but troubled physicist Wolfgang Pauli. Readings played to sell-out audiences in New York in 2023 and the play was



performed to critical acclaim at the White Bear Theatre, London, 19-30 November 2024. It will have a second run in London in October 2025 and will be performed at this meeting on 24 October. He is currently working on other plays revolving around science.

For more see [Arthur I. Miller's website](#).



Elisabeth Bouchaud

After more than thirty years of research in physics, she became a full-time actress, director and playwright. She is also the director of the theatre [La Reine Blanche](#) in Paris, where a large part of the shows is inspired by science. She recently published a series of plays on women scientists, which are produced at La Reine Blanche in Paris, Avignon, and also on tour.



Marcus du Sautoy

Marcus du Sautoy is the Simonyi Professor for the Public Understanding of Science and Professor of Mathematics at the University of Oxford. He was made a Fellow of the Royal Society in 2016. He is the author of nine books including his most recent book Blueprints: how mathematics shapes creativity (Fourth Estate 2025). He is the author of two plays including I is a Strange Loop (Faber 2021) which was performed at the Barbican in London in which he was also lead actor. His most recent play The Axiom of Choice enjoyed a five week tour of India in autumn 2024. He is a trustee of Wayward Productions and a long-term advisor to Complicite. He has presented numerous radio and TV series including a four part landmark TV series for the BBC called The Story of Maths. He works extensively with a range of arts organisations bringing science alive for the public, from The Royal Opera House to the Glastonbury Festival. He received an OBE for services to science in the 2010 New Year's Honours List.



Scientific Committee



Andrea Brunello

Independent researcher, playwright, director and actor, Andrea has a PhD in Physics. He works at the boundary between theatre and science, creating original works that have been performed all over Europe and beyond. He runs **Arditodesio**, a theatre company devoted to increasing scientific literacy and directs the Theatre of Wonder Festival in Trento (Italy). Andrea teaches science communication by means of theatre and storytelling at the Master in Communication of Science and Innovation and at the Physics Department of the University of Trento (Italy), and at the Physics and Astronomy Department of the University of Bologna. Andrea is on the board of directors of EUSEA – the European Science Engagement Association.



Carla Almeida

Science communicator and researcher at the Museu da Vida, science museum of the Oswaldo Cruz Foundation (Fiocruz), in Brazil, where she works in the areas of public engagement with science; science, media and society; and science-theatre. Almeida teaches the Fiocruz's Diploma Course in Communication and Popularization of Science and the Master's in Communication of Science, Technology and Health. She is co-author of the books *Cordel e Ciência: A Ciência em Versos Populares*, *Ciência em Cena: Teatro no Museu da Vida* and *Science & Theatre: Communicating Science and Technology with Performing Arts*.





Carlos Fiolhais

Full professor in the Department of Physics at the University of Coimbra since 2000, now retired. Author of 70 books and numerous scientific, pedagogical and dissemination articles. He writes for national newspapers and magazines and he is a guest of the Now TV channel. He received several national awards. Recently, a new Library was created in Coimbra with his name. Former director of the General Library of the University of Coimbra, is the current director of the «Ciência Aberta» collection from book publisher Gradiva.



Daniel Abdalla

Lecturer in the Department of English and Deputy Director of the Literature and Science Hub at the University of Liverpool. He works on literature from 1800-present and focuses on the ways that authors engage with science, race, and the environment. His first monograph, on heredity in American literary culture, is forthcoming in the *Palgrave Studies in Literature, Science and Medicine* series.



Daniel Gamito-Marques

Research Fellow at the Interuniversity Centre for the History of Science and Technology (CIUHCT). Historian of the connections between science and colonialism in Africa (19th-20th cent.). Works as a professional playwright and dramaturge since 2016. Explores the use of historical knowledge of the sciences in theatre.



Emma Weitkamp

Professor in Science Communication and Co-director of the Science Communication Unit at the University of the West of England, Bristol. Her research interests explore narrative in science communication, spanning both



arts and media practice and the actors involved in science communication. Emma is involved in developing a Science Communication Academy, as part of another EU-funded COALESCE project and recently convened a conference exploring arts and science (funded by Schering Stiftung). She has published three books: *Science & Theatre, communicating science and technology with performing arts; Creative Research Communication; and Introducing Science Communication*.



Joana Lobo Antunes

Head of Communication at Instituto Superior Técnico. Lecturer in Science Communication and Social Media for Scientists, FCSH NOVA and Universidade Nova de Lisboa Doctoral School. Her main interests are the use of theatre improvisation techniques and storytelling in Science Communication. Coordinator of science radio show 90 Segundos de Ciência. Founder and former President of Portuguese Science Communicators Network SciComPT.



Liliane Campos

Lecturer in English and Theatre studies at the Sorbonne Nouvelle, and fellow of the Institut Universitaire de France. Her research explores how art transforms the images and discourse of science. Books include *Sciences en scène dans le théâtre britannique contemporain* and *Life, Re-Scaled: The Biological Imagination in Twenty-First-Century Literature and Performance*.



Paul Johnson

Professor of Theatre and Performance and Deputy Provost at the University of Chester. He studied Physics and Theatre Studies at the University of Glasgow before undertaking a PhD on the use of science as a framework for writing about performance. He has published variously on performance and science, as well as writing a number of science related plays. He convened the Performance and Science working group of the Theatre and Performance Research Association (TaPRA), and is currently co-editing the Routledge Companion to Performance and Science.





Simon Parry

Senior Lecturer in Drama and Arts Management based in the department of Drama and Film at the University of Manchester. His current research focuses on the practice, policy and theory of creative health. He recently led a UKRI-funded project *Organisations of Hope* exploring the potential contribution of creative activity to health equity in Greater Manchester. He has also worked with Manchester Art Gallery and other partners to develop [a network exploring responses to trauma in the arts](#). He has worked with a number of organisations on different approaches to engaging with health and science through the arts and has published widely on this topic including the book *Science in Performance* (MUP, 2020).



Steve Abbott

Professor of mathematics at Middlebury College (Vermont, USA) with a long-term interest in real analysis, logic, and foundations. Bewitched by his experience as a consultant on a production of Tom Stoppard's *Arcadia* over twenty years ago, Professor Abbott devoted himself to researching, watching, and eventually directing plays that engage mathematics. The results of this intellectual journey are recounted in *The Proof Stage* (Princeton University Press, 2023), which explores how playwrights from Samuel Beckett to Simon McBurney brought the power of abstract mathematics to the human stage.



Teresa Girão

Director of the Botanical Garden (University of Coimbra) and researcher in science communication at the Centre for Functional Ecology – Science for People & the Planet (CFE). Her research activity was firstly focused on the field of biotechnology and neuroscience. She now focuses on the impact of science and technology, and of science communication activities, on society.

Organising Committee



Ana Santos Carvalho

GeneT^o | CIBB^o

Head of Communication and Marketing of Gene T, Gene Therapy Center of Excellence Portugal, University of Coimbra (UC). She is the President of the Portuguese Science and Technology Communication Network, SciComPt. She coordinates the European Researchers' Night, the Three Minute Thesis Competition (UC 3MT), and SoapBox Science Coimbra at UC. She has been part of the organising committee of several national and international scientific events, and of Science Communication initiatives in the city of Coimbra such as PubhD Coimbra, Pint of Science, among others. From pharmacology and neuroscience research fields, to science communication and public engagement activities to several publics, she now has a new passion, Gene Therapy.



Clara Barata

FPCEUC^o | CEIS20^o

Clara Barata is an Assistant Professor at the Faculty of Psychology and Education Sciences of the University of Coimbra. She was the Science Manager for the Strategic Area Heritage, Culture and Inclusive Society at the University for five years prior to this position. She was principal investigator in the H2020 projects ISOTIS (Inclusive Education and Social Support to Tackle Inequalities in Society) and PROGRESS Playgroups for Inclusion at the University of Coimbra, as well as Marie Curie Individual Fellow at ISCTE-IUL. She was also an analyst for the Organisation for Economic Co-operation and Development (OECD).





Fernando Matos Oliveira

FLUC^o | CEIS20^o

Director of the PhD Programme in Art Studies at the University of Coimbra, where he teaches in the areas of Performance and Theatre Studies. His main areas of interest are Modern and Contemporary Theatre, and Performance Art. He has been Director of the Academic Theatre of the University of Coimbra since 2011 and Senior Researcher at the Centre for Interdisciplinary Studies.



Francisca Moreira

Marionet^o

Photographer and production director at Marionet theatre company. Theatre Production teacher at Escola Superior de Educação de Coimbra. Former producer at musical and cultural association Lugar Comum. With a degree in Communication and Multimedia Design and a specialisation in Marketing and Communication. Cat lover.



Mário Montenegro

Marionet^o | CEIS20^o

Theatre director, actor, playwright, and researcher at the Centre for Interdisciplinary Studies of the University of Coimbra. He is the artistic director of Marionet, a theatre company focused on the intersections between theatre and the sciences, and he has written and directed plays about scientific subjects and coordinated several projects of collaborative creation with researchers. Current research interests relate to the interactions between the performing arts and science, including science dramaturgies, worldwide production of plays related to science, research-based theatre, theatre with researchers and the performing arts in science communication.





Natacha Perpétuo

iiiUC ^o

Scientific research fellow at the Institute of Interdisciplinary Research of the University of Coimbra (iiiUC), supporting the areas of science communication, science dissemination and communication and image. Has a degree in Biology, a Master's degree in Biodiversity and Plant Biotechnology and is a PhD candidate in History of Sciences and Scientific Education at the University of Coimbra, on the subject of 'Promoting scientific literacy and public understanding of poisonous plants'.



Sara Varela Amaral

CNC UC ^o | CIBB ^o

Head of Science Communication Office at CNC-UC/CiBB. Sara has been involved in several projects that aim to establish innovative strategies to promote the appropriate communication between scientists and different audiences, and to foster scientific education in the biomedical field.

Her research interests are science communication strategies, impact evaluation methods, scientific culture and citizenship, public engagement in science, science education, fundraising and art and science initiatives.

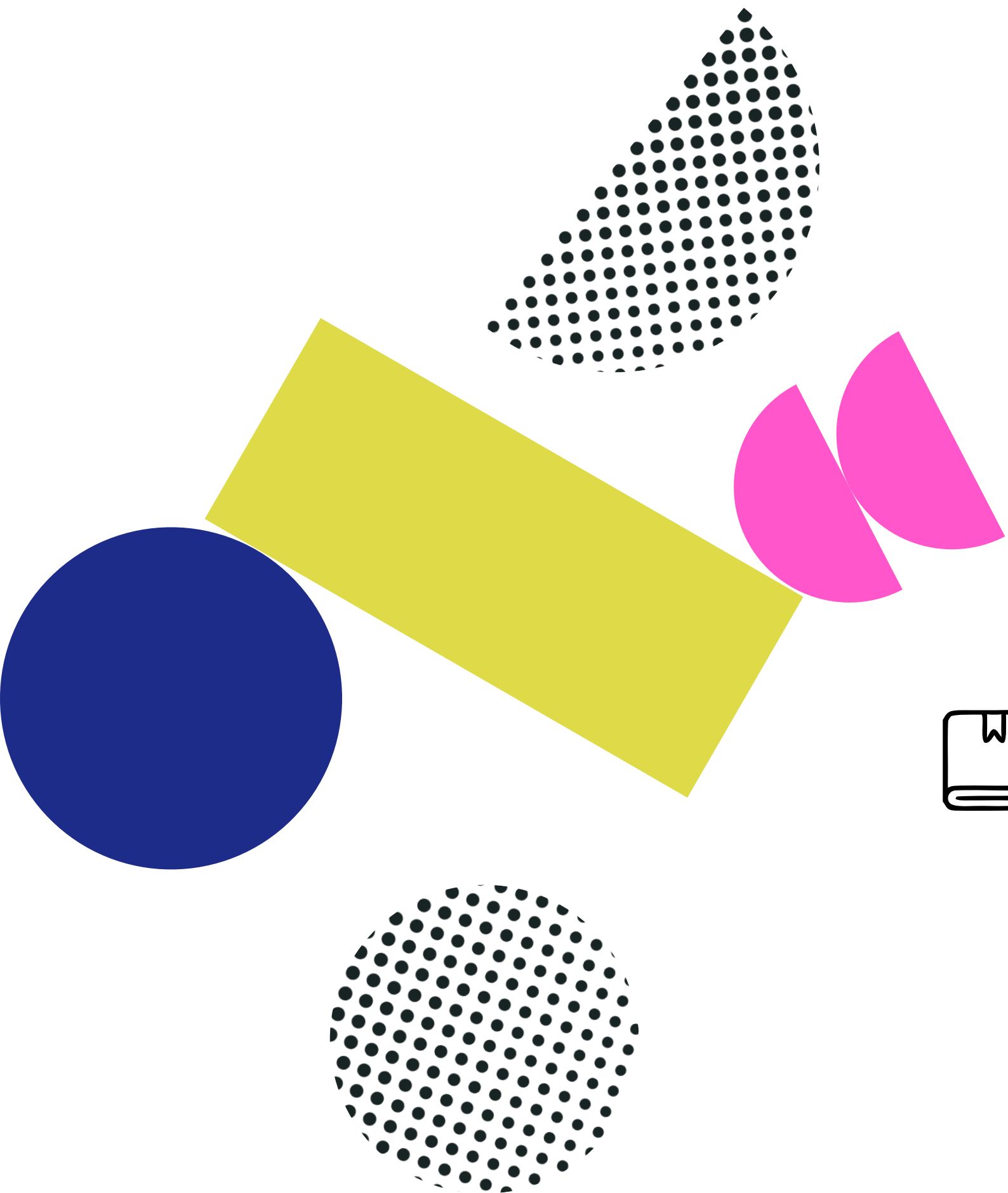


Silvia Carballo

Marionet ^o

Executive producer at Marionet theatre company, where she manages its historical archive. Also works in executive production in the film industry and is a member of the editorial team of Stylo – Artistic Studies Magazine, of the Faculty of Humanities of the University of Coimbra. She holds a Master's in Artistic Studies from the University of Coimbra and has a bachelor's degree in the same area of study, as well as training in Cultural Management and Human Resources.





Keynote Presentations

23 oct

Thursday

9:30 am

Teatro
Paulo Quintela
(FLUC)

Keynote Speaker

Elisabeth Bouchaud

La Reine Blanche

Playwriting about science

With this lecture, I wish to share my experience in writing plays about science.

The central question is to produce a show for a broad audience, usually people who do not have any basic scientific knowledge, or, even worse, people for whom science is at best uninteresting. There are several pitfalls to avoid. The most obvious is didacticism. There are several strategies for doing so, and I will give several examples, but the general rule is to embed the scientific discourse into the dramaturgy.

Of course, there is a limit to how much science can be simplified. Not exceeding a certain limit is another important consideration. In many cases, however, it will be necessary to accept that some of the science will be heard without being understood, much like poetry.

Finally, these plays are often about individuals who have shaped the history of science, and, as with all historical figures, the question of the legitimacy of fiction arises.



24 oct

Friday

9:00 am

Teatro

Paulo Quintela
(FLUC)

Keynote Speaker**Arthur I. Miller**

University College London

Science as theatre, theatre as science

In my talk I intend to break down the broad concept of 'science and theatre' into two categories: 'Science as Theatre' and 'Theatre as Science'. 'Science as Theatre' focuses on the way in which science can be made accessible to the public. Plays and films about science and scientists can explore the relationships of scientists with each other, and with friends and lovers as well as with society. 'Science as Theatre' can celebrate science and inspire scientists to pursue their work with renewed vigour.

'Theatre as Science' conversely focuses on ideas. A play or a film about a certain aspect of science can catalyse a scientist's thinking and lead to a breakthrough in that area. Both categories push forward the boundaries of science and of theatre.

In my talk, I will probe both categories by examining plays and films based on science, such as Brecht's *The Life of Galileo*, Terry Johnson's *Hysteria*, Michael Frayn's *Copenhagen*, Tom Stoppard's *Arcadia*, Christopher Nolan's *Oppenheimer*, the theatre company Complicité's *A Disappearing Number*, and my own play *Synchronicity*, which will be performed in the evening. I will also fill in the back stories of the two characters who feature in *Synchronicity*: physicist Wolfgang Pauli and analyst Carl Jung. Their relationship grew from patient/analyst to colleagues, then friends. But how could the supposedly rational Pauli associate with someone who regularly dealt with such off-beat concerns as alchemy and numerology? This is among the questions that my play addresses.



24 oct

Friday

2:30 pmAuditório 2
do Student Hub

Keynote Speaker**Alexandra Mermikides**

King's College London

Performance and the Future Doctor

This paper explores the place of theatre and performance in the education of future doctors and medical scientists. It stems from my unusual position as a theatre maker and researcher embedded in one of the oldest and largest medical schools in the United Kingdom. King's College London has a reputation for pioneering arts-based learning and cultural engagement in the context of healthcare and life sciences, and my role here provides insight into the different ways theatre and performance might be deployed in this context. It also reveals what Barry, Born and Wieszalyns call 'logics of interdisciplinarity', i.e. the discourses and rationales that underpin interdisciplinary initiatives, and how these reflect the various meanings that are attributed to science and the arts in specific cultural contexts. Within the medical school, a dominant 'logic' is that the role of the arts is to enhance empathy in healthcare providers, providing a subjective counter to the supposed objectivity of empirical science. Here I draw on my recent performance - a devised production about anatomical dissection - to explore the implications - and ethics - of this rationale in relation to the welcome diversification of the medical workforce and the 'crisis' within the National Health Service. Overall, I speculate on the role of contemporary theatre and performance in determining how our future doctors perform their professional identities and roles.



25 oct

Saturday

9:30 am

Teatro

Paulo Quintela
(FLUC)

Keynote Speaker**Marcus du Sautoy**Simonyi Professor for the Public Understanding of Science and Professor of Mathematics
at the University of Oxford**Maths on stage:
the dramatic life of numbers**

My two great passions in life are mathematics and theatre. In the past, I used to think that I did one as an escapism from the other. But I've come to the realization that, far from being a schizophrenic side of my character, the two share many more things in common than I was originally aware of. In this talk, I will explore the work I have done over the years creating theatre inspired by mathematical ideas, including my most recent project *The Axiom of Choice*. How theatre is a powerful vehicle to communicate mathematical stories but also how mathematics can be used to generate fascinating new theatrical stories.



Oral Presentations

23 oct

Thursday

11:30 am

Teatro
Paulo Quintela
(FLUC)

Oral Presentation

Enric Pérez Canals
Universitat de Barcelona

Amber, the story of an electron

This year marks the centenary of the birth of quantum mechanics—a fitting occasion to reflect on how we communicate the unsettling results that have emerged since 1925. In my talk, I will present a theatrical experiment designed to use theatre as a medium to highlight those aspects of modern physics that resonate with broader cultural, artistic, or social developments.

I will begin by briefly describing my earlier experiences at my university's Faculty of Physics, where I participated in commemorative events for milestones in the history of physics—such as Bohr's model of the atom and the discovery of the proton—through small theatrical pieces. I will then introduce the text (currently in development) of a new theatrical project centered on quantum mechanics.

The protagonist of the story is Amber, a young student at the beginning of the play.

The role of metaphor is, of course, central to such initiatives. However, it often remains merely a tool for introducing technically complex ideas in a simplified, and not always rigorous, manner. In this new work, I aim to go beyond metaphor, drawing deeper parallels between the properties of the electron in modern physics—our oldest known elementary particle, still indivisible—and the evolving concept of the individual and their role in 20th-century societies. Let us not forget that *individuum* is the Latin counterpart of *atom*. Once atoms were split—contrary to what their name implies—it was the elementary particles of modern physics that



assumed their conceptual place. While this comparison is not entirely new, my goal is to explore how it might be meaningfully staged through theatre.

We will examine, for example, the dual behavior of the electron as both wave and particle, and relate this to the varying behavior of individuals across different contexts.

We will explore the idea that an electron can be found in multiple places given the same initial conditions, or its seemingly random yet statistically predictable behavior in large populations. This will allow us to contrast the regularities of social behavior (sociology) with the apparent unpredictability of individual behavior (psychology).

In these and other ways, we will investigate whether certain experimentally confirmed properties of the electron can illuminate the transformations in the concept of the individual at the turn of the 20th century.

23 oct

Thursday

11:30 am

Teatro

Paulo Quintela
(FLUC)

Oral Presentation**Dr. Martyna Groth**

The Aleksander Zelwerowicz National Academy of Dramatic Art in Warsaw

Robotic Theatre: art + science encounters

This presentation focuses on the Japanese Robot–Human Theater Project, a collaboration between Hiroshi Ishiguro Laboratories (Osaka University) and the Seinendan Theatre Company (Tokyo), launched in 2008. The project offers a unique example of interdisciplinary dialogue between art and science, in which robots are not only performers on stage, but also objects of scientific inquiry in the fields of engineering, social robotics, affectivity, and human–machine interaction.

Several theatrical productions have emerged from this collaboration (e.g., *I, Worker*, *Sayonara*, *Three Sisters: Android Version*, *Metamorphosis*), in which humanoid robots perform alongside human actors. These performances do not merely employ robots as theatrical tools; they also explore philosophical and scientific themes such as empathy, mortality, identity, and our evolving relationship with technology. Each production functions simultaneously as a theatrical performance and a research



experiment — testing, among other things, the social presence of machines, that is, their capacity to evoke emotional responses, sustain dramatic relationships, and participate in social scenarios on stage.

In this talk, I will examine how the *Robot–Human Theater Project* transgresses the boundaries of traditional theatre, becoming a site of epistemological experimentation. I will also reflect on how theatre can operate as a scientific laboratory, and as a medium for critical inquiry into automation and the future of human–machine relations.

23 oct

Thursday

11:30 am

Teatro
Paulo Quintela
(FLUC)

Oral Presentation

Dr. Judith Johnson

Central School of Speech and Drama

Trisomy 21: writing theatre about science in a learning-disabled led theatre context

Since the 1990s, I have worked in the UK with Theatre of Debate (ToD, previously known as Y-Touring), writing more than 10 plays focussing on topics which include, amongst others, the use of animals in medical research, stem cell research and anti-microbial resistance. I will discuss my work with ToD within the broader context of socio-scientific playwriting, positioning myself as a practitioner who aims, as Weitzkamp and Almeida put it, to 'promote the critical engagement of different audiences in contemporary scientific debates and stimulate fruitful dialogue between science and society' (2022, p.25-26). To this end, I will explicate my learning from ToD projects, and how this informed my approach to the play *Trisomy 21*, written with Razed Roof theatre company (based in Essex, England) which explores Down Syndrome, before then going into detail about the *Trisomy 21* project.

Razed Roof is a community theatre company whose core members are adults with learning disabilities. I have worked with the company for 15 years, and written four plays with and for them. In 2018, we created the play *Trisomy 21*, which was instigated by Razed Roof's involvement in an initiative to survey the views of adults with Down



Syndrome regarding the non-invasive pre-natal test (NIPT) that was about to be introduced in the UK. The NIPT is a blood test that can predict with some accuracy whether a foetus is likely to have Down Syndrome, and three other genetic conditions. Early detection means that fewer women need to undergo the later invasive amniocentesis test which carries a risk of miscarriage. Ethical discussions surrounding the NIPT often focus on the implications of such screening for the birth rate of Down babies. In Iceland, where the test was introduced in the early 2000s, Down Syndrome births are now close to zero. In discussion at Razed Roof, we asked the question 'If Down syndrome and other genetic conditions are effectively being 'screened out,' what does that mean for society as a whole and, in particular, for attitudes towards 'difference'?

Razed Roof members were active participants in the creation of the play which used devising techniques to create content, which I then shaped and scripted. Together, through theatre, we explored the impact of a science-based decision on the communities it affects. I will outline the commonalities of playwriting techniques in relation to different socio-scientific and bioethical themes, as well as dramaturgical differences between ToD projects and *Trisomy 21*.

23 oct

Thursday

11:30 am

Teatro

Paulo Quintela
(FLUC)

Oral Presentation**Suresh Nampuri**

Centro de Matemática, Aplicações Fundamentais e Investigação Operacional, U. Lisboa
JÁ international Theatre

Uncertain lies the Gaze

I will talk about how the principles of quantum mechanics have pervaded storytelling in theatre, and produced sublimely beautiful reflections on the probabilities of the human condition ranging from Michael Frayn's *COPENHAGEN*, a reimagining of the famous last conversation between Heisenberg and Niels Bohr to Nick Payne's *CONSTELLATIONS*, an exploration of the possibilities of the quantum universe in terms of the warp and weft of human existence. Both these plays are well known in science theatre circles. However, this year, as we celebrate the



centennial anniversary of the birth of quantum mechanics. I will reflect on how our conceptual insights in the last 100 years, starting from Wilson's renormalisation group to the vacuum landscape of multiverses in string theory, sharpen and finesse these stories and produce new scholia of storytelling which allow us to perceive these stories differently, not just as manifestations of possible truths, but in the language of emergent phenomena. I will use these examples to talk about how theatre in its fundamentally ephemeral but sensorially alive fashion is still the best medium to implant an idea or interrogate a pre-conception in the audience as in the empty space of performance. Storytelling done right can implant within the consciousness an uncertainty about their preconceptions that, on taking root, can be a transformative moment in the eyes of the audience.

23 oct

Thursday

11:30 am

Teatro

Paulo Quintela
(FLUC)

Oral Presentation**Boyd Branch**

Improbabilities and Winchester School of Art, University of Southampton

Piotr Mirowski

Improbabilities, Goldsmiths, University of London and Google DeepMind

Digital Theatre of the Oppressed: AI literacy through applied science theatre for young audiences

Digital Theatre of the Oppressed (DTO) presents a practice for engaging youth with the emergent disruption and immediate affordances of artificial intelligence.

The widespread adoption of generative AI has outpaced development of validated best practices for introducing AI to young people, whether in formal education or recreational experiences, and for safeguarding children. Encouraging critical engagement with AI is still missing from pedagogical practices. Ad-hoc classroom interventions are limited to post-hoc presentations outpaced by the state-of-the-art; while purely practice-based encounters risk accelerating normalisation before critical engagement takes place.



Outside classrooms, authors and filmmakers can contextualize key topics in AI literacy. However, fixed media like books and videos are inherently didactic and reactive, offering an abstracted perspective rather than an immersive, lived experience of engaging with AI. Unlike fixed media, live theatre presents a platform for the subject itself to be present. This power of theatre was made explicit with the work of Augusto Boal's Theatre of the Oppressed that identified the opportunity of audience participation to inject their immediate concerns directly into historicising act of the play—shifting from the didactic to the dialogic with the emergence of the 'spect-actor'. DTO encourages children spect-actors to simultaneously engage with the immediate reality of AI, and to frame that engagement in speculative contexts conducive to critical reflection.

Like typical 'live science shows' where physics and biology demonstrations are presented to children, staging 'live' generative AI encourages more active engagement with AI as scientific phenomena that demand critical attention and a skeptical approach. Improbabilities Kids! is a science theatre production following DTO, inviting youth to actively shape a narrative alongside improvising actors and robots. The premise involves performer-scientists (engaged in prompting and fine-tuning generative models) and real-time AI (impersonated by robot A.L.Ex) deployed in front of spect-actors (invited on stage). The show begins with the performers declaring their aim to educate and entertain, but from their attempts emerge ethical, social, and cultural implications that demand audience intervention. The DTO methodology for staging scripted and improvisational performances allows the show to adapt to the collective experience of the audience, and avoids presenting an overly deterministic speculative conclusion about what young people should think about AI. Our case study details the technical and artistic considerations of supporting live AI for young people, presenting it as a chaotic force that cannot be reduced to a tool, nor judged exclusively from a speculative position outside of its usefulness.

Oral Presentation**Linéia da Silva Soares**

Universidade Federal de São Carlos

Karina Omuro Lupetti

Universidade Federal de São Carlos

Alex de Nazaré Oliveira

Universidade Federal do Amapá

André Oliveira Cardoso

Secretaria Estadual de Educação do Amapá

Science and art: deepening the possibilities for scientific literacy

Art-Science is emerging as an effective approach to improving Scientific Literacy (SL), particularly in a technology-driven world where traditional science education often fails to engage students. This research aimed to promote students' critical engagement with science, using pedagogical strategies that combine drama and textual analysis. Activities included the creation of mini-theatrical scripts about women scientists, followed by an assessment of student perceptions through a learning trail. The study, qualitative-quantitative, was carried out over 12 months with 20 first-year high school students in Macapá/AP. The methodology of lexical and statistical analysis of texts using IRAMUTEQ (data organization tool, whose interpretation is up to the researcher), with a qualitative approach supported by authors to interpret the results. We can infer from the results that the most frequently cited words in the narratives are 'Lise Meitner' (84 occurrences), 'Otto-Hahn' (58 occurrences), followed by the words: 'nuclear-fission' (18 occurrences), 'experiment' (13 occurrences), 'discover' (17 occurrences), 'woman' (19 occurrences), and 'physicist' (10 occurrences). The analysis of the most frequent words (via the word cloud) reveals an emphasis on the first dimension of Scientific Literacy, centered on the historical, epistemological and communication aspects of science. In the excerpts analyzed, there is a concern with the construction of historical and epistemological knowledge, highlighting the recovery of the trajectory of Lise Meitner, a marginalized scientist whose role in the discovery of nuclear fission has often been erased. The historical context places her contribution in the 20th century, marked by advances in nuclear physics and socio-political challenges, such as the exclusion of women in science. Epistemological knowledge emphasizes the collaborative and contested process of



scientific production, questioning the idealized vision of the 'isolated genius' and revealing the complexity behind discoveries. The text criticizes the hegemonic narrative of science by highlighting the unjust erasure of figures like Lise Meitner, problematizing recognition criteria (gender, nationality) and linking to the first dimension of CA, which humanizes science as a social and historical construction, encouraging reflections on its political and controversial aspects. Scientific Literacy (SL) indicators must be linked to pedagogical practice, as it is in the classroom that skills such as critical thinking and logical reasoning are developed, which are essential for a more reflective and qualified scientific education.

23 oct

Thursday

11:30 am

Anfiteatro III
(FLUC)

Oral Presentation

Daniel Abdalla

University of Liverpool

Before the land of little rain: indigeneity and environment in Mary Austin's early-twentieth-century folk drama

Theatre and Science scholarship has shown that twentieth-century Modernist Drama brought the biological sciences to center stage, particularly theories of heredity that emphasized the degeneration of ancestral lines, usually against the backdrop of a decaying family manor (eg. Ibsen's *Rosmersholm* and Henry James's *Guy Domville*). This work has paved the way for a related area of inquiry explored in this presentation: the substantial engagement by early-twentieth-century dramatists with the environmental sciences. Scholarship on this topic is particularly urgent given that in our own present moment of climate crisis, we are increasingly looking to diverse histories of ideas about the environment.

Nature and the outdoors are at the forefront of the ambitious yet critically overlooked theatrical works of many dramatists of the late-Victorian into modern period. Key among these is Mary Austin (1868-1934): one-time scientist, environmentalist, activist, and first prominent woman writer of the modern American West. Austin wrote



extensively about the natural environment and native peoples in such works as her well-known collection of essays *The Land of Little Rain* (1903), which brought her great success as a writer of the West. Austin herself wrote that 'Before I went to live in the Land of Little Rain [... I] took in the source of folk drama in the United States' (1), yet much of the scholarship on her has tended to focus only on her fiction and non-fiction, despite her sustained dramatic writing – eg. her Broadway-produced play *The Arrow Maker* (1911).

This presentation begins to restore Austin's place in this global theatre history. I draw on my scholarship on W.E.B. Du Bois—who knew Austin and, incidentally, published *The Souls of Black Folk* in the same year as Austin published *Little Rain* – which has recovered his long-overlooked drama in global networks of theatre-makers such as W.B. Yeats. I show that Austin's dramatic writings in this period engaged with her own scientific training, as well as contemporary scientific ideas from biology and anthropology related to environments, indigeneity, and identity as well as ethnographic ideas of folk.

23 oct

Thursday

11:30 am

Anfiteatro III
(FLUC)

Oral Presentation

Vince LiCata

Louisiana State University

When science is the story

From the perspective of a scientist, most science plays do not contain a lot of science. Similarly, even though the process of science is itself dramatic and full of conflict and resolution, the plot arcs and dramatic climaxes of most science plays focus more on the human/character events and conflicts than the scientific ones. This makes perfect sense since a play is not a scientific project. However, it begs the question of whether the genre can accommodate more science-centric plays with significantly more science content? Science-centric plays are those where the plot arc primarily follows the development of the science or scientific breakthrough, and where the drama and climax are about a scientific discovery. In science-centric plays, standard dramatic elements of character



development, personal conflicts, hero's journey structures, and the like are often also present, but do not necessarily need to be if the scientific idea or scientific finding is what develops rather than the characters.

This presentation will discuss how several well-known and not-so-well-known science plays fit or do not fit into this proposed 'science-centric' sub-genre (including *Arcadia*, *Copenhagen*, *Galileo*, *Spill*, *Cocktail*, and *Mnemonic*). The authorship of a play certainly influences how science-centric a play is, but scientists do not always write the most science-centric plays, while non-scientists sometimes do.

Related to this question is a dictum sometimes heard from authors and directors: that the science should not impede the story, and that science may be sacrificed for story/artistry. This in turn may be related to a general distaste for didacticism in English-language theatre. In science-centric plays, accuracy and communication of the science are more fully developed, and thus push against such common conventions that the science must be secondary. However, the scientific story must still be compelling and enthralling itself. By comparison, biographical plays or plays about historical events have advanced further toward such an information to entertainment balance than has theatre about science.

This presentation also shows that, similar to when the audience learns some history or biography from a play, the audience can demonstrably learn some real science from a science-centric play. Of course, not all science plays should fall into this sub genre. The presentation will discuss projects and strategies implemented at Louisiana State University to promote more science-centric plays, where the science itself is the story.

23 oct

Thursday

11:30 am

Anfiteatro III
(FLUC)

Oral Presentation

Sarah Angliss

composer

Ross Sutherland

librettist

Sarah Fahie

director

(All freelance, associated with Britten-Pears Arts and The Linbury Theatre, Royal Ballet and Opera, for this project)

Giant - the opera stage as a space for uncertainty and nuance when exploring medical ethics. A case study

'First, do no harm' every doctor says. But what happens when a patient's body is so extraordinary, his corpse becomes an object of desire – a trophy?

Giant tells the story of surgeon and anatomist John Hunter and his obsession with Charles Byrne – a man he would ultimately betray in one of the most disturbing acts in the era of the grave robbers.

In this short talk, I recall my own conflicted encounters with the skeleton of Charles Byrne, aka 'The Irish Giant'. As a composer and historian of science, I explain why I used chamber opera as a means to tell this complex, factual, medico-legal story. I assembled a small team, including poet Ross Sutherland and director Sarah Fahie, to hold the relationship between Hunter and Byrne up to the light - Hunter, the specimen collector, became our specimen. Opera felt like a space where we could explore each man's profound emotional drivers, while simultaneously relating key events with brevity, clarity and a visceral physicality. Throughout the project, we were united in our intention to leave space for uncertainty and nuance regarding the ethics of this story - not least of all because we were convinced this would create more compelling theatre.

Giant, my debut opera, was made possible by a Jerwood Opera Writing Fellowship and support from Britten-Pears Arts. It opened Aldeburgh Festival in 2023 and transferred to The Linbury Theatre, Royal Ballet and Opera, in 2024, following widespread critical acclaim. We'll never know what Hunter or Byrne would have made of our attempt to represent their story on stage - but we hope they would have both felt understood.



23 oct

Thursday

5:00 pm

Teatro

Paulo Quintela

(FLUC)

Oral Presentation**Edward Duca**

University of Malta, Malta Chamber of Scientists

Angele Galea

University of Malta, Malta Chamber of Scientists

Karen Fiorini

More or Less Theatre

Voices of Valletta: science theatre with communities

The Science in the City festival in Malta (Horizon Europe funded, EFFE label holder) has long championed the intersection of science and the arts to engage citizens in meaningful conversations. Among its most impactful initiatives is *Vuċijiet Beltin* (Voices of Valletta, Arts Council Malta funded), a community-driven theatre project that amplifies the lived experiences of Valletta's residents, particularly those from underrepresented and hard-to-reach groups. Developed through participatory research and storytelling, the project worked with Valletta Primary School, the St Dominic Theatre Group (a local amateur drama ensemble), University of Malta researchers and the NGO the Malta Chamber of Scientists, to first support the local community in studying their context then helping them share their narratives to enhance community impact.

This presentation will explore how *Vuċijiet Beltin* and other Science in the City theatre projects have engaged diverse audiences, offering a voice to those often left unheard. By collaborating with researchers, artists, and community members, these initiatives have shown how research can help social cohesion, empowerment, and cultural expression. Through this case study and other science theatre projects, we will examine the transformative power of theatre as a tool for community engagement and public dialogue, highlighting best practices for involving marginalised voices in science communication.



23 oct

Thursday

5:00 pm

Teatro

Paulo Quintela
(FLUC)

Oral Presentation

Isabel S. Silva

INSIGHT: Piaget Research Center for Ecological Human Development; Piaget Institute—ISEIT/Viseu, Portugal

Pedro Marques

INSIGHT: Piaget Research Center for Ecological Human Development; Piaget Institute—ISEIT/Viseu, Portugal

Andreia Nisa

INSIGHT: Piaget Research Center for Ecological Human Development; Piaget Institute—ISEIT/Viseu, Portugal

Óscar Silva

Terceira Pessoa - Associação, Castelo Branco, Portugal

Ana Gil

Terceira Pessoa - Associação, Castelo Branco, Portugal

Nuno Leão

Terceira Pessoa - Associação, Castelo Branco, Portugal

Ana Bárto

CINTESIS.UPT@RISE-Health, Portucalense University, Porto, Portugal

Radio theater as an art-based intervention program: opportunities and challenges in the psychosocial adjustment of imprisoned people

Background: Creative practices, including radio theater, that involves creative writing, voice acting, and collective storytelling, serve as tools for self-expression, emotional regulation, and the development of social, cognitive and communication skills, addressing the specific challenges faced by individuals in the prison context. However, in Portugal, research on the impact of radio theater-based interventions in prison settings remains limited. We present a three-year art-based intervention program (*RadioATIVIDADE*, funded by the PARTIS & Artz for Change initiative) designed to foster artistic expression and promote the psychosocial adjustment of imprisoned individuals through radio theater. This presentation also seeks to shed light on how theatre research intersects with psychological science, particularly in fostering social and emotional skills among socially vulnerable groups within prison environments.

Method: Over a ten-month period, weekly radio theater sessions were facilitated by an artistic team. Each session incorporated activities such as collaborative scriptwriting, voice modulation exercises, and performance practice. Data collection methods included a post-intervention satisfaction survey and a focus group discussion, offering valuable insights into the participants' experiences and perspectives on the program.



Results: Findings revealed a high level of satisfaction with the intervention. Thematic analysis of qualitative data indicated that participants valued the opportunity for creative self-expression and reported an increased sense of connection with their peers. Additionally, they highlighted improvements in communication skills and described the program as a temporary escape from the challenges of prison life, contributing to their emotional well-being.

Conclusions: Findings suggest that integrating artistic practices into prison contexts has a significant impact on participants' psychosocial adjustment, well-being and reintegration prospects. The study highlights the need for interdisciplinary collaboration between different community partners to maximize the effectiveness of such interventions. Future research should further investigate the long-term effects of art-based programs on imprisoned people post-release outcomes and overall quality of life.

23 oct

Thursday

5:00 pm

Teatro

Paulo Quintela
(FLUC)

Oral Presentation

Wyn Griffiths

Director SMASHfestUK, Senior Lecturer Middlesex University

Dr. Lindsay Keith

Head of Communications and Engagement MRC/LMS,

Honorary Lecturer Imperial College London Faculty of Medicine

Immersive transdisciplinary theatre as a vehicle for social transformation: evaluating the space plague community co-design approach

Can a one-off theatrical intervention have an immediate and a long-lasting transformative effect upon participants' science self-concept and science understanding?

Space Plague was a fully immersive theatre co-production programme and series of productions running in Bradford and Deptford, London across 2019-2020. The Space Plague premise posited the emergence of a novel pandemic, and invited public participants to join an Emergency Response Team alongside scientists,



engineers, medics and public health professionals in 'Field Labs' situated in the outbreak area [2].

The project concept was for audience participants to experience and explore the science and engineering relating to the detection, understanding, treatment possibilities and public health measures necessary to respond to the emergence of a novel pandemic agent, and the transformative effects in being 'actors with agency' within the story. They acted as scientific investigators through the experience, interacting with real scientists from appropriate sectoral areas as assistants through the process.

The experience employed immersive promenade theatre, framed hyperlocally with audience participants in character and with interactive elements derived from escape room, live action role playing and strategy gaming mechanisms in story. This paper reflects upon the effectiveness of transdisciplinary theatrical framing and innovative participatory approaches in fostering social transformation through narrative-led, immersive, community-based programmes and productions. Drawing from collaborative production programmes led by SMASHfestUK and Middlesex University, we explore the initiatives' impact on participants' self-concept, shared identity, scientific literacy, community agency, inclusive knowledge production and motivation. Within the complex, a key emerging effect and driver for future productions was 'narrative transportation'.

The emergence of COVID-19 three weeks after the final *Space Plague* performances created a unique opportunity for study and enabled a direct evaluation of the transformative effects following participation, over time and in relation to participants' experiences of a real pandemic. We examine evaluation of the participating public's response, to investigate whether the transformative designed intent was effective, and whether effects were sustained over time. The immediate response following the experience, and the two-year follow-up study conducted after the public health controls around COVID-19 relaxed, provides compelling evidence of immediate and sustained transformation. The responses also highlight that a one-off intervention can have immediate and long-lasting transformative effects.

The principles and processes we present – immersive storytelling, transdisciplinary interaction, 'hyperlocal' relevance, and a welcoming and accessible context, created

through participatory practices 'in the community, with the community, by the community' can fundamentally reshape participants' self-concept, community empowerment and relationships with science in society.

We close with discussing building upon and embedding these principles and practices in new programmes and productions – *Climate Crisis – WILDFIRE!, FLOOD! And Transition* and *Gene Home* – and exploring methods to extend their scope, scale and broader accessibility.

23 oct

Thursday

5:30 pm

Teatro
Paulo Quintela
(FLUC)

Oral Presentation

Frank Kupper
Mens in de Maak

Can we talk? Dialogue theatre across divides

Complex challenges such as climate change affect our lives deeply and may disrupt the way we live together in society. Although discussing controversial topics has never been easy, in our increasingly polarized society these conversations seem even more difficult. Something fundamental seems at stake. Can we still talk across our divides?

The Dutch theatre project *Frictional dialogues* is a transdisciplinary collaboration of science museums, academic researchers and theatre makers. The project draws on the political philosophy of agonism, which emphasizes the essential role of conflict in politics. While common deliberative forms of dialogue tend to focus on rational consensus, we aimed for an agonistic method that embraces difference and conflict for their productive and emancipatory potential. We combined the agonistic approach with the approach of Theatre of the Oppressed, the arsenal of participatory methods developed by the Brazilian theatre director Augusto Boal. His democratic approach to theatre-making empowers people to express themselves, understand the complexity of reality and work towards social change.



The project brought people with strong opposing views together in three science museums in the Netherlands, and engaged them in dialogue around the topics of climate change and biodiversity loss through the language of theatre. We developed two distinct theatre interventions: an image theatre workshop for an invited group of people, as well as a dialogue theatre performance for a more general audience. The image theatre workshop invited participants to create still images representing a wide variety of perspectives on real-life situations that were collectively interpreted to articulate differences and conflicts. In the dialogue theatre performance, actors played out these differences and conflicts. The audience was invited to share their ideas and concerns that were directly translated into new scenes played out on stage. This went back and forth to explore the complexity of the issue.

The agonistic theatre interventions aimed to support participants to acknowledge each other's differences without the need to resolve. We noticed the interventions were particularly useful to articulate and exchange emotions, feelings and values, and to explore differences in a more appreciative way. We also noted the temptations of solutionism and the difficulty to 'stay with the trouble'. Overall, bringing Boal's Theatre of the Oppressed and agonistic philosophy closer together constituted an experimental and transformative practice that may provide a new form of democratic engagement on complex science-related issues in which conflict and controversy take centre stage.

23 oct

Thursday

5:00 pm

Teatro
Paulo Quintela
(FLUC)

Oral Presentation

João Miguel Ferreira
Universidade dos Açores - IS2E

Theatre about science in the middle of the Atlantic

Terceira Island, in the Azores, has a rich theatrical tradition. Alongside conventional performances, the island hosts a unique carnival-themed popular theater. Yet, until recently, science-themed plays were virtually absent. We present three recent productions that bring science to the stage.



Among Branches of Science and Art tells the little-known story of Maria Ramos (‘Branches’), a local scientist who left for mainland Portugal in the 1920s to pursue art but eventually turned to genetics. The play explores her life and contributions within the political and social climate of the time. We outline how this play introduced a forgotten local figure to the public.

Unlike this professionally written play, the other two were created by a physicist and serve as theatrical science shows meant to spark curiosity.

Friend’s Day features two friends discussing life, science and pseudoscience. This play has toured schools and outreach events.

The Magic of Nature, performed by a science communicator under a director’s guidance, debuted at an outdoor arts festival and was later presented in schools and museums. In it, a magician invites the audience to perform ‘real magic,’ ultimately revealing that it is, in fact, science—the true magic of nature.

We conclude by reflecting on the pros and cons of using professional actors versus science communicators in these productions, and share thoughts on the future of science-themed theater in the Azores.

23 oct

Thursday

5:00 pm

Anfiteatro III
(FLUC)

Oral Presentation

Karina Omuro Lupetti

Federal University of São Carlos

Tiago Botassin

Marcello Schmidt Municipal School

Ouroboros: communicating science with theater over 20 years

In 2004, after an informal meeting between students and professors at the Chemistry Department of the Federal University of São Carlos (UFSCar), a science theater group came to light, and its main goal was to present Chemistry with chemical reactions and scientists. The snake Ouroboros was the name chosen because it alluded to the history



of science and the philosophy of eternal improvement. Initially, it was self-managed and relied on its own members, with or without a background in the arts, to develop the texts, costumes, sets and performances. The chemical reactions, sound and lighting effects were also planned and executed by the members of the group, who divided themselves into different roles on stage and backstage. The project involved professionals from the areas of circus, theater, music, dance, as well as researchers from science and science education. Sharing our results was essential, so we created the Science on Stage Festival, an annual meeting with other science theater groups that, since 2007, has had the objective of providing training and promoting cultural and scientific knowledge throughout Brazil, also involving members from Portugal, Spain, Mexico and Uruguay. Ouroboros has brought together hundreds of students and faculty, technicians from other courses, and people from the UFSCar community in theater and science workshops, allowing a diversity of voices to be heard and countless experiences to be shared over almost 20 years. Since 2009, a group of visually impaired people from São Carlos city joined Ouroboros theater and until today, they work together disseminating science, art and inclusion around the world. Looks and Ouroboros groups performed more than 20 plays about the history of science and its characters, the relationship between science, technology, society and environmental awareness to thousands of scholars and spontaneous audiences over the years. The aesthetic affiliations experimented with Italian, shadow and puppets theaters, circus and musicals involving scientific themes were based on Brecht, Stanislavski, Boal and Spolin as inspirational sources to bring, carry and make meaningful theater. In the presentation, we will show how we have carried out this democratic and inclusive collaborative process over the years, in order to disseminate and teach science to a broad audience. Furthermore, we will show how to provide training in art and science, and connect different institutional agents to engage new generations of science theater communicators.



Theater and science in university theater

The Academic Theater of University of Lisbon (TUT - Teatro Académico da ULisboa) integrates students, researchers and professors from various areas of Humanities and Sciences. In addition to its regular activity, since 1982, of theatrical training and creation, in 2019 the current artistic director of the group (and director since 2009), author of this communication, proposed that a specific side project on theater and science be started to stimulate transdisciplinary research and the artistic communication of Science through Theater. That year, we translated and presented *The shield of science and the sword of skepticism*, based on the play *The Heretic* by Richard Bean. Written in 2011, the play is based on concrete political, scientific and social events and situations that took place at that time, but which remain current about climate change. In addition, the relationships between the characters reveal another level of reality, more intimate in the particular concerns of each one, and also addressing other themes, such as human relationships, anorexia and the autism spectrum, among others. The following year, in 2020, we presented *Insubmissive* by the Brazilian playwright Oswaldo Mendes, a play about women in science, but also about their interventions in society, and their personal and family dramas. According to the author, the women represented, such as the philosopher Hypatia of Alexandria, the chemist Rosalind Franklin, the biologist and politician Bertha Lutz, and the physicist Marie Curie, somehow synthesize the paths of countless other women scientists. Due to the pandemic situation, the play was presented online, in six 15-minute episodes, from Monday to Saturday. But finally in 2024 we performed the play live on several occasions. Meanwhile, in 2021, we presented a staged reading of *Does that mean I can do anything?*, a play about autism, based on Simon Stephens' dramatic version of Mark Addon's work *The Curious Incident of the Dog in the Night-Time*. In 2025, we hope to present a play about artificial intelligence. And it is precisely about the relevance of this relationship between theater and science in university theater that we intend to reflect. Knowing, however, that with this experience, TUT became aware of itself as a Transdisciplinary Space, a laboratory for creation and experimentation, close to a practice of Arts Based Research, or

more precisely Theatre Based Research, where theatre is configured as a path of knowledge and approximation to reality and particularly to science.

23 oct

Thursday

5:00 pm

Anfiteatro III
(FLUC)

Oral Presentation**Karina Omuro Lupetti**

Federal University of São Carlos

Science on Stage: 18 years connecting university and society through art, science and education

In 2007, the Ouroboros Science Theater Group (UFSCar- São Carlos) proposed to join the Brazilian science theater groups to share their knowledge and skills in an event: the *Science on Stage*. Since then, it happens annually connecting professionals and amateur actors from universities, research centers, and science museums to discuss their experiences on different stages. The country is huge with different cultures and challenges, so the purpose was initially to understand how other groups have been acting to communicate science. We also discovered that, mostly were formed by university students, with emphasis on undergraduate students in Chemistry. The groups present their shows to students in schools or scientific events in their regions and once a year, we join in *Science on Stage* to perform together and share knowledge through workshops with professionals from the performing arts, circus artists, musicians, and also scientists and researchers from different areas. The program is organized by the local committee, including theatrical performances and post-show chats to the local community, and lectures, round tables, and oral presentations of research papers on theater, education, and science communication to the participants. The event happened in 12 cities in Brazil, among them, São Carlos, Araraquara, Mossoró, Fortaleza, Caxias, Pacoti, Salvador, Itapipoca, Macaé, Matinhos, Ponta Grossa and Itajubá. During the pandemic (2020-2021), we held an online meeting that showed us how art was essential to keep the people alive and openness. Over the years, the festival has hosted 6 to 18 free theatrical performances per year, in Italian stage theaters, auditoriums, schoolyards,



school stages, and cultural centers, involving 60 to 220 participants per event. The plays lasted between 25 and 120 minutes and covered topics related to science, with experiments on stage, biographies, reflections on the scientific method, technology, society and the environment. Since 2010, the event has had international participation of groups from Portugal, Spain, Mexico and Uruguay. Finally, a highlight was the participation since 2012 of Looks Group, with visually impaired actors providing an inclusion experience for all people involved. We intend to share this experience in Brazil and compare with other countries' initiatives related to communicating science by art.

24 oct

Friday

11:30 am

Teatro

Paulo Quintela
(FLUC)

Oral Presentation**Elena Sorba**

Università IULM, Milan, Italy

Francesco Massara

Università IULM, Milan, Italy

Elisabetta Risi

Università IULM, Milan, Italy

Bringing statistics to life: theatre as a tool for statistical literacy

Theatre has long been a powerful medium for engaging with scientific ideas, transforming complex concepts into compelling narratives. It has been used across disciplines—from physics (*Copenhagen*, Frayn, 1998) to evolutionary biology (*After Darwin*, Wertenbaker, 2010) and genetics (*Photograph 51*, Ziegler, 2015)—to explore discoveries, controversies, and ethical dilemmas. More recently, productions such as *Stuffed Bears* and *Canned Tuna* (Montenegro et al., 2023) have addressed contemporary scientific challenges like climate change and sustainability. Yet, despite its broad application in science communication, its potential to enhance statistical literacy remains largely underexplored.

Statistical literacy—the ability to interpret, analyse, and communicate statistical information—is a crucial skill in today's data-driven world (Gal, 2004; Watson & Callingham, 2003). However, statistics education faces significant challenges:



widespread misinterpretation of data in media and policy (Schild, 2010), teaching methods that prioritise calculation over conceptual understanding (Garfield & Ben-Zvi, 2009), and a lack of consensus on how to define and assess statistical literacy (Kaplan & Thorpe, 2010; Ridgway et al., 2011).

Theatre offers a participatory and experiential approach that can make statistical concepts more tangible and engaging (Ødegaard, 2003). Research on science communication through theatre highlights its effectiveness in bridging the gap between abstract data and human experience (Sotiriou, 2024; Weitkamp & Almeida, 2022). While theatrical methods have been applied in other scientific disciplines, their role in statistics remains largely unexamined.

This study builds on a broad and interdisciplinary body of literature on theatre and science communication, incorporating insights from key works such as *Dramatic Science* (Ødegaard, 2003), *Applied Theatre in Science Communication* (Weitkamp & Almeida, 2022), *Learning Science Through Theatre* (Sotiriou, 2024), and *Theatre as a 'Science of Experience'* (Vieira Mendes, 2023). It aligns with recent research on the theatre's role in scientific literacy, public engagement, and STEM education (Poskakalova & Khusnutdinova, 2024; Machado et al., 2024), *Building on Theatre About Science: Theory and Practice* (Montenegro et al., 2023) and broader discussions on the intersection of theatre and science (McGregor, 2014). This research proposes a framework for integrating theatre into statistics education and communication. By leveraging narrative and interaction, it aims to reframe the discipline as a human-centred and interactive domain, thereby enhancing statistical literacy and enabling audiences to engage more critically and confidently with data in everyday contexts.



24 oct

Friday

11:30 am

Teatro

Paulo Quintela
(FLUC)

Oral Presentation**Stephen Abbott**

Nathan Beman Professor of Mathematics at Middlebury College, Vermont, USA

Why did Alan Turing propose a theater exercise as his test for intelligence?

In 1950, Alan Turing proposed his ‘imitation game’ as an empirical way to break the philosophical logjam about the possibility of machine intelligence. The impressive developments of large language models have brought a new wave of attention to Turing’s test for intelligence while rendering it obsolete at the same time. Seventy-five years after he proposed his imitation game, is it time to retire the fabled Turing Test? If so, we will miss it, where the ‘we’ in this sentence are the artists and barroom philosophers who have long appreciated the way Turing’s criteria for intelligence shines its distinctive light on the more primitive question of what intelligence entails. There is no a priori reason why an intelligent machine should be able to imitate human consciousness. Nevertheless, this was Turing’s proposal—that in addition to all of the other clever chores it could perform, one sure way to prove that a machine possessed intelligence was for it to mimic another intelligent entity so completely as to be indistinguishable from it. It is the emphasis on imitation to the point of empathy that makes theater the most effective artform for engaging with the hard problem of human consciousness. This was true before the recent paradigm shift in AI, and it is especially true afterwards. The Czech authored play Rossum’s Universal Robots explored the possibility of machines with ‘souls’ in 1920, 25 years before the first digital computer was built. Madeleine George’s celebrated play, *The Curious Case of the Watson Intelligence*, was written in response to an IBM computer named Watson defeating the human Jeopardy champion in 2011. Just last fall, Ayad Akhtar’s highly acclaimed play *McNeal* offered an unsettling view of the future of literature, art, and theater in a post AI world. Each of these playwrights uses AI as a window into the nature of intelligence, which inevitably becomes entwined in the art of theater itself. The newest generation of chatbots can hold their own in a purely text-based Turing test experiment, but that ignores the dramatic nature of how the imitation game is played. It’s one thing to emulate human language by averaging out the patterns of the words we use; it’s another thing to engage in human interactions where we are the most authentic versions of ourselves. This is why Alan Turing was on firm ground when he proposed his test in 1950—and that, despite public declarations to the contrary, he still is.



24 oct

Friday

11:30 am

Teatro

Paulo Quintela

(FLUC)

Oral Presentation**Andrea Zardi**

Università di Torino

Maria-Chiara Villa

Università di Torino

Andrea Orlandi

Macquarie University, Sidney/Università La Sapienza, Rome

Somatosensory signature of ballet and contemporary dance observation: a dialogue between dance and neuroscience

During the twentieth-century, theatre and dance have developed multiple theoretical and pedagogical perspectives, focusing on the plasticity of body and mind in the acquisition of theatrical and choreographic techniques. The work of Richard Schechner, Eugenio Barba, Rudolf Laban, Anna Halprin, and William Forsythe, among others, have helped to raise questions about how artistic techniques are learned, how movement can induce emotion in the performer and the audience, reflecting on the dynamics of the relationship between spectator and performer. Dance was, in particular, the discipline of choice to host a fruitful dialogue with the scientific perspective.

In fact, over the past two decades, the relationship between spectator and performer has become a key area of inquiry in neuroscience and neuroaesthetics. Recent studies on the neural mechanisms underlying perceptual activity have increasingly focused on dance as an organized behavior that engages motor imagery, cognitive skills, proprioception, and intersubjective bodily interactions. Seminal contributions in this domain (beginning with Calvo-Merino, 2005, and further examined in comprehensive reviews such as Christensen et al., 2017; Zardi et al., 2021; Foster Vander Elst et al., 2023) have demonstrated that dance perception and execution are not solely mediated by Action Observation Network (AON) and mirror activity, but involves many other brain networks involved in higher functions, such as emotional and cognitive processing.

How does our brain perceive different dance techniques and what is the role of experience in this perceptual process? How does the culture of reference influence recognition and pleasure in the enjoyment of dance? This research investigates sensorimotor signatures to different dance techniques that are formed through



different trainings and share the same cultural background. Through the fMRI technique, twenty experienced dancers and twenty non-dancers were examined during the observation of videos of ballet, modern dance and everyday movements, and they were asked to rate the capacity to reproduce the movements. Results show distinct brain activation patterns between dancers and non-dancers, with differences in areas related to the DMN (Default Mode Network), a proxy of cognitive load and task engagement. Moreover, dancers showed greater insula activation during contemporary dance observation, suggesting that sensorimotor representation may be enriched by visceral and emotional representations. This study contributes to the literature in general and specifically within the performing arts, providing additional insights from a phenomenological perspective on dance.

24 oct

Friday

11:30 am

Teatro
Paulo Quintela
(FLUC)

Oral Presentation

Hugo Soares

CIUHCT - Interuniversity Centre for the History of Science and Technology

Beatriz Medori

CIUHCT - Interuniversity Centre for the History of Science and Technology

Milagre! Armando de Lacerda, an experimental phonetician on the stage

Armando de Lacerda (1902-1984) was a very successful Portuguese experimental phonetician. He graduated in Germanic Philology from the Faculty of Arts and Humanities of Porto and went on to acquire international training in experimental phonetics with Professor Paul Menzerath (University of Bonn, Germany). Lacerda has recently been the focus of historical attention and celebration for the introduction of this field of study in Portugal. His efforts resulted in the creation of the University of Coimbra's Experimental Phonetics Laboratory (1936-1972). This laboratory featured state-of-the-art scientific instruments, some of them designed by the scientist himself. This structure became an internationally relevant hub which attracted a significant number of students from various countries, which contributed not only to its success, but also to the international dissemination of its specific practices.



In this talk, we will address a so far unexplored experimental side of Armando de Lacerda: his incursion into theater playwriting. We will analyse the theater play *Milagre! (Miracle!)*, written by Lacerda in 1946, and presented on stage, in three acts, at the National Theater D. Maria II, that same year. It was performed by the acclaimed national theater company Amélia Rey-Colaço/Robles Monteiro, with distinguished actors, such as Adelina Campo, Fernanda de Sousa, and Ruy de Carvalho. The play explores the tension between the use of Atomic Energy for progress or for destruction, reflecting on the anxieties that emerged after the invention of atomic energy through different characters whose attitudes shift between scientific ‘altruism’ and ‘idealism’, and the industrial ego of ‘greed’, resulting in a fight between ‘good’ against ‘evil’, ultimately saved by the ‘miracle of (Christian) faith’.

Through the analysis of the play’s documentation and archives, complemented with other sources, such as newspapers, pictures and personal annotations, we will contextualize *Milagre!* within mid-20th century public perceptions of science and on the perils of atomic energy, framed by the conservative and religious values defining a Portuguese civil-society under the fascist regime of the *Estado Novo* (1932-1974).

24 oct

Friday

11:30 am

Anfiteatro III
(FLUC)

Oral Presentation**Anatolii Kozlov**

University of Cambridge, Université de Genève

Helene Scott-Fordsmand

University of Cambridge, UCL STS

Theatre for science: notes from *TheCultureLab* project

In this contribution, we report about *TheCultureLab*, a project run at the University of Cambridge, Department of Physiology, Development and Neuroscience. *TheCultureLab* was a series of participatory workshops designed to foster interdisciplinary thinking, strengthen soft- and transferrable skills and to support the sense of community amongst the postdocs of the department. Modelled as a form of applied theatre, each workshop combined creative exercises from theatre and



creative writing practices to experientially explore scientific and extra-scientific aspects of postdoctoral life and to lay the ground for shared reflection and for co-creating group knowledge and collective awareness.

The project makes a case for theatre as an intervention tool to be used for exploring and apprehending humanistic aspects of science by the practising researchers in a non-didactic, experiential, embodied and emotionally fluid way. The aspiration behind the approach is to work together with science practitioners on fostering a scientific research culture that is open to creativity, collaboration, and humanistic values. In the presentation, we will give a brief sketch of the conceptual structure of the project and of an individual workshop and further discuss the initial expectations and the outcomes of the project.

24 oct

Friday

11:30 amAnfiteatro III
(FLUC)

Oral Presentation**Sally Robertson**

Georgia State University - Perimeter College

Lindsay Bytof

Georgia State University - Perimeter College

Science on stage: exploring actor and audience engagement with scientific themes through theatre using a community college production of a new adaptation of *An Enemy of the People*

Theatre has long served as a powerful tool for civic reflection, and Henrik Ibsen's *An Enemy of the People* offered a timely framework to examine the intersection of science, ethics, and community. This research project, rooted in Georgia State University's 2025 production of Ibsen's classic play, investigated how audiences and actors engaged with scientific themes—particularly environmental contamination, public trust, and collective responsibility—when those issues were presented through live performance.

The production, adapted to 1917 Arkansas, centered on a small town's refusal to accept scientific evidence that its spa water was poisoned, prompting questions about truth, dissent, and societal accountability. The study gathered pre- and post-performance survey data from audiences to assess changes in their understanding of environmental science, scientific authority, and civic engagement. Simultaneously, cast and creative team members completed surveys at the first rehearsal and after the final performance, offering insight into how the rehearsal process influenced their perceptions of scientific ethics and their roles as storytellers.

This presentation analyzes both data sets to explore how theatre fosters comprehension, emotional resonance, and reflection on real-world issues. The findings suggest that dramatizing scientific conflict can deepen audience empathy, prompt civic dialogue, and inspire performers to see themselves as active participants in public discourse.

Ultimately, this project demonstrates how theatre functions as a form of civic science—bridging disciplinary boundaries and encouraging communities to confront the ethical and scientific challenges that shape our collective future.



24 oct

Friday

11:30 am
Anfiteatro III
(FLUC)

Oral Presentation**Thelma Lopes**

Fundação Cecierj

Luiz Bento

Fundação Cecierj

Elymara S. Cardoso

Fundação Cecierj

Camila Sant'Ana

Fundação Cecierj

Paulo Alan Deslandes Fragoso

Fundação Cecierj

Theatre about science according to young brazilian students

The Cecierj Foundation Science and Art Olympiad, OCA, is a project that explores the interaction between different fields of knowledge, aimed at students between 9 and 15 years old from public and private schools, held in the municipalities of Rio de Janeiro, Brazil. Supported by the National Council for Scientific and Technological Development, CNPq, and the Research Support Foundation of the State of Rio de Janeiro, FAPERJ, since the 1st edition, in 2020, it has integrated 675 participants who develop work that relates multiple artistic languages to Sciences.

The 1st OCA was adapted due to the COVID-19 pandemic, having been held virtually in 2020, culminating in a publication in 2021. The 2nd edition began in 2022, with preparatory seminars; tests and debut ceremony in 2023; and design of the event catalog in 2024. We highlight that in 2024, 28 medalists from the 2nd OCA were awarded Junior Scientific Initiation/CNPq scholarships, lasting 12 months, when they delved deeper into the connections between Theaters and Sciences. Puppets, monologues, animation and shadow theater were some of the modalities explored.

A preliminary study shows that of the 248 works, 33 relate scientific content and methods to the theatrical genre. The objective of this work is to discuss how theatrical language and its tools have been explored by students in dialogue with Sciences. In a seminal analysis, we suggested some possible reasons that explain students' motivation in opting for theatrical language: as it is a craft art, it can be carried out with a low budget and items available in schools; It is playful art that has great appeal among children and pre-teens. Another possible reason: the formation



of the OCA, which, by privileging collective work and stimulating plural and humanist thinking, builds an environment conducive to theater. It is in this direction that we guide our reflection.

Among the questions that the OCA has posed in terms of analysis about relations between Theater and Science, we highlight: does the ability of Theater to humanize Sciences come from its aggregating and collective character? In such a technological world, and with Science being so associated with innovation, why does such an artisanal art arouse interest and enhance communication about Science among young people? The 3rd OCA will take place in 2025, and there are no conclusive answers, but there is already a rich starting point for questions about the connections between Theaters and Sciences.

24 oct

Friday

11:30 am

Anfiteatro III
(FLUC)

Oral Presentation

Daniel Erice

Alioth art&science

The art and science of asking questions. Experiential visit to the exhibition 'SHIMABUKU: Octopus, Citrus, Human'

From science to art, the act of questioning is a shared drive that pushes us to explore the unknown, whether by seeking answers to the mysteries of nature or by attempting to give form to the intangible through art. In *Shimabuku: Octopus, Citrus, Human*, exhibited at Centro Botín (Spain), an initial question sparks an experimental journey where each step opens up new perspectives. Like a scientist formulating hypotheses and conducting experiments, Shimabuku embraces uncertainty, and this openness to the unknown is what breathes life into his works.

This presentation proposes an experiential visit to the exhibition that constitutes a hybrid contribution to both pedagogical and dramaturgical practices within the art-science dialogue. On the one hand, it invites visitors to understand artistic processes through live scientific demonstrations, offering a pedagogical tool that



makes the aesthetic and conceptual content of the exhibition more accessible.

On the other, it introduces a dramaturgical approach to curatorial practice: the gallery space is transformed into a stage where narrative, scientific inquiry, and the audience's own sense of wonder intersect. The structure of the visit follows a dramatic arc in which science and art, initially perceived as distinct domains, are gradually revealed to share experimentation, creativity, and the will to reimagine the world.

Throughout this experiential visit, we can explore art and science together as if they were two separate worlds that, nonetheless, share a common axis: the desire to understand and redefine our relationship with the world around us.

During the experiential visit, a continuous dialogue unfolds between Shimabuku's works and the scientific demonstrations staged by Daniel Erice within the exhibition space. At first, we view them as two sides of a ribbon, separate but united in their essence. Then, we observe how both approach knowledge in unique ways and discover that science and art share the act of experimentation and, above all, creativity. Finally, we realize that the true meeting point between them lies not only in their methods but in how their questions help us change the way we see the world.

Shimabuku: Octopus, Citrus, Human is an exhibition shown at Centro Botín in Santander (Spain), designed to connect with the child within us. Each piece in the gallery stems from an astonishing and playful discovery that inspired the artist to delve into various topics. The exhibition beautifully and aesthetically narrates the processes undertaken by Shimabuku, which, thanks to Daniel Erice, we can experience firsthand, discovering the most enjoyable side of the relationship between art and science.



24 oct

Friday

4:30 pm

Auditório 2

do Student Hub

Oral Presentation**Emma de Beus**

Queen's University Belfast

Mind the gap: *Next to Normal* as a bridge of empathy

Through its performance of the lived experience of bipolar disorder and its impact, *Next to Normal* has the potential to inspire new scientific research and enable public engagement with societal debates about mental illness. *Next to Normal* follows the emotional and psychological journey of Diana Goodman and her family as she navigates the day-to-day challenges posed by her worsening bipolar disorder. The musical addresses issues such as suicide, grief, depression, and drug abuse. It also thematically involves overarching questions of the efficacy and ethics of modern psychiatry. *Next to Normal* explores the complex issues revolving around Diana's disorder from a range of perspectives, including that of Diana, her doctors, and her family. Additionally, Henry (a romantic interest for her daughter) serves as an avatar for the audience, an emotionally invested bystander. Finally, Gabe (Diana's hallucination of her dead son as a teenager) gives voice to the illness itself. By giving voice to each of these perspectives, *Next to Normal* enables its audience to engage empathetically with multiple viewpoints, enriching and deepening our collective understanding of the realities of living with bipolar disorder. The success of this blending of theater and science is found in the impact on audiences and in the confirmation by those in the medical community, summed up by one clinical practitioner's praise: 'Your portrayal of [bipolar disorder] is really spot-on' (Ross, 2010, p. 381). In this paper, I will argue that the musical serves as a bridge of empathy between a range of audiences: those suffering from bipolar disorder, their families, scientists who study this illness, health care and social services professionals who work with patients and their families, and members of the public who may never have heard of bipolar disorder. As two scholars (one from medicine and one from theater) have remarked on the need for this kind of work and communication: 'To democratise mental illness through depictions of reality, we first need to value the need for this discussion in public and the potential of raising awareness about stigma through this discussion. At the theatre, we can imagine the possible before acting to make it happen' (Patterson & Sextou, 2017, p. 88).



24 oct

Friday

4:30 pm

Auditório 2
do Student Hub

Oral Presentation

Ricardo Pires das Neves

CNC-UC & CiBB

Marta Condesso

Fábrica Centro Ciência Viva de Aveiro, Universidade de Aveiro

Pedro Pombo

Fábrica Centro Ciência Viva de Aveiro, Universidade de Aveiro

Paulo Neto

Casa da Música

Rodrigo Neves

Casa da Música

João Pratas

Casa da Música

Sara Varela Amaral

CNC-UC & CiBB

Ana Vasconcelos

PDBEB, CNC-UC & CiBB

Rita Félix

CNC-UC & CiBB

Stem Cells Rock! **A musical talk show about science**

Stem cell research has made remarkable progress in recent years, significantly impacting the field of biomedicine and raising important social, economic and ethical questions. However, public understanding of stem cells remains limited, often restricted to the notion of umbilical cord stem cells collected at birth. In reality, stem cells exist throughout our bodies, playing a crucial role in tissue regeneration and overall health. When this renewal process is disrupted, diseases arise. Furthermore, some organs have limited stem cell reservoirs, reducing their capacity for regeneration. Given the increasing importance of healthy longevity and the effects of modern lifestyles on stem cell function, there is an urgent need for engaging, accessible science communication.

To bridge this gap, we created *Stem Cells Rock!*, a unique theatrical experience that blends humor, music, and science in the format of a dynamic and entertaining talk show. The use of artistic expression in science communication has proven to be an effective strategy, engaging audiences emotionally and intellectually while fostering critical thinking. Our project takes advantage of this approach by avoiding didactic prohibitions and instead creating a vibrant, curiosity-driven learning environment.



Stem Cells Rock! followed a talk-show structure, featuring humorous sketches, satirical marketing parodies - such as the fictional product 'Melhoral: It's neither good nor bad' - and interactive interviews with fictionalized characters representing different cell types. This format allowed for a playful yet informative exploration of biological processes, highlighting the importance of stem cells in human health and longevity. The performance covered themes of birth, growth, health, and aging in a way that was both engaging and thought-provoking.

A key component of the show was the live band, *Stem Cells Rock!*, composed of musicians who also took on theatrical roles, seamlessly integrating music into the narrative and interacting with the audience. This interdisciplinary approach transformed the scientific discourse into an immersive experience that captured attention and stimulated discussion.

The show was performed in Aveiro, Coimbra, and Ilhavo, with the support of the Portuguese Society for Stem Cells and Cell Therapy and the Institute of Interdisciplinary Research of University of Coimbra. As part of the project, we conducted an impact assessment to evaluate the audience's comprehension of these topics, and the results of this evaluation will be presented. By leveraging the power of theater and music, this project has enhanced scientific literacy, sparked curiosity, and inspired deeper public engagement with stem cell research and its implications for our future.

24 oct

Friday

4:30 pm

Auditório 2
do Student Hub

Oral Presentation

Julie Dirwimmer

spoken word artist

***Government of Space-Time 42:* a podcast made of science, politics and theatre**

In this presentation, one of the creators of the *GET42* podcast will introduce her artistic approach, at the frontier of comedy, theater, science and fiction. Created



and broadcasted in 2021, the podcast *Government of Spacetime 42 (GET42)* is a French-language scientific-poetic-theatrical podcast of 10 short episodes. The concept is simple: what if the laws of physics were run by a government? In a not-too-distant future, the brave citizens of Earth can call the administrative offices of the *Government of Space-Time 42, GET 42*, to solve problems of a physical, or simply practical nature... with varying degrees of efficiency.

Over the course of the episodes, we follow the administrative path of three citizens through the services of *GET42*. Monique has trouble communicating with her Schroedinger's cat and filling out her quantum tax return, Guillaume-Antoine wants to obtain a visa to leave his galaxy, and Micheline has a serious problem with her domestic black hole. The podcast is conceived as a pastiche of the political-administrative system in Quebec (Canada) and France. Listeners recognize themselves in everyday situations, and as the episodes progress, they are introduced to scientific concepts, explained as the comic situations develop.

The presentation will include a description of *GET42* and its artistic specificities (the treatment of characters, the dystopian aspect, the humorous tone, the scientific concepts used, etc.), as well as a period in which the designer will go back over her editorial choices specific to the science&theater interface: is this product primarily intended to make people laugh, or to educate? To what extent can we distort scientific concepts for the benefit of the story? How can we make scientific content compatible with the processes of humorous writing and podcasting in serial form?

24 oct

Friday
4:30 pm
Anfiteatro III
(FLUC)

Oral Presentation

Dwaynica A. Greaves

Institute of Cognitive Neuroscience, University College London, United Kingdom

Measuring interpersonal coordination during a live theatre rehearsal and performance

Background: Social-cognitive neuroscientists are creating naturalistic stimuli within real environments to investigate what happens in the brain, physiology,



and behaviour during social interactions. Researchers have found implicit coordination ('Interpersonal Coordination') between interacting individuals across these different modalities. Interpersonal Coordination has been found to have a positive relationship with pro-social behaviour, which is essential for positive social interactions. Therefore, this study aimed to measure two different contexts of social interactions within the theatre environment (rehearsal and live performance).

Research Questions:

1. Can we create interdisciplinary Theatre-Neuroscience experiments to better understand human social cognition?
2. Can we find interpersonal coordination within the theatre environment

Methods:

Participants: 6 actors from Flute Theatre Company (London, UK) and 22 audience members.

Equipment: During rehearsals, actors' brain activity was measured using a portable functional near-infrared spectroscopy device (fNIRS, LIGHTNIRS, Shimadzu), and their interpersonal coordination was measured using an accelerometer placed in a physiological monitoring belt (EQ02 LifeMonitor, Equivital). During the live performance, actors and audience members wore accelerometers (MetaMotionR, MBIENTLAB INC) embedded in headbands.

Findings: During rehearsals, we found interpersonal coordination in the brain (specifically in the Right Frontopolar Cortex—a brain area active in processing both oneself and another person), as well as from the acceleration data.

During the live performance, we found strong actor-actor interpersonal coordination while actors were performing, and strong actor-audience interpersonal coordination during the moment when a select number of audience members were invited on stage to join the actors.

Conclusions: Whether as an actor or audience member, engaging with theatre can lead to interpersonal coordination. As this study was a proof of principle, our main takeaway is that we have demonstrated the potential of interdisciplinary Theatre-Neuroscience experiments to reveal insights into human social behaviour.



24 oct

Friday

4:30 pmAnfiteatro III
(FLUC)

Oral Presentation**Daniela Pereira**

Champalimaud Foundation

Luísa Vasconcelos

Champalimaud Foundation

Maria Vito

Champalimaud Foundation

***TheatAr*: a science outreach event on the intersection of theater and neuroscience**

On February 13, 2025, we organized an Ar event entitled *TheatAr*: The neuroscience of human connections and sense of self in theater. Ar Events is a science communication series, created and developed by students and researchers from Champalimaud Research. The goal of this series, which has been running since 2011, is to bring science closer to the community by creating insightful and entertaining events sharing a scientific perspective on a variety of themes, to foster creative and critical thinking. *TheatAr* started with an introduction that took the shape of a short theatrical piece, followed by two seminars by scientists that worked on topics related to theatre: Christian Keysers talked about the neural basis of empathy while Dwaynica Greaves shared her work on sense of self in performing actors. The event continued with a performance by InVerso, a playback theatre group that takes individual narratives shared by the audience, in the form of true personal stories, and offers them back as improvised representations. We concluded with a roundtable discussion sharing the views of scientists and artists on theater and neuroscience and how they influence everyday interactions with those around us. We will show snippets of the event and give an overview of the most important ideas that were discussed. Very importantly, we will also share what we learned from the public, both through questions posed at registration and through post-event feedback. These were significant contributions since we had approximately 420 people attending the event in person, in addition to those that watched it on livestream. The event is available at the **Ar YouTube channel** (<https://www.youtube.com/@Arrespireconnosco>). We believe this type of event holds a lot of potential not only to engage the public with science but also to promote collaborations between scientists and theater performers and directors.



Oral Presentation**Mariana R. P. Alves**

Cartas com Ciência

Becoming Oscillation: developmental biology meets dance

Fundamental science and art share a pursuit of discovery without immediate application, often perceived by society as distant, unnecessary, or with no ‘survival value’. Yet, both give ‘value to survival’ (to quote CS Lewis) and can have a transformative effect in people’s lives. Art and science initiatives are becoming ever more prevalent, more popularly through the pairing of artists with scientists in a way to translate scientific and technological progress into a story that is comprehensible to the public. While there can be multiple formats for such collaborations, we will focus on the dialogue where scientists and artists share research questions. In what could be labeled as ‘bidirectional dialogue’, interdisciplinary exchange provides the art and science communities with a platform to share questions and perspectives on life in what could be, that can also be shared with the public.

In this presentation, I will share a preview of the Report of Practice submitted to the book, the experience of how an interdisciplinary dialogue between Dance Theatre Heidelberg and European Molecular Biology Laboratory (Germany) was born out of sheer serendipity, describing the process behind the initiation of the inter-institutional partnership, the organization of a public engagement event *Creating is Understanding* that brought together dancers, molecular biologists, and the public, and how the partnership evolved into a more sustained dialogue for a co-production about Oscillations.

By analysing public testimonies collected via questionnaire, insights from artists and insights from scientists collected at different stages of the process, we will explore how circumstances and access points are found to build true bridges between research-minded people from dance theatre and fundamental biology who are pursuing similar questions from different angles. Creating opportunities for such dialogue to exist can provide a counterweight to an incredibly polarized world: by promoting core values shared in discovery by fundamental scientists and performance artists such as creativity and freedom to doubt, by inspiring



others and ourselves to break walls from the ivory towers we build in our own communities.

We aim to stimulate reflection around the topic of interdisciplinary dialogue between fundamental science and performance art, discussing how opportunities can be created for fundamental science researchers and performance artists to share learnings of their pursuit of fundamental discovery, and how engaging the public in such endeavors could contribute to a society where people feel they can relate more to discovery, fundamental science and art and recognize how together they can enrich a plural but cohesive world view.

25 oct

Saturday

11:30 am

Teatro
Paulo Quintela
(FLUC)

Oral Presentation

Dimitar Uzunov

Arte Urbana Collectif

***Please ASK!* – Art science kick: kick-off new methodologies in performing art and science collaboration**

Please ASK! is a Creative Europe co-funded project bridging the realms of art and science. Designed to facilitate knowledge-sharing and artistic exchange, the initiative aims to build capacity and strengthen the competencies of the participating organizations to create impactful art-science theatre performances. The project's initial phase focused on exploring diverse approaches to art-science collaboration culminating in a 7-day laboratory held in the Bulgarian mountains. Each project partner will then develop a theater performance on a scientific topic – astrobiology, quantum physics, and evolutionary biology - tailored to a specific audience and with the support of a science partner.

The performances will premiere nationally in April 2025, culminating in an international showcase at Sofia's Theatre of Wonder festival in October 10-12, 2025, accompanied by a conference on art-science collaboration.



Central to *Please ASK!* is to expand audience engagement with science by making innovative cultural productions accessible to diverse groups: women in science, underrepresented communities, children, teenagers adults, and families, while empowering artists to approach science responsibly.

Please ASK!'s objectives are to establish performing arts as a dynamic tool to foster societal engagement with science, empowering citizens and organizations to address pressing challenges, deepen artists' understanding of science, scientists, and the scientific process, and create successful innovative models for sustainable art-science partnerships. The project seeks to inspire, inform, and engage a plethora of audiences across Europe, leaving a lasting legacy in the intersection of art and science in the form of high-quality, thought-provoking, and engaged theatre performances.

Please ASK! Partners, Science Topics and Target Audiences:

- Arte Urbana Collectif - Sofia (Theme: Astrobiology; Local Partners: Astronomy Department of Sofia University & Municipal Centre for Extracurricular Activities, Baykal village; Audience: Adults & Teenagers);
- Pro Progressione – Budapest (Theme: Evolutionary Biology; Local Partners: Jane Goodall Institute & Women in Science Association; Audience: Family);
- Dafa Puppet Theatre – Prague (Theme: Quantum Physics; Local Partners: Technical University of Prague & QWorld - QCzech; Audience: Children 7-12).

The presentation will outline the main stages of the *Please ASK!* project, along with its key outputs and outcomes. It will also share insights and analysis developed throughout the project.



25 oct

Saturday

11:30 am

Teatro

Paulo Quintela

(FLUC)

Oral Presentation**Carla Almeida**

Fundação Oswaldo Cruz - Fiocruz

GACT - a Brazilian collective focused on exploring theatre within the realm of science communication

Science and theatre have shared a rich history since Ancient Greece, where the two fields have often intersected. Over the past two decades, the use of theatrical language in science communication has surged. However, scholarly work on the intersection of science and theatre within the field of science communication is limited. As a result, little is known about science-theatre in this context and, above all, how theatre has actually contributed to the communication of science.

To better understand the different facets of theatre in the context of science communication, we formed the Science and Theatre Learning Group (GACT) in 2018. We are an independent collective composed of researchers, artists, and science communicators from diverse backgrounds, united by our interest in exploring theatre within the realm of science communication. Our research primarily focuses on theatrical reception, examining audience experiences of performances at the Museu da Vida Fiocruz (MVFi), a science museum in Rio de Janeiro, Brazil. Additionally, we explore other aspects of science-related theatre, such as the role of comedy in engaging audiences with science and the training of actors in this context.

Through our studies and immersion in existing literature, we've developed insights and questions that have led to further experimental, physical, and scenic explorations. These investigations culminated in two performances. The first, *A Revolutionary Discovery OR When Actresses Decide to Do Science*, critiques the tendency in Brazil to use theatre as a mere vehicle for transmitting scientific knowledge, often without artistic depth or input from professional artists. The second, *Theatre x Fake News*, is a project developed with young people from vulnerable communities in Rio de Janeiro that involves creating and using theatre games to discuss misinformation in science and health. The idea is to offer artistic and creative alternatives to more traditional methods of confronting the phenomenon of misinformation, such as inoculation or fact-checking.



Our expanding activities have also led to invitations to organize courses, workshops, and seminars, giving our work an educational component. These workshops, in particular, have highlighted a significant demand for training that explores physicality, creativity, and audience interaction among scientists, science communicators, and those working at the science-theatre interface. At the Theatre about Science 2025 conference, we aim to share GACT's three key areas of focus—research, creation, and training—and discuss the insights and reflections that have emerged from our collective work on theatre in science communication.

25 oct

Saturday

11:30 am

Teatro

Paulo Quintela
(FLUC)

Oral Presentation**Andrea Brunello**

Arditodesio and University of Trento

The unexplored abilities of scientists as storytellers: the *Open Mike* experience

Scientists and researchers often have rich worlds to share. Their expertise with science, their connection with society together with the way research shapes their lives and their relationships often makes them unique individuals full of deep reflexions, stories and anecdotes to tell. Yet, they tend to feel uneasy when it's time to share these stories, they feel out of place in front of an audience that is not of their peers. It's a real pity because, when properly tapped, they can provide a uniquely deep understanding of human issues together with ways to make science more accessible. And they can be great storytellers, too.

That is why Arditodesio and the University of Trento started the *Open Mike* project in 2023. *Open Mike* is an ongoing permanent laboratory where professors and researchers from the University meet once a week to train, in a friendly environment, in the art of story-writing and story-telling. Guided by Andrea Brunello, they rehearse their stories and then pitch them to colleagues and friends. Once these stories are well refined and ready to be made public, they are performed by the scientists themselves in a live setting in front of a paying audience.



The project has been quite successful: starting in early 2023 the permanent laboratory has involved approximately 60 researchers and professors resulting in 7 public performances in a real theatre setting. The most popular stories have been collected in a series of podcast episodes that can be accessed from all major platforms.

Furthermore, the *Open Mike* project has been noted by other research Institutions and exported, as a format but still guided by Arditodesio, to the Universities of Bologna and Milano-Bicocca.

In this oral presentation I will describe the training process, share ideas on the peculiarities of scientists as storytellers and provide details on how the scientists are able to insert their science into the stories. By means of questionnaires we have collected information on the impact that the experience has had on the participants. I will present these results, providing numbers and statistics on how this project has reverberated on their work and on the academic community of the University of Trento at large.

25 oct

Saturday

11:30 am

Teatro

Paulo Quintela
(FLUC)

Oral Presentation

Rossella Spiga

INAF Italian National Institute for Astrophysics

Francesco Fontani

INAF Astrophysical Observatory of Arcetri

Astronomers on stage: the immersive journey of *The planets*

Communicating astronomy and space exploration means to involve all of us in a global venture into the future and the unknown, bringing us closer to the immensity and beauty of the Universe.

In the show *The Planets*, astronomy, music and images move in this direction, bringing astronomers on stage. The show takes its name from the homonym suite *The Planets* (op. 32, Gustav Holst) that takes us on the journey along the Solar System led by stunning planets' images taken by space missions traveling through



space, together with the words of the researchers. In this oral presentation, we will like to share the experience of the show performed in Florence in September 2024 (sold-out at the première), as a case study of the intersection among science, communication and theater.

Astrophysicists often struggle to share their discoveries to broad audiences due to its complexity and specialised language. Theatre offers an opportunity to communicate science and make technical and specialistic concepts more accessible through an emotional experience. An immersive and inspiring experience for the audience is guaranteed from high-resolution video projection as perfect synchronized accompaniment of the symphonic suite *The Planets* where the main novelty is that professional astronomers and astrophysicists temporarily transform themselves into theatrical performers to communicate their science.

An interesting aspect concerns the audience that such a proposal allows a scientific institution to reach. In fact, in the program of public engagement activities mainly consisting of guided tours and lectures at the Observatory, we could not have achieved the typical theater audience.

In addition to the very warm response from the audience, one of the aspects of interest of such a performance is the transformative impact that the theatrical performance can have on the ways in which scientists perform their research. In fact, thanks to careful training on both the text-writing and staging parts, the communication skills of the researchers have been enhanced by also increasing their awareness of their stage presence and search for emotional contact with the public.

Theatrical stage definitely becomes a key enhancer for researchers' communication skills, useful both aimed at a non-expert audience in evocative and inspirational ways, and also expendable in the researcher's work in a peer science communication context (among experts).

The project is curated by Rossella Spiga (astronomer and science communicator) and Francesco Fontani (astronomer and actor), and the analysis thus reflects complementary points of view and expertise.



25 oct

Saturday

11:30 am

Teatro

Paulo Quintela

(FLUC)

Oral Presentation**Abigail Bender****Are you smarter than a comedian?**

A brand-new science comedy game show has begun in Seattle Washington. Are You Smarter Than A Comedian fills a much-needed hole in the adult edutainment industry where the audience is invited to learn about a scientific concept through the lens of industry professionals and inexperienced comedians. Currently taking place in a small comedy club with a stage and projection set, audiences spend the first hour listening to field professionals present about their expertise while comedians interact and riff with them breaking down the walls of intellectualism. After a 10 minute break two audience members are welcomed on stage to compete against the two comedians in a pop quiz style competition of the information presented in the previous hour. The winner receives a donated prize from a local sponsor relevant to the topic of the night.

By adding the game show element to the science comedy show, we are ensuring audiences are more likely to engage and retain information during the presentation portion in hopes to do well in the game, but ultimately audiences leave with a deeper understanding than if they had only been a passive audience behind the 4th wall.

Stand up comedy has been explored as a tool for science communication in the past resulting in an individual performing a stand up routine around science topics. This has been shown to be a successful tool, but the game show aspect of Are You Smarter Than A Comedian is what makes it unique and a powerful new presence in the science comedy field. We have successfully engaged with audiences on topics such as sex, fermentation, hibernation, and more.

This presentation will go over examples of the structure of the show (presentation and game show elements) while discussing the importance and possibilities of reaching an adult audience through comedy. In addition, there will be a look forward at the goals and expectations of this new performance group.



Oral Presentation**Hugo Direito Dias**

Tin.Bra - Theater Academy; Ministry of Education

Alexandra Nobre

STOL-Science Through Our Lives/Department of Biology, University of Minho

Waste on stage: everything in its place

At a time when environmental sustainability is a global priority, the issue of urban waste and material reuse is an urgent hot topic. Based on the idea that 'to through away is to keep within', which reinforces the notion that waste does not simply disappear but instead, accumulates, impacting ecosystems and public health, it is essential to promote a culture of responsible consumption and criterious waste separation. Educating new generations plays a crucial role in this process, empowering them as agents of change influencing either families or communities. Recognizing the transformative power of education and the arts, this study analyses how theatre can be an innovative and effective tool in transmitting science based concepts.

The oral presentation explores the impact of theatre as a science communication tool through the case study of an interactive performative workshop for 1st and 2nd grade students, that was designed to raise awareness on conscious separation of urban waste.

This project, put forward by the Municipality of Braga, was developed by Tin.Bra – Theatre Academy, which created the performative workshop in collaboration with STOL – Science Through Our Lives (DBio - UMinho), ensuring the scientific accuracy of the content.

The workshop was implemented in 20 schools, reaching over 1,500 students, with the goal of promoting better waste management practices, including the correct separation of plastic, glass, paper, bio-waste, used cooking oil, metals, and textiles. The performance adopted a hybrid format, combining structured dramaturgy with guided improvisation and incorporating two hands-on experimental activities to reinforce key concepts previously addressed.

To assess the impact, students filled questionnaires before and after attending the workshop, collecting data on their prior knowledge and the learning outcomes achieved through the performance, respectively. Teachers also responded to a follow-up questionnaire to evaluate the workshop's content and their perceived impact on students.



The analysis of these questionnaires highlights the positive effect of theatrical performance on students in terms of: (i) understanding technical-scientific concepts related to environmental sustainability; (ii) the effectiveness of experimental activities in knowledge retention and critical thinking development; and (iii) improvements in students' attitudes toward recycling and environmental responsibility.

The results validate the value of theatre in science communication, emphasizing its ability not only to convey scientific content but also to stimulate curiosity, emotional engagement, and reflective thinking, ultimately leading to improved sustainable practices.

25 oct

Saturday

11:30 am

Anfiteatro III
(FLUC)

Oral Presentation

Jessamyn A. Fairfield

University of Galway

Claire A. Murray

University of Galway

Paola Serrano Bravo

University of Galway

Katy Schutte

Hoopla Impro

Fergus McAuliffe

Trinity College Dublin

Amanda Mathieson

Trinity College Dublin

Ruth Graham

Improvised theatre for climate crisis. Engagement in Irish rural communities

Engaging the public with the climate crisis has proven challenging due to both the technical complexity of the issue and the strong emotions evoked by global warming, ocean acidification, and other scientific realities with deep societal impacts (IPCC 2023). ‘Doom and gloom’ approaches run the risk of provoking backlash, despair or overwhelm, none of which support constructive actions (Hinkel et al., 2020). Rural and coastal communities at greatest risk of negative impacts



from climate change are often excluded from scientific, engagement, and policy discussions, implying that novel approaches are needed to reach these audiences and enable a just green transition.

Improvised theatre, or improv, is a popular form of entertainment where performers use prompts from the audience to build scenes around characters, locations or concepts, creating performances that are responsive and interactive. Applying this format to informal science communication makes room for affective responses to scientific issues, and can disrupt traditional power dynamics (Bennett et al, 2023). Similarly, lateral approaches like comedy can enable nuanced engagement with societal issues that carry technical and emotional weight (Roche et al., 2020). Therefore, in the tradition of the improvised methodology 'forum theatre' (Boal, 2000), we developed a travelling show that toured diverse coastal communities in Ireland. Each show had comedic and dramatic moments, all fully improvised based on written audience responses to prompts about the climate crisis. The cast included both professional improvisers and scientists, none of whom came with a script.

To understand whether this approach was effective in enhancing self-efficacy for climate action, we carried out a mixed methods evaluation with pre- and post-surveys from the audience and the performers, as well as written audience prompts. Participation increased performers' confidence in taking action to mitigate climate change as well as slightly increasing both performers' confidence and audiences' confidence in talking with others about climate change. Performers also valued the creative and knowledge-sharing opportunities, while the interactions between rural communities and scientists were highlighted as a valuable knowledge exchange process. From our work, we advocate for more equal collaborations between artists, scientists, and communities to tackle socioscientific challenges. Improvised theatre is one such methodology that entertains while sharing agency, humanising complex topics and inspiring people to take action.



25 oct

Saturday

11:30 amAnfiteatro III
(FLUC)

Oral Presentation**Giulia Innocenti Malini**

University of Pavia - Italy

Participatory performing arts as resources to expand knowledge of inequalities produced or increased by conditions of environmental injustice

In Italy, communities living near contaminated sites experience environmental health inequalities that are disproportionately higher than the general population. These communities are often socially and economically disadvantaged and suffer from clear conditions of environmental injustice (Holifield, Chakraborty, Walker, eds. 2018), including poor access to environmental knowledge (Pasetto, Marsili 2023). This contribution aims to present the current status of EJustice, an interdisciplinary research project (studies in performing arts, environmental epidemiology, environmental education and communication) that investigates how the implementation of performing arts – theatre and dance in their various forms – and practices – games, community walks, parades, festivals – carried out according to the participatory methodological approach of Social Theatre (TS), can increase awareness of inequalities and improve certain community capacities (modified from Goodman et al., 1998 by Pasetto, Innocenti Malini 2022) in these communities experiencing environmental injustice.

25 oct

Saturday

11:30 amAnfiteatro III
(FLUC)

Oral Presentation**Pamella de Caprio Villanova**

UNICAMP - State University of Campinas

Lecture performance about waste problem: the Goddess Reduza

Drawing upon studies of scientific theater, particularly as articulated in the writings of Bertolt Brecht, as well as practical experiences developed within Brazilian universities,



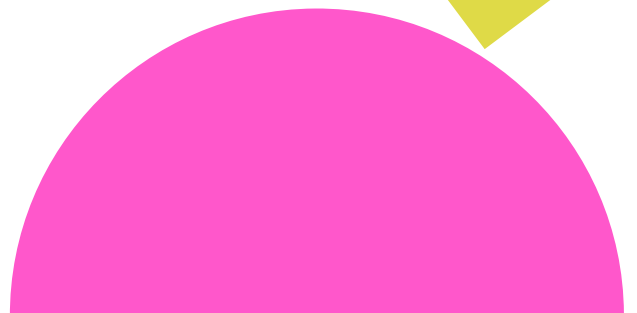
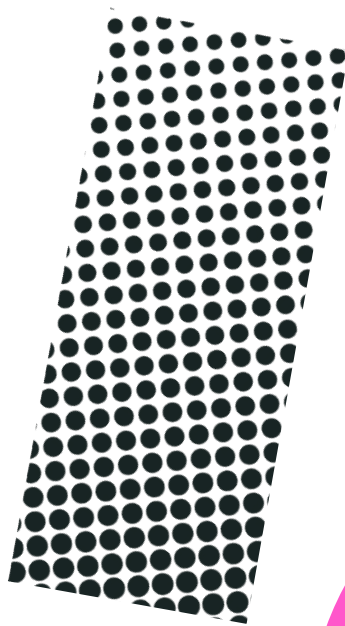
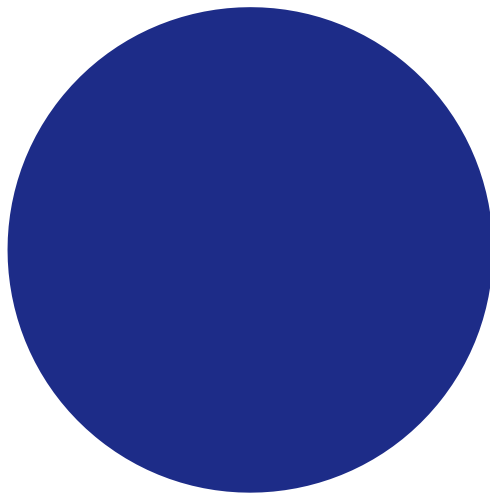
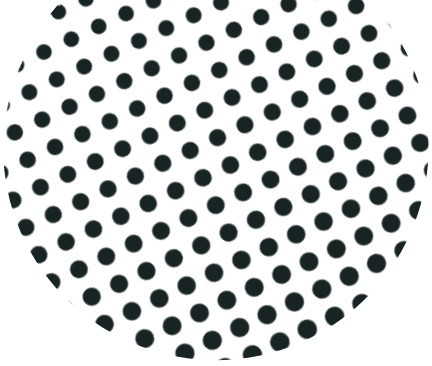
this work seeks to investigate creative possibilities for the exchange of knowledge between the stage and the audience. This inquiry is conducted through theatrical practice, characterized by continuous creation and active dialogue with spectators. The primary objective is to foster moments of knowledge exchange concerning solid waste, patterns of consumption, and the interconnections between these issues, territorial dynamics, and the climate emergency.

The ongoing research in the field of theater addresses contemporary challenges by reflecting on individual behaviors and broader social, commercial, industrial, and extractivist structures. It emphasizes the contradictions inherent in the problem of waste. A central figure developed in the course of this research, the character known as the Goddess Reduza, serves as a myth-in-progress—an evolving construct shaped through interaction with diverse audiences. This character—whose name, Reduza, translates from Portuguese as "to reduce"—has been featured in various cultural events in Brazil and Spain, engaging with artists, audiences in cultural venues, university students, and recyclable material collectors, serving as a catalyst for dialogue, engagement, and critical reflection.

The Goddess Reduza is conceived as a mythological entity that has sought contact with humanity for centuries but remains largely unheard—possibly due to her unpopularity, lack of allure, and opposition to the prevailing culture of consumption and disposal. She represents a compelling force advocating for the reduction of consumption, standing in stark contrast to contemporary cultural paradigms shaped by colonization, industrialization, and the digitalization of life. Her message appears fundamentally at odds with the dominant values of modern society.

This character emerges at the intersection of critical waste studies and the desire to communicate, raise awareness, and poetically expose societal contradictions within a theatrical context. Accordingly, the Goddess Reduza is portrayed as embodying an epic dimension of a problem that has accompanied human history for centuries—transforming across different cultural contexts of material use. In this fictional narrative, she finally establishes contact with humanity during the Anthropocene, as an urgent response to the mass extinction process that has been forewarned by scientists in recent decades.





Short Performances

23 oct

Thursday

10:30 am

Teatro
Paulo Quintela
(FLUC)

Short Performance

Julie Dirwimmer
spoken word artist

Unclassifiable

Unclassifiable is a short lecture on the borderline between fantasy and reason, done by the spoken word artist Julie Dirwimmer, aka Ms Cosinus. During this conference, she will systematically classify all the food containers in her kitchen, according to the utilitarian relationship she has with these objects. At the same time, she will insight reflection on our complex relationship with objects and the memories associated with them. How far will she go to satisfy her irrepressible need for classification and tidying? Where will her systematic and scientific approach take her? Can we classify everything around us, even humans?

This lecture blurs the lines between scientific and artistic productions, which is why it has been presented on comedy stages (see Youtube-Madame Cosinus), in storytelling events and at scientific conferences, such as the Acfas conference, the largest multidisciplinary scientific conference in the French-speaking world.

To design this show and with the support of CALQ – Conseil des Arts et des Lettres du Québec, the artist surveyed some 100 people on their use of food containers, and supplemented her research with semi-structured interviews in Canadian kitchens. And the rest if it? Pure invention! During this experience, the audience is deliberately caught between reason and fantasy, with only its own judgment to guide through it. In this sense, the show encourages the audience to step back from its perception of the scientific process, raising questions on its strengths and limitations.



Julie Dirwimmer is 15-year experienced spoken word artist, known under the name of Ms Cosinus. She has taken part in six slam competitions in Québec and performed on a variety of stages: comedy shows, spoken word stages, literature and science festivals. Since 2019, she has organized Lundis HHH, a show bringing scientists and stand-up humorists together on stage. In 2022, she produced and performed her first show, *The freedom in particles*, and in 2023 she produced a crazy podcast about the laws of physics: *Government of 42nd time-space*. Scientific objects and principles such as physical particles, the theory of evolution and the laws of thermodynamics are an inexhaustible source of inspiration for Julie. Her work explores our need for balance between truth and fantasy, reason and emotion, science and literature.

23 oct

Thursday

10:30 am

Anfiteatro III
(FLUC)

Short Performance

Fred Kempner

The Working Title Playwrights; Atlanta Dramatists Organisation; Dramatists Guild of America

The Theatre and Entropy - A short play and discussion

Entropy, the second law of thermodynamics, refers to a methodology physicists use to measure the amount of disorder or randomness in a system. Its implications have been adapted to various arenas outside of physics, including information theory and popular culture. It is used to explain the irreversible nature of time as things inevitably go from orderly to chaotic. It is also used to determine the amount of uncertainty there is in a message due to noise or misinformation. The theatre, as a reflection of human activity and social constructs, can slow entropy or speed it up. It can confuse us with noise or educate us with information. This presentation examines how the concept of entropy can be used in the theatre from three perspectives: the physics definition of entropy; entropy in information theory; and entropy as a popular concept used to explain the sense we may have of our world becoming ever more chaotic even as we try desperately to use technology to make things orderly, efficient and predictable.



To illustrate these perspectives, we use a short play, an homage to Beckett's *Waiting for Godot*, titled *Waiting for Better Weather*. The play has three characters: Cold, Hot and Time. Cold represents entropy with its passive acceptance of climate change while waiting for a better tomorrow that will never come. Hot represents extropy, a somewhat speculative concept that refers to the reduction of entropy within a given system by using life's ability to create order through evolution, science and artistic endeavors. Time represents change that cannot be reversed. In the background birds sing their sweet song symbolizing life's struggle to survive against rising global temperatures and the polluting of our planet's land, oceans and air.

After a staged reading of the play there will be a brief presentation and discussion on how the concepts of entropy and extropy can be used in plays to create comedy, tragedy and a deeper understanding of time itself.

23 oct

Thursday

4:30 pm

Teatro

Paulo Quintela
(FLUC)

Short Performance

Miriam Flick

Physical Stories

Micro*Scope

*Micro*Scope* is a documentary physical theatre performance by the Kiel-based company Physical Stories. The solo performance portrays the multifaceted experiences of ten female biologists. A visual world of dance, mime and film allows the audience to visually immerse themselves in the working world of the biologists: The laboratory. For the performance, female biologists were interviewed at different stages of their careers. Fragments of their interviews lead us through the performance and allow us to immerse ourselves in the everyday laboratory life of the researchers.

Scientific thinking and action is made tangible through the reports of the researchers and underlined on a choreographic and visual level. The focus is particularly on the experience of women in the natural sciences. The performance provides an insight into the challenges and different strategies of female researchers.



*Micro*Scope* was created in 2023 in collaboration with the Evolutionary Ecology and Genetics research group and the Equal Opportunities Office at Kiel University. The performance was preceded by two research projects (2020 / 2021) on women in the natural sciences and the work in a laboratory. Thanks to its simple stage design as well as excellent reviews, the performance is currently touring universities in Germany and Austria.

Storyline

A subject to be researched, embodied by the performer Miriam Flick, is exposed to the laboratory as a place of work. Reactions, actions and resistances are performatively documented and researched, results are presented. How is an aesthetic visualization of scientific work possible?

Choreography

Choreographies record processes from the laboratories and document the temporality of experiments and the repeated sequence of hypothesis and experiment through constant repetition. Movements in the laboratory require great precision and are often small, fast mechanical movements. The choreography translates this physical precision into dance.

Film and mime

Film footage by the Berlin based filmmaker Franziska Cazanave provides an insight into the laboratories themselves. The performer interacts with the film footage, creating the illusion of a computer game in which she and the audience are immersed in the laboratory spaces.

Sound art

Composed from laboratory noises, the performance is accompanied by a sound collage by the Vienna based composer Evgeny Ignashev. The repetitive nature of laboratory work enters the audible dimension. Just as the scientists generate their knowledge through repeated processes, constant questioning and in many small steps, the music also expands very slowly and in constant loops.

Short Performance**Dulce Maria da Silva Ferreira**

Agrupamento de Escolas de Ilhavo

Joaquim Luís Pereira de Almeida

Agrupamento de Escolas de Oliveira do Bairro

The power of Quantum Mechanics in curing all ills

Promoting students' interest in science is always a challenge, anywhere. This is one of the principles that, as teachers in different communities, led us to look for ways to do it, but that were engaging, versatile and sustainable. Thus, we developed a project that combines the STEM approach with other disciplines, particularly theater. We looked for the novelty factor, making us think 'outside the box', because as 'spectators', what grabs and pleases us, what we 'take home' comes from the surprise effect. In art, as in science, the search for something beyond the immediate occurs through creative processes, albeit along different paths.

It was with these premises that we started the construction process. Several questions were raised, some more artistic, others more technical and still others more conceptual. This was the beginning of a process, very similar to what happens in science: starting from questioning, exploring possibilities, supporting theories and previous experiences, rehearsing, analyzing, reformulating,... until arriving at a product, whatever it may be, often ephemeral.

Our choice fell on a text entitled *The power of Quantum Mechanics in curing depression and other illnesses*, by José Evangelista Moreira, a professor in the Physics Department and a contributor to Seara da Ciência (a space for scientific outreach and education) at the Federal University of Ceará, Brazil. This is a satirical text in which a citizen claims to be able to teach how quantum mechanics cures depression and other illnesses, poking fun at the complexity of this area of scientific knowledge. The format, almost implicit in the dramaturgy, is equivalent to a lecture presentation.

The text's adaptation strategy was achieved through a 'narrative line' combining science and society, drawing us into a connection with everyday life. The presentation features two characters, a couple of eminent scientists, experts in the subject. Taking advantage of some hilarious quirks, the conference is filled with humor, highlighting the characters' very own personality traits.



24 oct

Friday

10:00 am

Teatro

Paulo Quintela

(FLUC)

Short Performance**David Quang Pham**

Orfeon Académico de Coimbra

***Turnover: A New Leaf* - A plant-based musical**

Turnover: A New Leaf is a plant-based musical set in a world of personified plants, and follows a transplant named Rau Ram and her son Parsley as they run Salontro salon in Dirty City. When the nation of Woodwork ratifies the Weed Out Act, Rau must earn her green card or else the Soil and Plant Protection (SAPP) agents will uproot her and she loses custody of Parsley. Meanwhile, when an adventurous pear named Pyrus Crabpple visits town to spend the summer with their unty Malus, this new neighbor befriends Parsley and they soon start sprouting their queer selves. Inspired by David Quang Pham's mother's garden full of herbs and pear trees and his childhood as a Midwestern son of Vietnamese immigrants in Wyoming, Michigan, *Turnover: A New Leaf* plants timely themes of immigrant assimilation, queer identity, and songs teaching photosynthesis!

At the 2025 Theatre About Science Conference, Teresa Aguiar and Bernardo Alves sing and dance several songs as David Quang Pham lectures on the botany with his research and development from his experience of managing Michigan State University's greenhouses, where his research focused on soil salinity and soybeans. This is staged as a lecture performance hybrid.

Turnover: A New Leaf was developed and produced at Working Title Playwrights, Undiscovered Countries, and The Tank. At the 2024 Philadelphia New Musicals Festival, the musical was nominated for Best Musical and was awarded Best Book and Best Director (Aliyah Curry). From May 16-18, 2025, Queer Theatre Kalamazoo produced a full production run in Judy K. Jolliffe Theatre directed by Dr. Quincy Thomas and music direction by Emma Peterman. QTK also produced a concert from June 7-8. David has expanded and adapted the world of Woodwork into an animated film and series, Photosynthesis. The show is a Creative Capital finalist.

Communities have seen this musical as a part of the broader movement of science theatre, which uses theatrical mediums to explore and communicate scientific concepts in plant biology. David Quang Pham is a science communicator with an astrophysics and musical background who has worked on other science musicals,



demonstrating his focus on engaging the public with scientific literacy. More details are found about *Turnover: A New Leaf* at turnovershow.com and David Quang Pham's other science musicals at sciencetheatre.us.

24 oct

Friday

10:00 am

Anfiteatro III
(FLUC)

Short Performance

Tim Chartier

Davidson College

Tanya Chartier

Independent Educational Consultant

Mime-matics: exploring mathematics through the art of mime

Join Tim and Tanya Chartier as they bring mathematics to life through the art of mime in *Mime-matics*. Blending performance and mathematical exploration, the Chartiers use the illusions of mime—trapping themselves behind invisible walls, pulling unseen ropes, and donning masks adorned with geometric shapes—to illustrate mathematical concepts in a uniquely engaging way.

Through their performance, audiences will experience fundamental mathematical ideas such as estimation, tiling, and even the concept of infinity, all conveyed through the expressive and wordless medium of mime. Whether demonstrating the elegance of symmetry or the playfulness of patterns, *Mime-matics* transforms abstract mathematical ideas into a visual and interactive spectacle.

The Chartiers are internationally recognized performers who have trained with the legendary Marcel Marceau and at Le Centre du Silence mime school. Their work has been showcased in Japan, the Netherlands, South Korea, Panama, and across the United States. This session is designed for educators, students, and anyone interested in innovative ways to make mathematics more accessible and entertaining.

Come experience a performance where math and mime collide in a thought-provoking act that reveals the hidden artistry within mathematics!



24 oct

Friday

10:30 am

Anfiteatro III
(FLUC)

Short Performance

Maria Elisa Andrade Prado Teixeira
Ana Carolina Echeguren Campos
Ananda Letícia Carneiro
Carolina Sequetin
Daniela Jamnik Kibrit
Eliane Fleming Oliveira
Emily Müller Fioretti
Fabio Rodrigues
Guilherme Santos Antoniazzi
Henrique Kamantschek Watanabe
João Pedro Arruda Cavalli Rosa Marcacini
João Victor Lopes Barreto
João Victor Sales Vital
Kauan Matheus Fiorotto
Laura Lessinger Checchia
Lauryn Machado dos Santos
Layse Oliveira Duarte da Costa
Leticia Garcia Nishiura
Liana da Silva Resende
Lucas Carvalho Veloso Rodrigues
Maryanne Ladeia de Oliveira
Mayna Thalyta Rodrigues Dutra dos Santos
Nicolas Antonio Silva Araujo
Nicolas Dantas de Miranda
Wendel Provatti Cardoso

University of São Paulo

Chemistry of Sensations: **a chemical play for high school students**

The 'Química em Ação' Group, from the University of São Paulo (Brazil), focuses on presenting chemistry in a relaxed, clear and engaging way to elementary and high school students. To achieve this goal, the group has created several plays, including *The Chemistry of Sensations* which features a dynamic between a researcher and their assistant, who perform chemical experiments in the form of a show. At the beginning of the play, a fictional fire brigade appears to deliver safety messages and introduces the first experiment in a lighthearted manner: a 'chemical traffic light' that changes color through an organic redox reaction. Following this opening, the main presentation begins. A charismatic duo—a seasoned scientist and their assistant—start another day of science demonstrations presentations, until a surprise visitor arrives to question the credibility of their work. Would it be possible to explore all the senses through chemistry? The play answers this question, presenting experiments that address touch, hearing, vision and smell. With lots of jokes and experiments, several complex concepts are addressed in a simple and fun way. The main experiments that make up the



play are: 1. Traffic light: Introduces the concept of organic oxidation–reduction; 2. Flame test or purple fire: explores electronic transitions and atomic models; 3. Hydrogen balloon: demonstrates the concept of combustion and clean fuels; 4. Heat–Cool: illustrates exothermic and endothermic reactions; 5. Cold Fire: explains the concept of specific heat of different substances and its practical meaning; 6. Unicorn Pee: covers concepts of pH indicators, acids and bases, and acidification by the reaction of water with carbon dioxide; 7. Elephant Toothpaste: highlights the concept of catalysts; 8. Slime: discusses the concept of organic substances and polymers, in addition to talking about the importance of properly disposing of substances; 9. Vinegar: addresses general concepts of chemical reactions and concentration of solutions. Among the experiments, there are jokes and mishaps that make the presentation dynamic and funny. The play lasts about 30 minutes and the experiments and explanations can be adapted depending on the audience and the venue’s infrastructure.

24 oct

Friday

3:30 pm

Auditório 2
do Student Hub

Short Performance

Jessica Ammirati

Physics from my father

Physics from my father, my semi-autobiographical play, emerged from my own experiences coping with my dad’s cancer diagnosis and his subsequent death four months later. In the play, Isabella, a woman untethered from time, grapples with key events from her life, shaped by the teachings of her professor father (and with help from an enigmatic physicist from the past). Through a series of interconnected vignettes, the play examines themes of physics, time, loss, and love.

My father was many things: a physicist. A provider. A friend to everyone. A bit of a luddite — never got the hang of an iPhone and never once paid a bill online. He did his own taxes, balanced his checkbook monthly, and, oh yeah, was one helluva dad. A remarkably kind, loving, and supportive man who encouraged me always. When I changed my



major from science to theater (guaranteeing his scientific legacy would end with him) he didn't blink, saying only, ' Jessica, theater is what you were meant to do. '

At the height of the 'publish or perish' years, Dad started writing a textbook presenting physics to the non-science crowd — making this adored subject accessible to everyone, particularly his mother. Sadly, he abandoned the book (Physics from my mother) but I've always longed to read those unwritten pages.

Shortly after he died from a brain tumor, I was going through Dad's papers and discovered a journal he had written during the two weeks his mother was in the hospital...dying from a brain tumor. The parallels of his feelings (described in those pages) and my feelings during the late stages of his illness were eerie.

Months later, as I started emerging from the fog of grief, I re-read the journal and the unfinished textbook. I thought about the physics I never really understood and wondered if I could find a way of using MY theater to understand HIS physics. *Physics from my father* was born...and because I have a flair for the dramatic, I threw in the ghost of Marie Curie to guide us through the science.

At the Theater About Science Conference, (which occurs during both my birthday and what would have been Dad's 84th birthday) I propose a performance of a few scenes from the play featuring Isabella and Marie Curie as well as a bit of time, a drop of grief, a splash of physics, and a whole mess of love.

24 oct

Friday

3:30 pm

Anfiteatro III
(FLUC)

Short Performance

Daniel Gamito-Marques

NOVA School of Science and Technology, CIUHCT

The Science of Nazism

How can society fall into barbarism? Is it necessary that a lunatic with extreme ideas takes power, or is there a series of steps that, like in a chemical reaction, push us closer and closer to barbarity? These could be theoretical questions, but they are



not. Fascism and Nazism came into being a century ago and forever upended the expectations of once liberal, even progressive, societies. Regardless of how anti-modern the Nazis were, they never shied from utilising scientific conceptions to dehumanise people who they erroneously saw as fundamentally inferior. In fact, they did not invent these conceptions: physicians were already advocating for concrete measures to avoid a feared degeneracy of the race, including the sterilisation of people with mental disabilities. In this lecture-performance I will show how Nazism was influenced by the scientific conceptions of its time, and how nazis promoted them to unheard heights with devastating consequences. Perhaps something must be learnt from the past if we want to avoid seeing it repeated in new and terrifying ways.

25 oct

Saturday

10:00 am

Teatro

Paulo Quintela
(FLUC)

Short Performance

Nathan Jerpe

Flay's Anatomy

Maxwell Sebastian

Flay's Anatomy

Rebekah Suellau

Flay's Anatomy

Digestive reasoning: A specimen

The telescope and the microscope – two sense extenders for revealing the gigantic and the miniscule – have produced in recent centuries a profound disturbance in regards to humanity's place in the cosmos. From exploding supernova to industrious bacteria, we have come to understand through science not only those entities flung out upon the far reaches of space, but those encapsulated deep within ourselves. As individuals we are confronted with resolving these extremes to see where we fit in today's hyperextended Chain of Being. But is this some cerebral computation, a task to be taken up by Reason? Or is there occasion for a more ruminative approach, which warrants some digesting first? Is this perhaps a better case for – the stomach?

This, then, becomes the setting for our lecture, with some meditations on the art of diminution. Our initial forays shall be histological, with an artist's depictions of the



gurgling chamber, its homeostasis, and the protozoa that dwell within. As we continue shrinking we shall examine the organ's cells, until we have become small enough to roam alongside the very tribes of its bacteria, whose resemblance to punctuation will be judged marvelous. Thence guided by the precepts of Paracelsus, we shall reverse course, considering the organ as a conscious observer that knows itself better than anyone. We shall proceed to address our first onstage inhabitant, a stomach of individuality and solitude, who is alert to the possibility of other organs. But if our stomach wants to get this system functioning again, how will it communicate with its neighbors? Or will it be denied by certain objections, from its all too transcendent host?

25 oct

Saturday

10:00 am

Anfiteatro III
(FLUC)

Short Performance

Vince LiCata

Louisiana State University

HumAnimalia

‘HumAnimalia’ is a performance-art piece in development for the 2026 Edinburgh Fringe Festival. The primary ‘hypothesis’ of *HumAnimalia* is that animal and human consciousness are closer together than societal norms would have us believe. HumAnimalia is a solo performance piece that follows on our recent ensemble show *Hiya Dolly!* at the Edinburgh Fringe, which was about the cloning of Dolly the sheep. The *HumAnimalia* play/lecture/performance explores topically-related personal experiences (such as finding a raccoon family in peril, owning pets, eating meat while listening to Morrissey) and connects these experiences to specific animal behavior research from the scientific literature (such as octopi hunting in packs and herding fish, birds ‘scolding’ their mates when they misbehave, or full scale wars among chimpanzees).

The performance attempts to balance high science content and detail with the emotional connectivity and personal journey elements of performance art.

HumAnimalia includes classic research on animal behavior by scientists such as



Jane Goodall and Temple Grandin, and includes several much more recent investigations that truly question whether there is much of a difference at all between animal and human consciousness.

After establishing this ‘equivalence’ or ‘close continuum’ between human and animal sentience within the reality of the performance, the show then begins to veer into societal contradictions regarding our relationships with animals. If animal and human awareness and perception are nearly identical, why do we eat meat, keep pets, and imprison animals in zoos? Why do we eat some animals but not others? Is eating animals ‘right’? (the show says ‘yes’, but not necessarily for obvious reasons). Do your pets love you or are they suffering from Stockholm syndrome? *HumAnimalia* then eventually circles back to the story that it opens with: a story of a group of young raccoon siblings in peril, where half the family was killed. An event witnessed by the author/performer which serves as the emotional axis for the show. An event that ignites the questions of: how different are we from other animals, and what are our obligations to our sibling species?

25 oct

Saturday

10:30 am

Teatro
Paulo Quintela
(FLUC)

Short Performance

Marta Condesso

Fábrica Centro Ciência Viva de Aveiro, Universidade de Aveiro

Pedro Pombo

Fábrica Centro Ciência Viva de Aveiro, Universidade de Aveiro

Science on the wings of storytelling

‘Once upon a time.... in 2039, in peaceful Aleppo, Syria... There will be a boy called Walid that one day finds out the most wonderful secret of his family!

Hidden on the top of his grandparents’ biggest tree. Yes! By chance, he will discover (inside a little rusty can hanging there) 3 objects: a beautiful plastic little rose, a perfect whistle working through Physics principles and a mysterious seed on a love note! Wow! He runs to know all about it, as soon as he can...’

... And so the story calmly continues. And so simple but rigorous information on seeds



dissemination and sound waves will be practically explored afterwards.

At several places (school libraries, science centres, city gardens, at home, everywhere) acting/ reading/ storytelling performances can become peculiar science communication acts. Curiosity and interest on technological, scientific knowledge and on literature can come together.

Expressive moments of oral narration as well as stage aloud reading pieces are powerful means to conduct audience's attention to a certain scientific concept, principle, phenomenon, construction that literary text hides inside and can motivate an inquisitive attitude respecting everything around us.

Using only words and gestures to get listeners' attention to classical or modern literature, oral tradition or published authors, as well as to basic or frontline science subjects, oral narrator on stage believes fantasy and scientific rigor may get, at the same time: generous smiles and engagement from public of all ages.

In a big or intimate ambience of storytelling, any part of the plot becomes a good excuse to a scientific look on every bit of literature we read or listen to. Hopefully leaving in each person the most powerful curiosity: the will to search for more (agreeable and informal) knowledge, everywhere!

This performance will reproduce a 'real' session, as if children or general public were in the audience. So the whole story will be told and shared. Afterwards, simple scientific notions about sound waves and also seed dissemination will be disclosed and a scientific toy will be understood and built by all participants, to take home.



25 oct

Saturday

10:30 am

Anfiteatro III
(FLUC)

Short Performance

Costantino Manes

Politecnico di Torino, Department of Environment, Land and Infrastructure Engineering

Claudio Comoglio

Politecnico di Torino, Department of Environment, Land and Infrastructure Engineering

Alfredo Schiavon

Politecnico di Torino, Department of Environment, Land and Infrastructure Engineering

Daniel Nyqvist

Swedish University of Agricultural Sciences, Department of Aquatic Resources,
Institute of Freshwater Research

Lara Giordana

Politecnico di Torino, Department of Environment, Land and Infrastructure Engineering

Marco Andorno

Faber Teater

Sebastiano Amadio

Faber Teater

Chiara Baudino

Faber Teater

Elisa Vanin

Politecnico di Torino, Department of Environment, Land and Infrastructure Engineering

“Fish in troubled waters”: theatre meets young researchers to raise awareness on the impacts of dams on fish and rivers (RIBES project)

The communication of research activities and related achievements is becoming more and more important for universities to reach the society and to raise awareness on some specific topics. Theatre provides a means of capturing attention and establishing an emotional link with science and passionate researchers.

RIBES (River flow regulation, fish BEhaviour and Status) project, funded by EU under the Marie Skłodowska-Curie Actions, trained 15 PhD students within a large network of universities, companies and public institutions in 6 countries (Italy, Sweden, Germany, UK, Belgium, Estonia) on innovative solutions for restoring fish migration routes in rivers fragmented by dams. For the project final conference a collaboration with the theatre group Faber Teater resulted in Fish in troubled waters, a documentary theatre play raising public awareness about river fragmentation and the critical relationship between renewable energy production (hydropower) and



safeguard of freshwater fish and rivers biodiversity, showing the stories and research activities of these young academics. Faber Teater followed them both in their laboratories and on-site and then went on stage, with the project's protagonists in video, telling many stories about fish, rivers and people who are passionate about their research work. The performance in English, subtitled in Italian, combined art and poetry with science and reportage, with a fusion of languages, skills and human and animal stories presenting to the community the discipline of Ecohydraulics and the evolution of the project under the banner of interdisciplinarity between biology and engineering.

This lecture-performance includes a 10-minute selection of excerpts from the play performed during the 2023 European Researchers' Night, and a 20-minute talk explaining why theatre was chosen as the media to communicate RIBES results and presenting the experience from the point of view of the actors and the young researchers, challenges encountered and lessons learnt. The talk will also show how Faber Teater's approach recalls social sciences methods, particularly ethnographic methods, both in acquiring information and in presenting it. Indeed, the performance served as a project return to the scientific community itself in a mirroring effect, paving the way for future collaborations between art and science to explore new ways of doing science.



Workshops

23 oct

Thursday

2:30 pm

Casa das Artes

Bissaya Barreto

Workshop

Dr. Judith Johnson

Central School of Speech and Drama. Theatre of Debate

Nigel Townsend

Theatre of Debate

Theatre of Debate workshop focussing on end of life care

Theatre of Debate (ToD) Artistic Director Nigel Townsend and playwright Judith Johnson will lead a specially designed interactive workshop to model ToD's unique process of creating science plays that entertain and provoke debate about ethical issues in medicine and science. (Please visit our website for more information:

<https://theatreofdebate.co.uk/>)

After the success of our workshop at the Theatre About Science Conference 2023, which focussed on AI, we have chosen the theme of end-of-life care, a current ToD project topic, to explore with this year's delegates.

Information and opportunities to discuss death and end of life care are often targeted towards older people. ToD believe that a young audience should be given more opportunity to respond to these concerns. As we move towards a society where the ageing population means the young people of today will increasingly become carers and cared for, opportunities for them to prepare for decisions of care and mortality will become increasingly important.

Recent events such as the Covid pandemic and the death of pop star Liam Payne have made death and dying more prominent to a whole generation of young people. Within our school communities recently bereaved children struggle with their own situations, and often entire schools are impacted by the death of a member of staff or a pupil. Opportunities to process such events are not prevalent in our schools in



the UK. We aim to create (through storytelling, theatre, and debate) a safe space to explore these issues.

For the workshop, we will demonstrate ToD's unique Generator Workshop process, which we use to kick-start our projects. We will stimulate discussion and creative exploration through a series of interactive activities in pairs, small groups, and as a whole group. These activities will give the participants an opportunity to explore what they know, feel and think about the ethical issues arising from this topic, and share insights into global attitudes surrounding debates such as assisted dying, palliative care processes and end-of-life care procedures.

23 oct

Thursday

2:30 pm

Auditório 2
do Student Hub

Workshop

Francisco Forte

Clinical Psychologist, PIN - Partners in Neuroscience

Margarida Pedroso Lima

Tenured Associate Professor with Habilitation at the Faculty of Psychology and Educational Sciences, University of Coimbra

Miriam Bernardino

Clinical Psychologist and Technical Director of "Psintegrar: Consultório de Psicologia"

Antonio Gonzalez

Assistant Professor at Ispa, University Institute

Playback Theatre - When my stories become ours

This workshop introduces Playback Theatre as a psychotherapeutic and exploratory method grounded in the use of personal narratives. Participants are invited to share real-life stories, which are then enacted spontaneously by a group of actors. This form of theatre creates a space for reflection, emotional connection, and insight into individual and collective experiences.

Narratives have long played a central role in the human and social sciences. In psychology, particularly within personality psychology, narratives are understood not only as expressions of identity but as structures through which individuals make sense of themselves and the world. The work of Dan P. McAdams, for example,



highlights how life stories serve as a method of psychological inquiry and a framework for understanding personality as a dynamic and evolving construct.

In this workshop, we adopt the narrative perspective to explore how people understand themselves concerning science. Through the lens of Playback Theatre, we aim to examine the implicit and explicit ways individuals position themselves about scientific knowledge, authority, and practice.

Our goal is to use storytelling as a mirror for personal meaning-making and to foster dialogue about the role of science in our lives—not as distant knowledge, but as something deeply woven into how we think, feel, and relate. This experiential methodology offers both emotional depth and analytical insight, making it especially valuable for professionals, students, and researchers in psychology, education, and the broader human sciences.

No prior theatre experience is required. The workshop is open to all interested in the intersections of narrative, selfhood, and science.

23 oct

Thursday

2:30 pm

Rômulo Centro
de Ciência

Workshop

Elen Evans

British Council

Can we communicate science through poetry and performance?

In this workshop, we will be exploring whether theatre makes sense in science communication, in what context, and for whom.

Scientific terminology, from abstracts to subject-specific vocabulary in articles, can be alienating for non-scientific audiences and, as a result, limit participation from crucial parties in scientific debates. Perhaps poetry and performance can break down boundaries and facilitate communication between scientific and non-scientific audiences, and that is what we will be exploring in this workshop.



As a natural scientist (BSc (Hons), Open University) and educator with over 20 years' experience (teacher, teacher trainer, examiner at the British Council; science syllabus writer and materials developer for various entities), I have worked with people of all ages and backgrounds. I see communicating science — and encouraging dialogue about climate, environment, and the natural world — as essential in today's world. My own exploration of poetry as a medium for science communication began while attending a course at Edinburgh Napier University, and it opened up a new and exciting way of thinking about my practice.

Scientific bodies often share attractive but hectic, information-packed infographics, or videos (that are, sorry to say, sometimes a bit dry), on social media and I worry they are not effectively reaching the intended target audiences. Could performance be a way to connect with our audience and communicate this information effectively? And can theatre and performance be used to break down data overload into bite-size chunks, ensuring more people can be included in scientific discussions? I believe so!

In this workshop, we will consider how the words we choose, the rhythms we use, can make complex or confusing scientific topics more accessible. We will think about why science communication with non-scientific audiences is important to society, and we will reflect on the use of poetry and 'the spoken word' to facilitate this. You will have the opportunity to reframe abstracts and other subject-specific texts, in poetic, rhythmic language, putting into action your ideas and discovering new ways to make your science resonate with the audience. We will share ideas, perform our work (if you want to!) and reflect on strategies for reaching different audiences, giving you practical approaches to use in your own science communication.



25 oct

Saturday

2:30 pm

Casa das Artes

Bissaya Barreto

Workshop**Alexandra Polido**

GOVCOPP, DCSPT, University of Aveiro

Theatre for socio-ecological transformation

Recognizing the unique potential of art to foster transformation, this workshop explores how theatrical methodologies can support action and reflection in response to complex socio-ecological challenges—including climate change, biodiversity loss, resource degradation, and social inequity. The session introduces participants to Theatre of the Innov(a)ctors, a tool developed by the facilitator and colleagues (Polido et al., 2025), which draws upon Augusto Boal's Theatre of the Oppressed, particularly Image Theatre. This approach fosters a creative, participatory space for collective problem-solving and narrative construction.

The workshop is designed for all audiences. It is an inclusive and reflective space and does not require previous theatre experience. It is particularly relevant for educators, researchers, artists, and practitioners interested in using performance-based strategies to engage diverse communities and promote sustainability and social transformation. The facilitator, Dr. Polido, is a researcher and educator with a background in both sustainability and environmental sciences and applied theatre. Her work explores the intersections of sustainability, artistic expression, and transformative pedagogy. Participation is limited to a maximum of 20 attendees to ensure a meaningful and interactive experience. The workshop consists of four main phases:

Introduction and Warm-Up: Framing the session and introducing key concepts from Theatre of the Innov(a)ctors.

Exploration through theatre games (individually): Participants use their bodies to create visual 'images' of socio-ecological problems and desired transformations.

Exploration through Image Theatre (in groups): Small groups develop and enact short scenes based on the visual narratives, exploring multiple perspectives and possible responses.

Reflection and Debrief: Group discussion on insights, challenges, and potential applications of the methodology in participants' own contexts.



Emphasis is placed on collective experimentation, embodied reflection, and cross-disciplinary dialogue. Feedback will be gathered from participants to assess the effectiveness of the methodology and inform future adaptations.

This work was financially supported by UID/04058 – Research Unit on Governance, Competitiveness and Public Policies, financed by national funds through FCT – Foundation for Science and Technology.

Polido, A., Ehnert, F., Jossin, J., & Mascarenhas, A. (2025). Theatre of the Innova(c)tors: an interactive theatre tool to create transformative spaces. Sustainability Science.

<https://doi.org/10.1007/s11625-025-01628-4>

25 oct

Saturday

2:30 pm

Auditório 2
do Student Hub

Workshop

Nell Hardy

Response Ability Theatre

Referencing application in a process led by Dr Elizabeth Eveleigh, for University College London as part of CHAMPIONS, a national research project led by Prof Monica Lakhanpaul, University College London and Prof Nadzeya Svirydzenka, De Montfort University

Trauma-conscious communication training for researchers: an actor's process

This trauma-conscious communication workshop supports researchers to be emotionally present for and responsive to the trauma survivors they interview, using techniques borrowed from actor training. The workshop supports attendees to develop skills from the world and practice of theatre, and apply them to qualitative scientific research practice that is both more ethical and more generative.

Alongside developing these skills, attendees will hear about their application in a scientific research process that used theatre-based workshops to build trust, community and creative thinking between interviewees and researchers. In this instance, the interviewees were Arabic- and Kurdish-speaking refugee and asylum seeking mothers of under 5s living in temporary accommodation, and the researchers from University College London were co-creating a culturally sensitive parenting support framework.



Attendees at the workshop will hear how our incorporation of theatre-based tasks between interviewees and researchers enriched the research outputs by making researchers' enquiries more focused, relevant and future-facing, and by giving interviewees greater influence over the topics approached. They will gain an embodied awareness of the creative and relational skill sets required in researchers to engage with this way of working.

Actors have to experience a huge range of heightened emotions in quick succession when in role - and when in a theatre run, to do this several times a week. Those emotions have to come from an authentic place, but cannot be fully delved into every time, or they would cause burnout. So actors can learn to remember the felt sense of emotions in their bodies, and perform from muscle memory without having to evoke original emotion repeatedly.

Researchers can likewise gain this embodied awareness of how emotional states sit in them, and what their bodies are asking from them in creating these responses. With that knowledge, they can lose their fear of these emotional states, and learn how to process them safely while interviewing survivors rather than attempt to suppress them. They can also prepare themselves better to co-create ambitions and priorities with interviewees through creative and artistic tasks, by embodying a way of being that does not require hierarchy in a research setting and as such encourages creativity and open sharing and receiving of perspectives.



25 oct

Saturday

2:30 pmRômulo Centro
de Ciência

Workshop**Emma Weitkamp**

University of the West of England

Nigel Townsend

Theatre of Debate

Judith Johnson

Central School of Speech and Drama, Theatre of Debate

Giulia Frezza

Imperial College London

Carla Almeida

Oswaldo Cruz Foundation (Fiocruz)

Mário Montenegro

Marionet Theatre Company, CEIS20 - Centre for Interdisciplinary Studies | University of Coimbra

Sparking exchange: exploring the needs of the science performance community

Science performance is a rich, diverse and evolving field, which has an important role to play in bringing science and society closer together, particularly in areas of scientific research with high societal relevance that require creative thinking and transdisciplinary approaches.

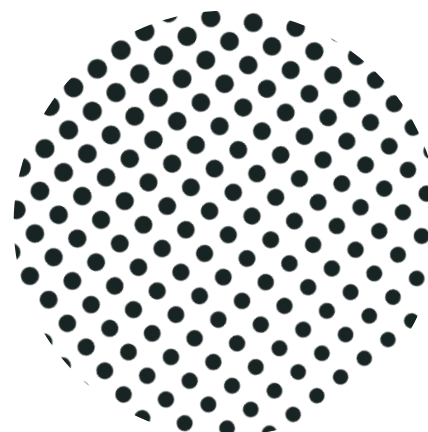
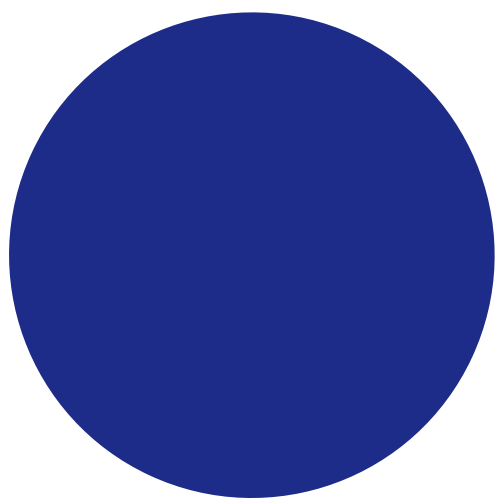
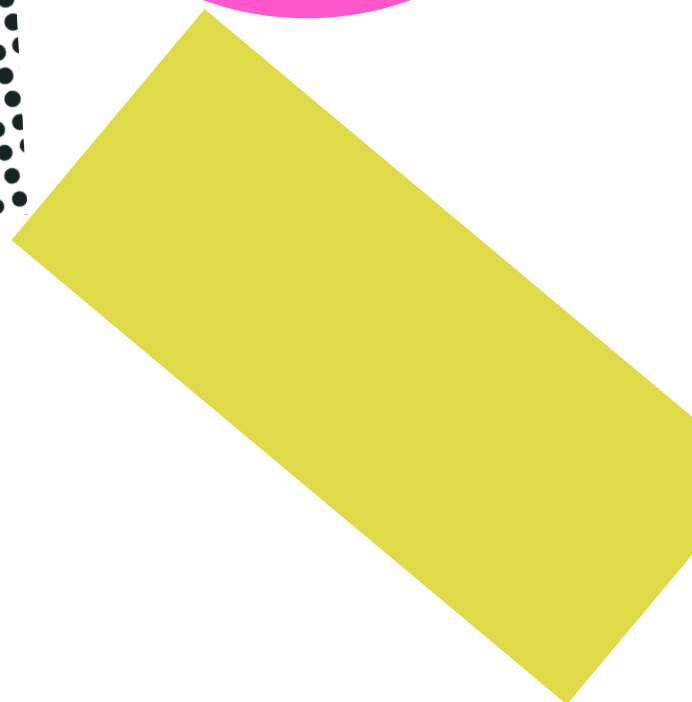
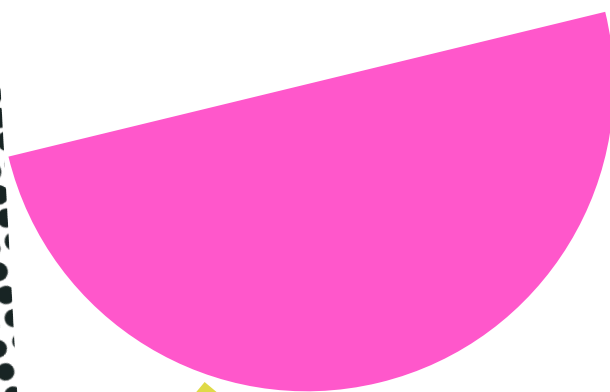
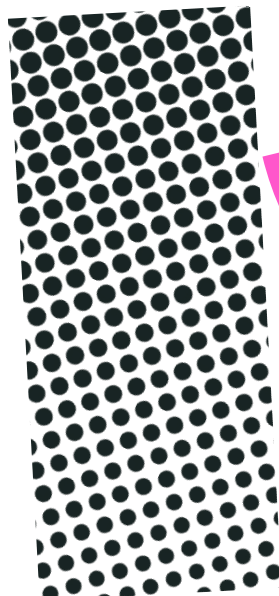
In this workshop you will have the opportunity to share and consider with us the interests and needs of the science performance field, with a view to developing a research-practice network. Drawing on facilitative drama techniques, we invite you to explore the scattered landscape of science performance and through this to identify commonalities, synergies and tensions in purpose, approach and participants. We define science performance inclusively, to encompass work raising questions or engaging the audience in debates about science, taking place in public or educational contexts, working within the responsible research and innovation framework and/or embodying scientific processes and discoveries to foster meaningful connections between science and communities.

We aim to create an inclusive environment to stimulate a conversation that may ultimately help us understand the support the field needs to fulfil its potential. We anticipate this may include the creation of a science performance network that would bring practitioners and researchers together to share and create new knowledge. This workshop, in the context of the Conference, might be the starting point for such a network.



Facilitative exercises will initially explore common ground amongst diverse practices, identifying areas of synergy and tension. This could involve discussions exploring the diversity of motivations, goals and intentions of science performances, the diversity of approaches and what these different approaches offer each other, and/or our audiences, asking both who and how we engage participants. Through these discussions we aim to highlight the value of science performance and, eventually, inform further explorations about what such a network might look like.





Artistic Programme

22 oct

Wednesday

9:00 pm

Casa das
Caldeiras

Film

Theatre of Debate

(United Kingdom)

A Picture of Health

With this production, Theatre of Debate hopes to shed light on the historical significance of vaccines and the importance of vaccination in society. By exploring the story behind Thomas Hickey's landmark painting of the Three Queens of Mysore and the younger queen Devajammani receiving the smallpox vaccine, the project aims to educate and engage audiences on the importance of vaccines in combating infectious diseases. The debate around vaccines continues to be a hot topic, so it is crucial to understand the historical context and significance of vaccination. By delving into this fascinating story, and bringing it to life on stage, we hope to open minds and spark mature conversations around the subject.

Sudha Bhuchar's engrossing play not only tells the story of the Three Queens' role in the history of the smallpox vaccine, but it also explores broader complex socio-historical issues around colonisation, art and society.

As we continue to navigate the challenges of the COVID-19 pandemic, the story of the Three Queens of Mysore serves as a timely reminder of the importance of vaccination in protecting public health. ToD hopes to leave a lasting impact on audiences and encourage thoughtful discussions about issues in the wider historical context as well as vaccination resistance and acceptance. Given added topicality by the recent emergence of M-Pox, the astonishing story of the Three Queens of Mysore serves as a timely reminder of the importance of vaccination in safeguarding public health.

This project would not have been possible without a generous bequest from the estate of actor Peter Stenson who was born in India.



23-25 oct

Thursday-Saturday

6:00-8:00 pm

Sala B

Performance Art Installation**Eunice Gonçalves Duarte**

(Portugal)

Goethe's Dark Room

Goethe's Dark Room is a performance art installation by Eunice Gonçalves Duarte, combining art, science and philosophy to revisit the empirical experiences of Johann Wolfgang von Goethe, as described in Theory of Colours. Drawing on the concepts of light and colour proposed by Goethe and Newton, the piece creates a scenic device in which light and shadow emerge as forces of tension, revealing and concealing forms in metamorphosis.

With performers Beatriz Boleto, Gonçalo Silva and Sofia Lobo, the dramaturgy explores the relationship between the visible and invisible, offering the audience a sensory experience amplified by Nick Rothwell's sound design.

The project also involves scientists from the fields of physics, neuropsychology and philosophy in order to deepen research on light, the visible spectrum of colour and Goethe's morphology.

The public will be allowed to enter two people at a time, every 20 minutes.

23 oct

Thursday

9:00 pm

Convento

São Francisco

Theatre**Marionet**

(Portugal)

The Virtuoso

If there is one science that has been studied profusely by the theatre, it is the science of love. This play by Thomas Shadwell is (yet another) treatise on the various forms of emotional relationships between human beings. It depicts marital and extramarital relationships, platonic, romantic and carnal loves. And the other side of these loves too — disenchantment, contempt, rejection, anger, betrayal, and revenge.



Bruce and Longvil are two young men in love with Miranda and Clarinda, but their loves are intertwined — Bruce likes Clarinda who likes Longvil who likes Miranda who likes Bruce. In addition to this mismatch of affections, the girls are under the thumb of an uncle and aunt, Sir Nicholas Gimcrack and Lady Gimcrack, who make it difficult for them to pursue their love interests with the supposed aim of safeguarding the honour of the young maidens. In a classic example of the saying 'Watch what I say, not what I do', the uncles each have their own extramarital adventures.

In order to get closer to their nieces, the two young men pretend to be interested in the scientific experiments that Sir Nicholas is carrying out. He, a paradigmatic example of the first explorers of modern science, is closely followed by an inveterate orator — Sir Formal Trifle — who eulogises and applauds his scientific activity, while trying to get close to the young Clarinda.

These characters are joined by the clandestine lovers of the Gimcrack couple, who themselves have a romantic relationship with each other, and old Snarl — Sir Nicholas' uncle — who is a great defender of the old days and a fierce critic of the degenerate behaviour of the new generations.

It's an intricate plot that unfolds in *The Virtuoso*, in which the brand new science of modernity mixes with the age-old science of love.

24 oct

Friday

5:30 pm

Teatro
Paulo Quintela
(FLUC)

Theatre

Arthur I. Miller
(United Kingdom)

Synchronicity

In 1931 the brash and brilliant physicist Wolfgang Pauli approached the world-renowned analyst Carl Jung for help. Pauli's neurosis had wreaked such havoc with his psyche that when Jung first saw him, he felt as if the "wind had blown over from the lunatic asylum." In their discussions they stuck sparks off each other and in the end not one but both of them were changed.



Synchronicity is about psychology, physics, alchemy and the extraordinary things that can happen when two brilliant minds meet. Thought provoking, sometimes deep, sometimes moving – it is about how a meeting of the minds can change the world.

24 oct

Friday

9:30 pm

Teatro
Académico
Gil Vicente

Theatre

Marcus du Sautoy
(United Kingdom)

The Axiom of Choice

An exploration of free will, war and mathematics. From the Simonyi Professor for the Public Understanding of Science at Oxford University comes a ground-breaking new play The Axiom of Choice. Eminent mathematician Andre Weil is on a journey from France to India, Finland and beyond, to discover whether we really have free will or if all our choices are pre-determined. Imprisoned in Rouen during the Second World War, Weil faces a choice that will determine his fate - but his decision just doesn't make sense. Is life a mathematical theorem of logical strands? Because sometimes it just doesn't add up!

25 oct

Saturday

5:00 pm

Teatro
Paulo Quintela
(FLUC)

Theatre

Belén Pasqualini
(Argentina)

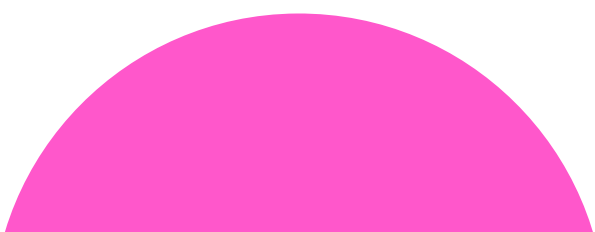
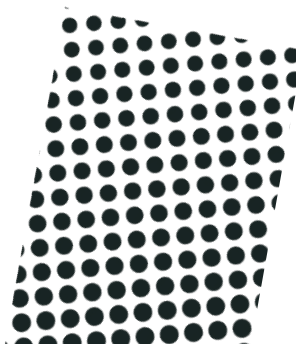
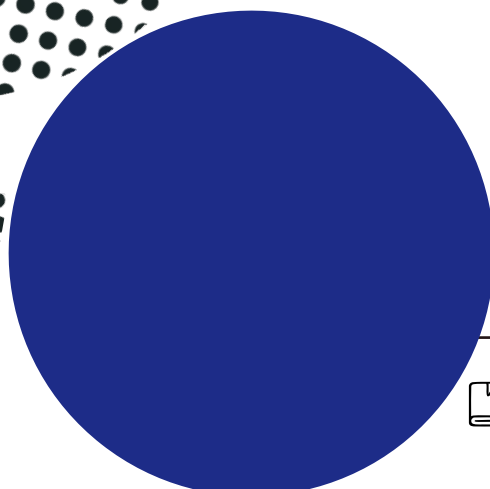
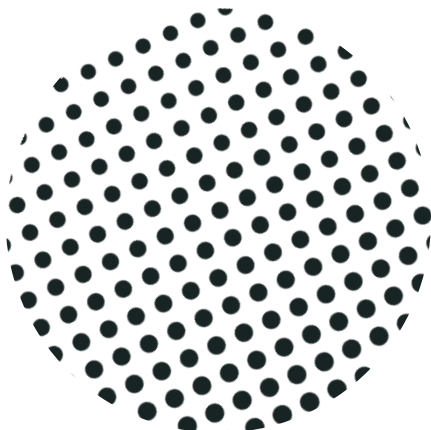
Christiane, un bio-musical científico

This show reflects the life of Christiane Dosne Pasqualini, an internationally renowned figure in leukaemia research. The play immerses us in the life of its protagonist, who, like an intrepid explorer, arrives in the Pampas in 1942 on a scholarship to collaborate with Bernardo Houssay. Born in France and raised in



Canada, Christiane adopted Argentina as her home and became the first woman to join the National Academy of Medicine. Her passion for laboratory rats, and her life which spanned much of the 20(th) century, are full of vigour and humanity that are truly inspiring. 'Christiane, a scientific bio-musical' is a great way to get to know this unique woman.







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