

SAISON TEMPORADA
FRANCE PORTUGAL
PORTUGAL FRANÇA
2022

27th MAY

9H30 | 18H30

2022

Quando a natureza
inspira a humanidade
Bioinspiration
Quand la nature
inspire l'humanité

Museu Nacional de História
Natural e da Ciência

U
LISBOA

MUSEU NACIONAL
DE HISTÓRIA
NATURAL E
DA CIÊNCIA

UNIVERSIDADE
DE LISBOA



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As part of the 2022 France-Portugal Season, the Museu Nacional de História Natural e da Ciência, Universidade de Lisboa (MUHNAC) and the Muséum national d'Histoire naturelle, Paris (MNHN) (MNHN) are working together to promote **Bioinspiration** as a cross-cutting scientific and social issue.

Supported by the Institut Français, a series of events are planned in both countries to appeal to a range of different stakeholders interested in this creative approach based on the observation of natural systems.

Bioinspiration involves drawing insights from nature and imitating its principles to innovate in response to current social and environmental challenges. By studying nature in all its forms (animals, plants, fungi, etc.) we can learn to develop objects, materials, strategies, and innovative processes that have the potential to be safer, more efficient and more eco-friendly for future generations.

Bioinspiration is an opportunity to create visible bridges between biodiversity and its contribution to modern society.

Organizers

The Museu Nacional de História Natural e da Ciência, Universidade de Lisboa (MUHNAC) is part of the Universidade de Lisboa, and the main scientific museum in Portugal. It is strongly engaged in the full and open access of its scientific collections and associated documentation for the benefit of research, education and culture. It is now collaborating with the Muséum national d'Histoire naturelle, Paris (MNHN) in Paris to put the topic of Bioinspiration “on the agenda” in Portugal, through actions involving the scientific community and the general public.

The Muséum national d'Histoire naturelle, Paris (MNHN) is a centre of scientific excellence for both natural and human sciences, where the study of the past sheds light on the future. For nearly ten years, the MNHN has been actively involved in bioinspiration, in particular through its research programmes.

This commitment was deepened with the launch of “Bioinspire-Museum” in 2019, a project funded by the French Ministry of Environment, which seeks to support and promote bioinspiration across the full breadth of the MNHN’s activities (research, biological collections, teaching, dissemination of knowledge and expertise). At the same time, the MNHN’s Concarneau Marine Station has established itself as a regional centre for marine bioinspiration.

Organizing Committee

Annabelle Aish (Bioinspire-Museum), Carole Pierlovisi (International Cooperation), MNHN-Paris & Judite Alves, MUHNAC-ULisboa

The Workshop in Lisbon

The MUHNAC and the MNHN are organizing a **one-day workshop in Lisbon, focusing on bioinspiration’s application to design, architecture and urban planning**. Our intention is to bring together Portuguese and French stakeholders interested in these subjects, as well as raise awareness amongst the Portuguese public regarding bioinspired approaches.

Following an introductory session, the workshop will be divided into three topics (Bioinspired design, Bioinspired architecture and Bioinspired urban planning) and involve both presentations and round table discussions.

We are delighted to welcome:

- o **Luísa Nunes**, from the **from the ESACB-IPCB and Centre for Applied Ecology (CEABN)** who will talk about “*Biological principles and their application to human environments*”.
- o **Guillian Graves**, from the **French National School of Industrial Design and “Big Bang Project” (France)** who will talk about “*Nature-inspired innovations*”.
- o **Carlos Rego** from the **Logoplaste Innovation Lab (Portugal)** who will talk about “*Evolving from Human to Life Centered Innovation*”.

- o Steven Ware from the **Art&Build Architectural firm (France)** who will talk about *“The return of the Living”*.
- o **Marlene Couceiro** from the **Faculty of Architecture, University of Lisbon (Portugal)** who will talk about *“Connections between the biological and the architectural world. Influence of colour on the thermal and visual comfort of a building”*.
- o **Eduardo Blanco** from the **CEEBIOS (France)** who will talk about *“Urban design for people and nature: perspectives from ecosystem-level biomimicry and regenerative design”*.
- o **Cristina Branquinho** from the **Centre for Ecology, Evolution and Environmental Changes, FCUL (Portugal)** who will talk about *“Ecosystems as an inspiration for sustainable and resilient urban areas”*.

Nature = Future!

A series of short films “Nature=Future!” (co-produced by the MNHN and “La Belle Société” in order to raise awareness about bioinspiration) are now available in Portuguese. Eight of these 5-minute films, with a focus on aquatic environments, will be shown at the MUHNAC during the bioinspiration workshop’s coffee and lunch breaks, and will remain accessible to public until the end of France-Portugal Season (October 2022). They cover the following themes:

- o Marine biomimicry | Le biomimétisme marin | Biomimetismo marinho
- o Protective algae | Des algues protectrices | Algas protectoras
- o Like a fish in water | Comme un poisson dans l’eau | Como um peixe na água
- o Living seabeds | Des fonds marins plus vivants | Um fundo marinho mais vivo
- o Denticles of the sea | Les denticules de la mer | Dentículos dos mares

- o A natural light | Une lumière naturelle | Luz natural
- o Blood vessels | Des vaisseaux sanguins | Vasos sanguíneos marinhos
- o Diatom glass | Le verre des diatomées | Vidro de diatomáceas

Exhibition: Bioinspiration: insect color driving innovation

Bioinspiration: insect color driving innovation” is an exhibition on the mechanisms of insect structural color of insects and the inspiration in these mechanisms for the development of new materials. Insects, especially the group of beetles, belonging to the Order Coleoptera, present a great diversity of colors and patterns produced by mechanisms that involve the appearance of structural colors. Iridescence is observed in many cases, meaning that the color of the insect varies according to the angle of incidence of light and the position of the observer. In many cases, it results in fantastic effects, making these insects reminiscent of jewelry and precious materials. This exhibition presents work carried out under the NanoCell2Sec project - Bio-inspired sustainable optical security feature solutions from nanocellulose composites structural coloration, a collaboration between the National Museum of Natural History and Science/CE3C of the University of Lisbon and the NOVA School of Science and Technology of the NOVA University Lisbon. The exhibition will focus on the project’s work, namely the study of the structural color of insects in the Museum’s collection and its use as (bio)inspiration in the development of cellulose-derived materials, such as cellulose nanocrystals, aiming to approximate visual effects observed in insects.

Future events on bioinspiration in Paris

After the workshop in Lisbon, bioinspiration events will continue in Paris in September and October 2022, with a specific focus on biomimicry training opportunities and bioinspired materials.

Speakers Biographies



Luisa Ferreira Nunes

Luisa has a PhD (ISA-UTL/ University of California) in insect ecology. She is a professor of entomology, forest ecology, biomimicry and fire ecology at IPCB-ESACB, a fellow in Biomimicry at the Biomimicry Institute/USA, a member of Biomimicry Iberia and a Scientific expeditionary for National Geographic. In parallel, she works as a Naturalistic illustrator (17 books and 25 exhibitions). Her research interests include systemic biomimicry, insect ecology, natural history.



Guillian Graves

Founder, designer & CEO of the Big Bang Project agency | Co-head of the MSc NID at ENSCI-Les Ateliers | Teacher at Sciences Po Paris. Guillian graduated from the Ecole Nationale Supérieure

de Création Industrielle (ENSCI-Les Ateliers) in partnership with the Ecole Polytechnique Fédérale de Lausanne (EPFL). He founded and directs the Big Bang Project, a science and design agency that brings together designers, engineers and scientists develop innovative and bio-inspired solutions adapted to the lifestyles of tomorrow. In addition, he is a teacher and co-head of the Master of Science Nature-Inspired Design at ENSCI-Les Ateliers, a teacher at Sciences Po Paris and a speaker.



Carlos Rego

Carlos is a multidisciplinary Designer and certified Biomimicry Specialist with broad experience in designing, developing, and implementing sustainable human-centred solutions based on the Design and Biomimicry thinking methodologies. As the Head of Design & Biomimicry Thinking at the Logoplaste Innovation Lab, he is responsible for integrating Design and Biomimicry Thinking methodologies to develop and implement products, processes, and systems. His work at the Logoplaste Innovation Lab has been internationally recognised with several major design awards such as the Red Dot, iF Design Award, Green Good Design Award, and the Gold German Design Award Design Award Design Award.



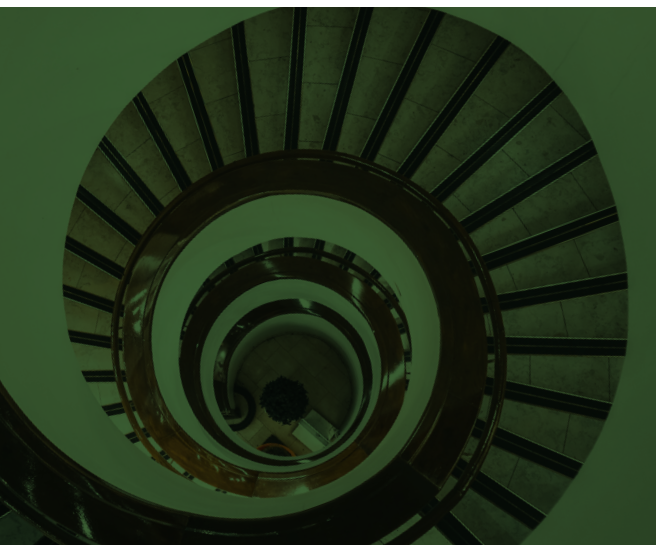
Steven Ware

Born in London and raised in Jamaica, Steven studied biology at Western University and architecture at the Architectural Association. As a partner with ArtBuild architects, he steers the development and application of bio-adaptive design principles, seeking new ways to fuse ethics and aesthetics. With decades of design awards behind them, the Europe-based practice features an internal Lab whose teams work with biologists, academics, industrialists and research groups to develop biomimetic concepts which can be transferred to mainstream construction practice. Early mass timber adopters, ArtBuild have delivered several benchmark projects and continue to push boundaries across Europe and even North Africa. Steven lectures widely on subjects that bridge biology and the built environment, exploring the very nature of intelligence informing architects and the building sector at large.



Marlene Teixeira Couceiro

Marlene is doctoral student in Design at the Faculty of Architecture of the University of Lisbon. Her research project is entitled: Design & ceramic industry: a new approach, aesthetic, technical and environmental approach in ceramic wall and floor tiles — thermal comfort. Prior to her PhD, she completed an Advanced studies course in design, at the Faculty of Architecture of the University of Lisbon, as well as studying management at the Porto Business School and Communication Design at the Faculty of Fine Arts of the University of Porto. She has also worked as a freelance designer (<http://www.marlenecouceirodesign.pt/>).





Eduardo Blanco

Eduardo is an environmental engineer specialised in sustainable urban development, with a trajectory between Brazil and France. In Brazil, Eduardo helped local governments implement sustainable urban plans, focusing on sustainable urban mobility, impact assessments, and strategic planning. In France, he helped Real Estate actors to engage with regenerative design and biomimicry, joining several urban design teams. Eduardo now works with Ceebios and the French Natural History Museum to conduct a PhD research on regenerative neighbourhood projects that finds inspiration on natural ecosystems and produce mutual benefits for nature and society.



Cristina Branquinho

Cristina Branquinho is Professor of Ecology at Faculty of Sciences, University of Lisbon and a researcher at the Centre for Ecology, Evolution and Environmental Changes (cE3c) in Portugal. At cE3c she is currently leading the Thematic Line - Green and blue infrastructures for urban sustainability. Her research focuses on understanding ecological patterns at the ecosystem level in response to environmental changes, by: i) evaluating and modelling the structure and functioning of ecosystems for different scenarios (eutrophication, climate change and pollution); ii) developing, testing and tracking ecological indicators to be applied at different spatial and temporal scales; iii) restoring ecosystem structure and functioning submitted to different disturbances; iv) understanding the role of biodiversity on ecosystem functioning and ecosystem services delivery.





Evento organizado no âmbito da Temporada Portugal-França 2022

Com o apoio:

