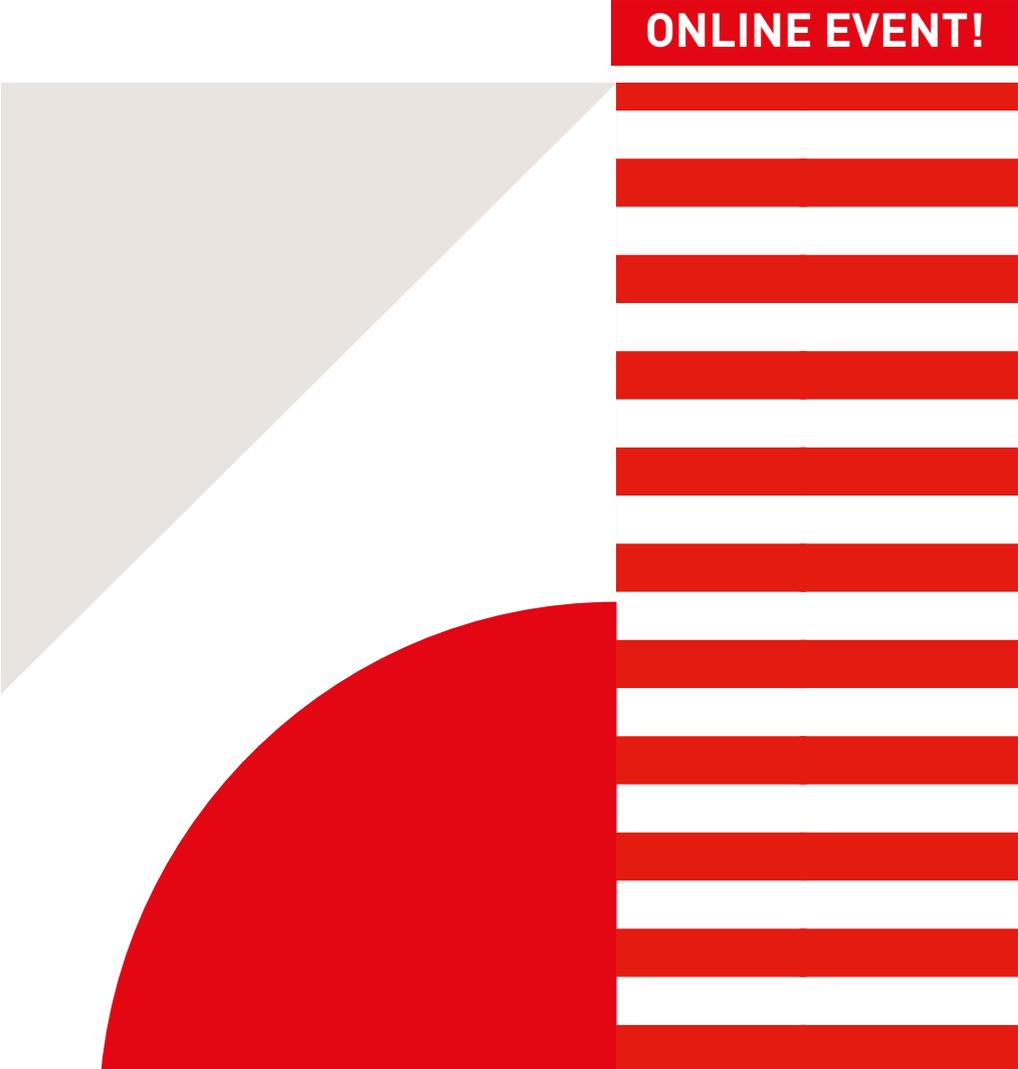


FALLING WALLS LAB BRAZIL

The organisers are independent partners of the Falling Walls Foundation.

Thursday, September 17th
04 p.m. (BRT)

ONLINE EVENT!



CONCEPT

The Falling Walls Foundation founded the Falling Walls Lab in 2011 in order to

- ... **connect** aspiring innovators
- ... **discover** and develop talents
- ... **support** interdisciplinary dialogue and international cooperation
- ... **develop** new ways of scientific communication
- ... **build** new and strong networks

TIMELINE

- Welcome and introductory remarks
- Presentations (scholar presentations: 1-7)
- Break
- Presentations (scholar presentations: 8-15)
- Break
- Award ceremony
- End

JURY

Dr. Jochen Hellmann

Director
DWIH São Paulo

Jochen Hellmann earned his doctorate in 1991 with a thesis in the field of translation studies. He was a DAAD Lector in Paris and Advisor for the EU Office of Hannover University. In 1993, he became advisor for the Mobility Program of Hamburg University, and, in 1993, Head of Department in DAAD's main office, in Bonn. In 2001 he was appointed director of the International Relations Department, at Hamburg University. In July 2019 he returned to DAAD to represent this institution as President of DAAD's External Office in Rio de Janeiro and Director of the German Centre for Research and Innovation (DWIH) in São Paulo, legitimized by his lifelong affinity towards Latin America.

Dr. Maria do Carmo Sobral

Professor
Federal University of Pernambuco

Civil Engineering at Federal University of Pernambuco. PhD in Environmental Planning at Technical University of Berlin, Visiting research at UNESCO-IHE. Currently, Full professor at Department of Civil Engineering, UFPE, working in the field of environmental planning and technology, integrated management of river basin and sustainability indicators. She has held several public administration positions by CAPES, Environmental Agency of Pernambuco-CPRH and Secretary of Environment of Pernambuco.

Dr. -Ing. Carlos Eduardo Pereira

Director of Operations
EMBRAPII

Carlos E. Pereira received his B.S. and M.S. degrees in engineering and computer science from the Federal University of Rio Grande do Sul (UFRGS), Brazil in 1987 and 1990 respectively, and the Dr.-Ing. degree in electrical engineering from the University of Stuttgart, Germany in 1995. Since 2014 he works as Director of Operations at EMBRAPII, where he coordinates a network of 57 applied research centers in Brazil. EMBRAPII is a Brazilian organization, inspired by the Fraunhofer model from Germany, whose goal is to foster the development of industry-academia collaboration projects. He is also Full Professor in Industrial Automation in the School of Engineering at UFRGS in Brazil. He also acts as Vice-President of Technical Activities at the International Federation on Automatic Control (IFAC). He is a researcher level 1 from CNPq, having authored more than 400 papers in scientific journals and conferences. Prof. Pereira has worked on several research projects in collaboration with industry, mostly dealing with the development of real-time computer-based systems and has contributed to the creation of several spin-off companies. He received the Friedrich Wilhelm Bessel Research Award from Alexander von Humboldt Foundation in 2012, the IFAC Service Award in 2014 and the Innovation and education award by Santander in 2010.

Karin Hueck

Journalist

Karin Hueck is a scientific journalist and writer. For ten years she was an editor at Superinteressante magazine, specialized in telling science stories to the general public. Her work at Superinteressante has earned her multiple international awards. She is an author and editor of non-fiction books. In 2018-2019, she was part of the German Chancellor Fellowship, conceded to future leaders of BRIC countries. During the fellowship, she conducted research in the Gender and Diversity department of the Freie Universität Berlin. She currently lives in Berlin.

Antonio Lacerda

Senior Vice President Chemicals and Performance Products
BASF

Dr. Bruno Rondani

Founder and CEO
100 Open Startups

Bruno Rondani is founder and CEO of 100 Open Startups, considered the largest business platform in Brazil among startups and large companies. Creator of the Open Innovation Center - Brazil and Open Innovation Week. Angel investor in more than 20 startups. Professor and researcher in innovation ecosystem management. Graduate and Master in Electrical Engineering from Unicamp and PhD in Business Administration from FGV.

PARTICIPANTS

1- Breaking the Wall of plastic packaging recycling

Felipe Cardoso, Campinas - SP, Eco Panplas

Problem: Contaminated plastic packaging pollution. Inefficient and polluting plastic recycling process

Solution: Innovative production system, composed of equipment and processes patented, that performs the decontamination and recycling of contaminated packaging in an ecological way.

Project: ECO PANPLAS is an innovative startup industry of contaminated plastic packaging recycling, that performs this process without using water, without producing waste.

2- Breaking the Wall of Transporting Frozen Goods

Yago Ronan Messias, Florianópolis - SC, Universidade Federal de Santa Catarina

Problem: Population increase along with uplifted standard of living has led to considerable growth in demands for frozen food and medicines. The transportation of these goods is more expensive than other ones.

Solution: We developed a system capable of harnessing the thermal energy rejected in the vehicle exhaust gases, using it to guarantee the cooling of the cold chamber in cargo transportation, decreasing costs.

Project: An equipment that reuses the thermal energy wasted by cargo trucks. About 2/3 of the engine power is wasted as heat. With this energy, we can keep cold the refrigeration camera used in truck.

3- Breaking the Wall of biofouling phenomenon, organically

Esther Braga, Rio de Janeiro - RJ, Universidade Federal do Rio de Janeiro

Problem: Biofouling is the accumulation of organisms on wetted surfaces responsible for economical damages to industries such as marine transportation and fish farming whose prevention methods are mostly toxic.

Solution: Through the development of cheap and natural based substances, our goal is to prepare and apply those substances on surfaces; thus, inhibiting foulant adhesion without harming the aquatic fauna.

Project: We aim to synthesize natural and cheap compounds from a byproduct of soybean oil extraction; which will act as efficient and non-toxic antiadherent agents on surfaces.

4- Breaking the Wall of Phosphate Scarcity in Agriculture

Breno Xavier Gonçalves, Porto Alegre - RS, Universidade Federal do Rio Grande do Sul

Problem: The main phosphate (Pi) source is Pi rocks (non-renewable) which can be depleted in 100 years. From all P extracted 80% is used in agriculture and only 30% of Pi is absorbed by plants.

Solution: To Develop plants tolerant to nutrient deficiency through genetic breeding techniques and use of bacteria-based inoculants to solubilize phosphate and/or promoting the growth of roots of plants.

Project: Insert genes able to increase the phosphate uptake from soil. To apply inoculant (new bacteria) in soil to transform phosphate unavailable in available to plants, increasing its growth. Insert genes able to increase the phosphate uptake from soil.

5- Breaking the Wall of Polymeric 3D-printing photonics material

Mariana Bartilotti Garcia, Ribeirão Preto - SP, Chemistry Institute - UNESP/Araraquara

Problem: The development of the technology demands extensive synthesis expertise for goal achievement as a composite with professional networking and availability of equipment as a 3D-nano printer.

Solution: Adding luminescent nanoparticles in the nanoscaffold matrix with 3D-dimension layers in order to have multifunctional polymer which is analyzed by optical and/or electric analysis.

Project: Development of a novel 3D-nanoimprinting technology investigating the feature of nanoscaffolds with quantum-confined pixels into the electric- or optical-devices miniaturizing.

6- Breaking the Wall of transparency in crop insurance

Daniel Lima Miquelluti, Piracicaba – SP, Universidade de São Paulo

Problem: Absence of agricultural productivity data to measure and classify risks at the farm level and develop crop insurance products that meet the needs of producers.

Solution: Integrate information from agrometeorological models, satellites and weather stations through data science at the farm level.

Project: The project aims to overcome scientific and operational challenges, providing the insurance market with a reliable series of agricultural productivity in high spatial resolution.

7- Breaking the Wall of 4D in vitro bioreactor for drugs testing

Eduardo Backes, São Carlos – SP, Federal University of São Carlos

Problem: I propose the reduction of animal testing and time and costs for development and commercialization of new medical drugs for pharmaceutical, cosmetics, or implants industries.

Solution: The problem can be solved by using tunable bioreactors where we can tune physiological responses and predict cell response prior moving to animal testing, reducing animal killing, time and costs.

Project: Tunable 4D in vitro bioreactor for drugs and regenerative medicine applications

8- Breaking the Wall of Clean cellulose

Karina Carvalho de Souza, Recife – PE, Federal University of Pernambuco (UFPE)

Problem: Deforestation for the use of cellulose

Solution: The use of bacterial cellulose for paper production: the innovation proposes a low-cost formulation based on salts and a simple carbon source for bacterial cellulose production.

Project: Replace vegetable cellulose with bacterial cellulose for paper production.

9- Breaking the Wall of sanitation to disconnected communities

Mario Bueno da Silva Junior, Santos – SP, Federal University of São Paulo

Problem: Some disconnected communities located in shorelines areas of my location do not have access to sanitation and therefore suffer from a series of health, economic and social problems.

Solution: Use alternative environmental solution for the communities, considering whether the limitations regarding the implementation of traditional technologies, such as the sewage treatment network.

Project: With the help of biodigester technology, combined with theoretical and practical knowledge of those involved in the project is expected to significantly improve the quality of life of local people.

10- Breaking the Wall of atmospheric pollution

Bárbara Maria Borges Ribeiro, Campinas – SP, University of Campinas (UNICAMP)

Problem: Volatile organic compounds (VOCs) present at indoor and outdoor air intensify environmental problems and damage human health, causing neurological problems and cancer, as example.

Solution: The solution is a small reactor, which is capable to destroy VOCs and microorganisms. In this way, polluted air is transformed to cleaner air that does not cause health or environmental problems.

Project: The equipment was developed to VOCs degradation and microorganism elimination to reduce air pollution and to minimize human health damage, caused by pollutants and microorganism, as virus.

11- Breaking the Wall of Heru database and web search method

Carlos França, Chapecó – SC, Federal University of Fronteira Sul – UFFS

Problem: Improve binary research method, universally adopted. I can perform a search with fewer steps and optimize the computational work in the search engines on the web.

Solution: The efficiency of the search, with a method of organization and storage of the information that allows better results than the research trees or binary trees. No one ever dared to present better results than $O(\log(n))$ complexity.

Project: Heru Search Method - Unique in the World that Uses Unprecedented Mathematical Formulas and Replaces the Binary Tree Breaking Various Paradigms Like $O(\log n)$.

12- Breaking the Wall of Autonomous Food Waste Biorefineries

Caroline Trevisan Weber, Porto Alegre - RS, Federal University of Rio Grande do Sul (UFRGS)

Problem: About 1.3 billion tons of food is wasted per year, causing 10% of greenhouse gas emissions. There are a necessity and potential to recover these residues by producing higher added value bio-products.

Solution: Total use of biomass by implementing small automated and autonomous biorefineries units monitored remotely by specialists in a central, to produce ethanol, hand sanitizer, and pyrolysis products.

Project: Small biorefineries units automated and monitored remotely, allowing the full use of biomasses to generate higher added value bio-products through a green, circular, and digital economy model.

13- Breaking the Wall of the Idea of Housing as a Commodity

Diego Lopes, Porto Alegre - RS, UFRGS - Universidade Federal do Rio Grande do Sul

Problem: Housing shortage, especially in urban areas, is a worldwide concern. In Brazil that is not any different, and impacts hardly on social inequality. A different framework is needed to face this issue.

Solution: Most of those strategies applied to tackle that issue are almost exclusively market-based strategies, though is exactly the logic of capital that creates the problem. We need to Decommodify Housing.

Project: The proposed project intends to comprehend Housing models based on principles of "decommodification" already in practice (such as Baugruppen), to critically structure, adapt and apply in Brazil.

14- Breaking the Wall of Biocatalysis for a Sustainable Planet

Mariana Morais, Campinas - SP, Brazilian Biorenewables National Laboratory

Problem: Enzymes are clean technologies for food and health products. Not enough for a sustainable planet! We can replace fossil-based industrial processes by probing the quantum nature of enzyme reactions.

Solution: Obtain new and better enzymes by real time measurements of biochemical and physical properties. Enzymes can be specifically designed to extract energy from agricultural wastes to create new processes.

Project: Cutting-edge particle accelerator and quantum computational simulations to unveil each step of an enzyme reaction to guide an efficient design of new functions for sustainable industrial applications.

15- Breaking the Wall of Food Waste

Jonas Cunha da Silva, Belém - PA, Universidade Federal do Pará

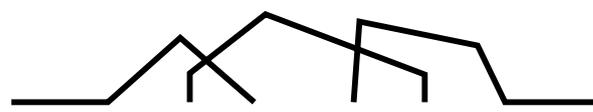
Problem: About 40% of everything that is planted (for feed use) is wasted. Also, there's an increase in the volume of agricultural waste, causing environmental impacts.

Solution: We developed an edible liquid bioplastic, made from agribusiness residues, such as fruit peels, which when solidified, forms a film capable of significantly prolonging the shelf-life of foods.

Project: Bioplastics to solve food waste.

PARTICIPANTS

FALLING
WALLS
FOUNDATION



DWIH São Paulo



Land der Ideen

DAAD



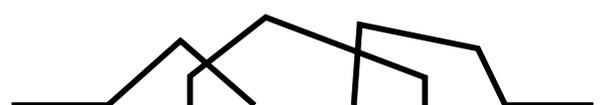
Federal Foreign Office



AGÊNCIA DE INOVAÇÃO DA UNICAMP


euraxess
RESEARCHERS IN MOTION





DWIH São Paulo



Land der Ideen

www.dwih-saopaulo.org

 facebook.com/dwihbrasil

 linkedin.com/company/DWIH-SP