FALLING WALLS LAB WROCLAW

Friday, 22. September 2023

Oratorium Marianum, University Main Building

Ambasada
Republiki Federalnej Niemiec
Warszawa

Uniwersytet Wrocławski

FALLING WALLS LAB WROCLAW

CONTENT

FALLING
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LAB
WROCLAW

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 up new and strong networks

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TIMELINE

Friday, 22. September 2023
Wroclaw, University Main Building, plac Uniwersytecki 1, Oratorium Marianum

12:45 – 13:00	**Arrival and registration of participants**
13:00 – 13:15	**Jury and participant briefing**
13:15	Opening Address: Vice-Rector UWr, prof. Stefan Kiedroń
13:20	Welcome address: General Consulate of Germany in Wroclaw, Mr. Jakob Ziegler
13:25	Introductory remarks: prof. David Blaschke
13:30	**Scholar Presentations (1-10) in person**
14:00	**Networking break (scholars) / Evaluation session (Jury)**
14:45	Award ceremony / Group picture
15:00	Farewell

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THE JURY

Prof. dr hab. Anna Chełmońska-Soyta, Chair of the Jury

Vice-Rector for Internationalization
Wrocław University of Environmental and Life Sciences

Prof. dr hab. Stefan Kiedroń

Vice-Rector for Finance and Development
University of Wrocław

THE JURY

Dr hab. Katarzyna Neubauer, prof. UMW

Head of the Department and Clinic of Gastroenterology and Hepatology
Wrocław Medical University

Dr hab. Joanna Cabaj, prof. WUST

Vice-Dean for student affairs of the Faculty of Chemistry
Wrocław University of Science and Technology

THE JURY

Jakob Ziegler

Attaché Department of Policy
German General Consulate in Wrocław

Tomasz Janos

Head of the Municipal Office for University Relations
Wroclaw Academic Centre

THE JURY

Narine Gevorgyan
Falling Walls Lab Organizer
A. Alikhanyan National Science Lab. Yerevan

Dr Agnieszka Popiołek-Masajada
Department of Fundamental Problems of Technology
Wrocław University of Science and Technology

PARTICIPANTS

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1. Dr Shemetev, Aleksadr (Czechia)
   Charles University Prague

Title: Breaking the Wall of Insight to AI Algorithms

Problem: Unravelling the complexity of AI: My research is pioneering solutions to the 'black box' of AI, promoting transparency and understanding in financial software and beyond.

Solution: Solution: I developed algorithms that dissect AI processes, creating transparent pathways for financial software and demystifying its operations.

Teaser: My project is revolutionising AI in finance, unravelling its 'black box' with innovative algorithms that reveal transparent and understandable pathways.

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2. Osifová, Zuzana (Czechia)

IOCB Prague

Title: Breaking the Wall of NMR Education

Problem: NMR spectral interpretation is a part of core knowledge of all chemistry students. However, only way how to get good at NMR interpretation is by practice, there is a lack of educative sources. Textbooks and webpages offer only limited number of spectral tasks; often without feedback to students.

Solution: We present an educational website that includes more than 180 NMR spectral assignments measured for real samples. The web application is enriched with an interactive chemical structure drawing tool, which gives the users immediate feedback about their proposed structures.

Teaser: Our website offering more than 180 spectral tasks measured on real samples brings a freely accessible way how to practice NMR interpretational skills to all students and enthusiasts. Involved interactive structure-drawing tool proceeds immediate evaluation of given answer.

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3. Romanovskyi, Evgeny (Bulgaria)
   VSE University Prague

Title: Breaking the Wall of EU and Caucasian People

Problem: How does the European Union (EU) identify itself in the world and how do others understand it?

Solution: Europeanism, the assimilation of European norms and values, isn't confined merely to institutional adoption by EU member or candidate countries. Intriguingly, this process can manifest at an individual level, even among those who don't hold EU citizenship, showcasing its pervasive influence.

Teaser: The European Union delineates its stance through specific cultural scripts, which are embraced uniformly by both citizens and non-citizens. Leveraging these scripts, not merely at a political level but also on a personal front, furnishes a deeper comprehension of the EU's essence.

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4. Bienias, Aleksandra (Poland)

Wrocław Medical University

Title: Breaking the Wall of Methods of Curing Cancer

Problem: Cancer has been negatively affecting our lives for years. When we or our loved one get the information about being positively tested about cancer at first we are terrified that our life may change so we avoid treatment to still live normally. But it may be possible to combine living with treatment.

Solution: My project is about local chemotherapy (for small intestine). My proposition is referring to creating pills with liquid inside but the pills will also have extra coats to work locally. It's a good option to avoid spending long hours in hospital. It's a possibility to live while curing cancer.

Teaser: This project may be a hope for people and may give them a chance to live normally while curing cancer. They often resign from curing cancer because they are sure that treatment will take away their normal life and will affect their whole body. This pill may be a perfect solution for many of them.

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5. Dr Siekierka, Anna (Poland)
   Wrocław University of Science and Technology

Title: Breaking the Wall of Energy from Battery Waste

Problem: The effluent of lithium-ion batteries (LIBs) is a challenging problem due to their quantity, armed in hazardous metals like cobalt, lithium and nickel. These metals need to be reextracted to prevent their disposal into the environment. The zero-waste process of metal recovery should be developed.

Solution: Reverse electrodialysis equipped with an ultra-selective cobalt exchange membrane dedicated to cobalt recovery with simultaneous energy harvesting from potential differences across membrane stack ensures metal fractionation and energy generation from battery effluents.

Teaser: RevEnGe is a reversal energy generation project connecting selective metal ions recovery with the possibility of energy harvesting simultaneously. RevEnGe deals with battery wastes and brings double benefits as a renewable energy gathering source by separating hazardous metals.

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6. Heydarov, Azad (Azerbaijan)
University of Wrocław

Title: Breaking the Wall of Living Chessboard

Problem: In a digital age, traditional theatre and chess remain mostly unaltered. How can we build a platform intertwining these realms? How can we design an interface where the depth of theatrical performance interplays with chess's cerebral strategy and crafts captivating experience for a diverse audience?

Solution: Harnessing cutting-edge technology, our platform melds theatre's storytelling prowess with the strategic nuances of chess. By animating chess pieces with theatrical personas and enabling dynamic interactions, we aim to elevate traditional experiences for a multifaceted audience of the digital era.

Teaser: Through our digital interface, teams direct chess moves, translating to on-stage enactments by players personifying the pieces. This fusion of collective strategy with theatrical embodiment captivates, merging the digital realm with traditional performance art.

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7. Pasaol, Jayson (Phillipines)
   Wrocław University of Environmental and Life Sciences

Title: Breaking the Wall of Veterinary Oncology

Problem: Cancer is a major global health concern and a common cause of death in dogs. Despite advances in cancer treatment, resistance to therapies such as PARP inhibitors can still occur due to epigenetic changes in cancer cells, leading to treatment failure.

Solution: We will revolutionize veterinary oncology treatment by combining existing PARPi drugs with DNA agents that offer potent solutions for resistance. And identifying molecular biomarkers that empower effective treatment and reduce cancer's impact in animals and ultimately in humans.

Teaser: Cancer treatments in veterinary medicine continue to evolve beyond the established standard therapies despite the challenges of drug resistance. This research will revolutionize Veterinary Oncology therapy by enhancing PARPi efficacy through epigenetic targeting and Combination Therapy.

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8. Dr El Sayed, Ali (Egypt)

Wrocław University of Environmental and Life Sciences

Title: Breaking the Wall of Natural Colorants

Problem: Colorants play a vital role in various sectors, including the food, pharmaceutical, and textile industries. Unfortunately, synthetic colorants threaten not just our health but also the environment and ecosystems. Hence, sustainable natural colorants must be identified and developed now.

Solution: Forests are unique habitats, and their plants' associated microbial communities are untapped sources of valuable natural compounds including colorants. In particular, the endophytic fungi of such plants which have until now remained underexplored, represent a new type of diversity with high catabolic activities.

Teaser: This project explores fungal communities associated with forest plants as an untapped source of natural colorants. The forests of Poland are very extensive and their biodiversity is vast, representing an interesting repository of novel fungi producing natural colorants.

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9. Kabeta, Worku Firomsa (Poland)
Gdansk University of Technology

Title: Breaking the Wall of Modeling Tapered Piles

Problem: Tapered piles are a new technology for foundation design, but their performance is not well understood. The results of a centrifuge modeling study of tapered piles in sand will be presented. The study will show that tapered piles have the potential to improve the performance of foundations in sand.

Solution: The solution to the problem is to use centrifuge modeling. Centrifuge modeling is a powerful tool for studying and simulating the behavior of tapered piles in the sand under a variety of conditions. This information can be used to develop design guidelines for tapered piles in sand.

Teaser: This project uses centrifuge modeling to study the behavior of tapered piles in sand as a novel approach to improve foundation design. The results of this study show that tapered piles have the potential to improve the performance of foundations in sand.

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10. Dr Sadowska, Joanna (Poland)

Royal College of Surgeons in Ireland

Title: Breaking the Wall of Human Tissue Regeneration

Problem: Unlike certain animals, humans can't easily regenerate damaged body parts. A lizard might grow back its tail, but we can't naturally repair severe bone or skin damage. This gap in our healing abilities highlights a crucial need for innovative medical methods to aid tissue repair and regeneration.

Solution: By nanomedicines and gene therapies, similar to the technologies used in COVID vaccines, I want to teach our body cells how to fix injured tissues and organs. It's like giving cells a "DIY repair guide", so our body can naturally heal itself.

Teaser: Using gene therapies and unique implants, I'm creating tissues like skin and bone in the lab. These implants are designed to locally interact with our cells, boosting their repair mechanisms and in the future can be implanted into patients to regenerate damaged organs.

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WHICH ARE THE NEXT WALLS TO FALL?

IN COOPERATION WITH

Ambasada Republiki Federalnej Niemiec Warszawa

Wrocław University of Science and Technology

Silesian University of Technology

Research University

WCA Wrocław Academic Hub

Uniwersytet Wrocławski

Research University

Wrocław Medical University

Wrocław University of Environmental and Life Sciences

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Federal Foreign Office

DAAD Deutscher Akademischer Austauschdienst German Academic Exchange Service

In Zusammenarbeit mit: DIE ZEIT VERLAGSGRUPPE

academics

CONTACT

Prof. David Blaschke
Institute of Theoretical Physics
University of Wroclaw
david.blaschke (at) uwr.edu.pl
www.ift.uni.wroc.pl/~blaschke

FEEDBACK

What is your overall impression of the Falling Walls Lab Wroclaw?

What are your concrete suggestions for improvement?

What was most challenging?

email: david.blaschke (at) uwr.edu.pl

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