

SPEAKERS

10th German-Brazilian Dialogue on Science, Research and Innovation “Sustainable Energy Transition”

Arnaldo Cesar Walter (UNICAMP - State University of Campinas, School of Mechanical Engineering)



Mini CV: Professor at the School of Mechanical Engineering of the University of Campinas. He was co convener of ISO 13065 Sustainability Criteria for Bioenergy. Participant of projects in the context of the European Commission and IEA Bioenergy Agreement.

Abstract: Sometimes, energy transition has been presented as a dogma, without room to consider the particularities of each country and, even more, without considering the challenges to reach the final goal (net zero GHG emissions). An issue to be prioritized in the debate is how supply chains will evolve and how to avoid dependencies that could result conflicts. Another topic is to realistically consider the restrictions related to the circular economy, due to the lack of adequate infrastructure and the costs imposed by geographic dispersion. Simply put, energy transition means changing energy supply chains so that dependence on fossil fuels is drastically reduced and, ultimately, eliminated. One of the goals is for greenhouse gas emissions to reach net zero by 2050.

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Caio Klasing Pandolfi (Siemens Energy Brazil, Corporate Innovation)



Mini CV: Caio Pandolfi is Corporate Innovation Manager at Siemens Energy Brasil.

Abstract: According to the International Energy Agency, more than half of the technologies necessary for the energy transition to achieve the reduction of CO₂ emissions by 2050 are still under development, and some of them already available have the challenge to spread the adoption of new technologies, make them reach industrial scale and lower costs. This scenario combined with the fact that Brazil has a huge potential of generating much more green energy than necessary for its internal consumption and could therefore become a significant exporter, brings the need to intensify the innovation effort to develop those new technologies that can have a significant field of application in Brazil. Globally, Siemens Energy has set 5 Fields of Actions for such technologies to accelerate the development of solutions for the energy transition. Those Fields of Actions and its underlying technologies could be debated during the next bilateral meetings so it is discussed between both countries, regarding its relevance, challenges, and fit.

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Carlos Eduardo Pellegrino Cerri (USP - University of São Paulo, ESALQ - Luiz de Queiroz College of Agriculture



Mini CV: Carlos Eduardo Pellegrino Cerri is professor at the “Luiz de Queiroz” College of Agriculture (ESALQ) from the University of São Paulo (USP). He is an advisor to the numerous national and international foundations and organizations, as well as national governments. He is affiliated member of the Brazilian Academy of Science, and one of five Brazilians on the British Reuters list of the “Top world’s most influential climate scientists”.

Abstract: Globally, energy accounts for about 75% of global greenhouse gas emissions, and consequently, we must reduce the carbon emissions associated with fossil fuel production, whilst also developing alternative energy sources to fulfill demand. Renewable energy production (such as the case of bioethanol from sugarcane or biodiesel from oil crops), among other low-carbon technologies, will be instrumental in transforming traditionally fossil fuel-producing basins into net zero integrated energy systems. In this presentation the goal is to address that bioethanol from sugarcane is an option for reducing greenhouse gas emissions and potentially increasing soil carbon sequestration.

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Christian Oberst (IW - German Economic Institute)



Mini CV: Dr. Christian Oberst is part of the INFER (International Network for Economic Research) board since 2015, currently as Vice-Chair. Since 2018, he is a senior economist for housing policy and real estate economics at the German Economic Institute (IW). He is also an external lecturer for real estate economics at the European Business School Oestrich-Winkel and IRE|BS Real Estate Academy of the University of Regensburg.

Abstract: The debate on how to alleviate financial burdens for low-income households and energy intensive industry arises with new emphasis and urgency in Germany in the wake of the Russian war of aggression against Ukraine and its economic consequences for Europe with high energy prices and inflation, slowing economy, high uncertainty, and an investment slowdown. Küper and Obst (2023) argue that this further increases the transformation pressure to switch to competitive, climate neutral alternatives such as electricity and hydrogen. However, the transformation has now to be done under less favourable macroeconomic conditions, with higher borrowing costs and uncertainty.

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Euclides de Mesquita Neto (FAPESP - São Paulo Research Foundation; GRC - Global Research Council)



Mini CV: PhD in Mechanical Engineering from Universität Hannover (1989) with a DAAD fellowship (Deutscher Akademischer Austauschdienst). Full professor at the Department of Computational Mechanics (DMC) of the School of Mechanical Engineering (FEM) at the State University of Campinas (UNICAMP) since 2005. He is a CNPq research fellowship recipient since 1990. Member of the Adjunct Panel (Special Programs and Research Collaborations) at FAPESP since 2016. He is Executive Secretary of the Global Research Council-GRC since September 2022.

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Fernando Junior (Bosch, Powertrain Solutions Division)



Mini CV: Fernando Junior has been working 20 years with research and development, 17 of them in the automotive business at Robert Bosch. Currently he leads the Powertrain Solutions system development at Robert Bosch Latin America.

Abstract: The importance of a carbon-free and carbon-neutral perspective on power solutions and mobility business, considering renewable energy generation, storage, distribution and usage. Bosch is a global player active in the complete value chain, designing innovation with partners all over the globe for a sustainable society. As a climate action pioneer, it fosters and advances the expansion of renewables, and strives continuously for energy efficiency.

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Gabriel Trevisan (Bosch, Global Expert Service Sustainable Disposal and Recycle Management)



Mini CV: Gabriel Trevisan has been working for 22 years in several Purchasing Departments at Robert Bosch like in automotive and industrial areas, thereof 3 years in Hildesheim, Germany. Currently heading a new established department: Sustainable Disposal and Recycle Management with worldwide responsibility to implement a systematic sales process for scrap generated in the plants, aiming to increase processes of Circular Economy as well to have additional scrap sales revenue. Since 2022 it is running a pilot project in Brazil called ReCoVery.

Abstract: Extraction of raw material has a limit and has a huge impact on the environment. Based on an increasing demand for all kinds of products and consequently raw material, we need to rethink our resources. Based on that, Bosch started a pilot project to collect the end-of-life products, giving the right destination for them: Recycle, Re-Use, Reman. Through this Circular Economy we can contribute by reducing carbon emissions and avoid further raw material extraction and its environmental impact.

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Jacques Marcovitch (USP - University of São Paulo, School of Economics, Business Administration and Accounting)



Mini CV: Jacques Marcovitch is Senior Professor of Strategy and International Affairs at the University of São Paulo (Brazil). Currently he is the coordinator of Projeto Metricas and Projeto Bioeconomia. Among other activities he is a Board Member of Biblioteca Brasileira Guita e José Mindlin at USP as well as the International Relations and Development Studies Institute (Graduate Institute).

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Joana Portugal Pereira (UFRJ - Federal University of Rio de Janeiro, Energy Planning Program)



Mini CV: Joana Portugal Pereira is an Assistant Professor in the Energy Planning Program of Federal University of Rio de Janeiro and an Invited Assistant Professor at University of Lisbon. She is a Lead Author of the IPCC Sixth Assessment Report and the UNEP Emission Gap Report.

Abstract: The talk will explore the interlinkages between climate change and energy transitions, emphasising the urgent need to shift towards low-carbon energy systems for sustainable development. Professor Joana Portugal Pereira will discuss the current state of global energy supply, its impact on climate change, and future climate threats to energy security. The talk will highlight potential benefits of renewable energy systems, challenges hindering progress, and successful energy transition policies in Brazil. Finally, the role of international cooperation in promoting a sustainable energy future will be examined.

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José Roberto Cardoso (USP - University of São Paulo, Polytechnic School Energy and Automation Engineering Department)



Mini CV: Dr. José Roberto Cardoso is a full professor at the Electric Energy and Automation Engineering Department of the Polytechnic School of the University of São Paulo (EPUSP) since 1999.

Abstract: Engineering education faces the challenge of migrating from the current crystallized educational system to a new system that prioritizes the insertion of the humanities in the technical programs to meet the goals of the OSD in this new scenario of the energy transition, in which ethics is the primary tool in the battle against climate change. What programs are desirable for training teachers to act in this new fluid and complex scenario to ensure the rescue of the technological protagonism that Brazilian engineering exercised recently? How to reconcile the students' longing for contemporary education, in which they are a protagonist, with teaching forms based on the last century's practices.

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Marcio Giannini Pereira (CEPEL - Electric Power Research Center)



Mini CV: Marcio Giannini Pereira is researcher at the Electric Power Research Center (ELETROBRAS CEPEL) and member of the editorial board of the Brazilian journal “Revista Brasileira de Tecnologia e Negócios em Petróleo (TN Petróleo)” since 2020. He is also an invited professor at COPPE/UFRJ, as well as a consultant and lecturer on sustainability and energy.

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Michael Bucksteeg (University of Hagen, Faculty of Business and Economics)



Mini CV: Dr. Michael Bucksteeg is Assistant Professor of Business Management and Energy Economics at the University of Hagen.

Abstract: Since the liberalisation, European energy markets have undergone continuous further developments. Two main achievements are implementing the European market coupling and emissions trading scheme guaranteeing efficiency and sustainability. A future-proof market design for a low-carbon energy system with decentral resources must address several remaining challenges, such as consistent locational incentives, decentral renewables, and flexibilities participation, and coordinated reliability mechanisms. Against this background, this contribution will shed light on promising market-based design options.

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Paulo Roberto Antunes de Souza Junior (Siemens, Electric Mobility Business Unit)



Mini CV: Paulo Roberto Antunes joined Siemens in 2007. He is currently responsible for the Electric Mobility Business Unit at Siemens, with the mission to deliver solutions for charging electric vehicles to customers.

Abstract: Brazil currently has around 86% of its electricity coming from renewable sources. This makes the country one of the most attractive in the world for electric mobility, as the world average is only 27% of electricity from renewable sources. The proposed presentation compares the amount of CO₂/KM in light and heavy vehicles in Brazilian cities for different propulsion sources: combustion (fossil and biofuel) and electric. Also, efficient solutions for charging this electric fleet are presented, to enable the adoption of this technology.

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Philipp Riegebauer (Bable Smart Cities)



Mini CV: Philipp Riegebauer works for BABLE Smart Cities, a spin-off of the German Fraunhofer Gesellschaft. He is responsible for operational processes and leading the team focusing on Central European markets. Riegebauer is Executive Board Member of the Wissenschaftliches Forum und Netzwerk zur Erörterung energiebezogener Themen (GEE) and professor at the University of Applied Sciences in Düsseldorf.

Abstract: The presentation will focus on the critical role that energy technology innovations play in achieving a net-zero carbon future. Philipp Riegebauer will highlight best practices and strategies for developing a roadmap to implement these innovations and reach zero carbon emissions. In conclusion, the importance of taking a comprehensive approach that combines policy, innovation, and collaboration to achieve the goal of zero carbon emissions is highlighted.

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Ricardo Rüther (UFSC - Federal University of Santa Catarina, Solar Energy Research Laboratory)



Mini CV: Dr. Ricardo Rüther is professor at Federal University of Santa Catarina (UFSC) and coordinator of the Solar Energy Research Laboratory (FOTOVOLTAICA-UFSC).

Abstract: It may come as a surprise to most people, but solar photovoltaics (PV) has been the fastest growing power generation technology worldwide since 2016. With the increasing penetration of intermittent renewable energy (RE) generation technologies such as solar and wind in the global energy mix, energy storage technologies like batteries and green H₂ need to be further developed, and have their costs reduced, so that solar and wind generation can be made dispatchable. On the other hand, because the production of green H₂ is energy-intensive, large-scale solar and wind power plants must be the sources of electricity generation to run all the H₂ production processes. In Brazil, which has a very diversified electricity generation mix, photovoltaic solar energy surpassed wind energy in 2023 to become the second most relevant power generation technology after large hydroelectricity, for which the country has always been considered as one of the most RE-friendly nations. With large-hydro, solar, wind and biomass power, Brazil is well positioned to become one of the most competitive green H₂ producers on the planet.

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Roberto Schaeffer (UFRJ - Federal University of Rio de Janeiro, COPPE - Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering)



Mini CV: Roberto Schaeffer is Full Professor of Energy Economics at the Energy Planning Programme of the Federal University of Rio de Janeiro, Brazil. Dr. Schaeffer collaborates with the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Environmental Program (UNEP). He is Associate-Editor of Energy-The International Journal, member of the Advisory Board of the Routledge Series in Energy Transitions, member of the EU High-Level Panel on Decarbonisation, and member of the Brazilian Academy of Sciences (ABC).

Abstract: Low-carbon fuels are the most promising alternatives to deeply decarbonize air and maritime transport. Several technological routes focused on the production of renewable jet fuel can coproduce marine fuel. This presentation will explore possible synergies in the decarbonisation of aviation and shipping in Brazil. We will show that by imposing a strict carbon budget to the Brazilian economy compatible with a world “well below 2°C”, the portfolio of aviation and shipping fuels changes significantly with the need for carbon dioxide removal strategies based on bioenergy in the country.

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Roger Guilherme (Volkswagen do Brasil, Way to Zero Center)



Mini CV: Roger Guilherme was trained in Sustainable Mobility by Volkswagen AutoUni in Germany. Currently he manages the Way to Zero Center at Volkswagen Brazil, a recently created group with focus on measures and partnerships for research aiming the product decarbonization of the brand Volkswagen passenger cars in the region.

Abstract: The 2050 zero CO₂e emission commitment of Volkswagen has started in the group subsidiaries strategic studies and actions to find the most feasible “Way to Zero” for each region. For South America, especially regarding its biggest market, Brazil, the established European trend for high volume battery electric vehicles (BEV) will most likely not take place for passenger cars with the same velocity. The reasons are local characteristics, such as being a cost-oriented market, a still in-construction charging infrastructure in a continental-size country and more urgent social priorities for the public investments. On the other hand, the region vocation for agriculture makes it attractive to take the opportunity of the already established BioFuels infra-structure as a short and middle term action to reduce CO₂e emission related to individual mobility. The definition of a measuring system, the correct communication, the establishment of oriented legislations and the definition of strategies to realize this potential are the main present challenges.

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Samuel Mössner (University of Münster, Institute of Geography)



Mini CV: Samuel Mössner is professor for sustainability and planning at the University of Münster. Trained as a human geographer, he earned his PhD at the University of Kiel. He has carried out research in Italy, Germany and the U.S. and taught at RWTH Aachen, Universities of Kiel and Freiburg as well as LMU Munich, before joining the Institute of Geography in Münster. His research interests are in critical perspectives on urban sustainability, post-politics, environmental movement research and environmental justice. He is member of the advisory boards for climate change as well as sustainable mobility of the City of Münster and has coauthored ‘Adventures in Sustainable Urbanism’ (SUNY Press, 2020).

Abstract: Following the tradition of ecological modernization, our understanding of transitions often emphasizes the countability of indicators and models in favor of an ostensibly global consensus. Conflicts and debates on the term and inconsistent interpretations when it comes to questions of environmental justice have been largely excluded. I argue that, first, the predominant understanding of transition often reproduces neocolonial dependencies that follow growth-oriented logics of global economic development and cultural geopolitics. Second, urban policies often follow a socio-spatially selective and fragmented understanding and disregard spatial relationalities. It is ‘sustainability in one place’ but no sustainability transition.

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Vania G. Zuin Zeidler (Leuphana Universität Lüneburg, Institute of Sustainable Chemistry; UFSCar - Federal University of São Carlos)



Mini CV: Dr. Vania Zuin Zeidler (FRSC) is a full professor in Sustainable Chemistry of Renewable Organic Resources at the Leuphana University (Germany), being the Pro-Dean of Gender and Diversity at the Faculty of Sustainability, and a licensed professor at the Federal University of São Carlos (Brazil).

Abstract: The lecture will be an invitation to put chemistry in a broader perspective to discuss circularity of materials and relevant processes as protagonists in this challenging and exciting moment towards more sustainable energy production and consumption.

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Vera Felbermayer (BASF South America, Vice Presidency of Site Management, Operations and Digital Support)



Mini CV: Since 2018, Vera Felbermayer has been in the position of Vice President of Site Management, Operations and Digital Support for BASF South America. She is member of the BASF Senior Executive team in South America, and member of the VDI Board in Brazil (Association of German Engineers).

Abstract: Climate change is the greatest challenge of the 21st century. In many areas, products and innovations based on chemistry are the key to a climate-neutral future. BASF is working intensively to significantly reduce the carbon footprint of its production and, thus of its products, and has set itself the goal of achieving net zero emissions by 2050. To achieve this, technology becomes even more crucial. We foster and leverage networks of technology experts throughout the company and with external partners. By pooling expertise around renewable energies, alternative raw materials and CO2 reduction technologies, BASF wants to increase the speed of implementation and achieve scaling effects more quickly. Our focus is on five strategic levers:

- We are increasingly meeting our energy needs from renewable sources;
- We are increasingly relying on energy recovery to produce steam;
- We are working to further improve the energy and process efficiency of our plants;
- We are increasingly replacing fossil resources with bio-based raw materials.

And together with partners, we are pioneering nearly carbon-free production processes, especially for emission-intensive basic chemicals.

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Veronika Grimm (FAU - Friedrich-Alexander-Universität Erlangen-Nürnberg, School of Business, Economics and Society; German Council of Economic Experts)



Mini CV: Veronika Grimm has been full professor of economics and Head of the Chair of Economic Theory at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) since 2008. Since 2020 she has been a member of the German Council of Economic Experts. In addition, she is active in numerous committees and advisory boards, including the German Federal Government's National Hydrogen Council, the Expert Commission on the "Energy of the Future" monitoring process at the Federal Ministry of Economics and Energy (BMWi), the German Advisory Council on Consumer Affairs of the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), and the Energy Steering Panel of the European Academies' Science Advisory Council (EASAC). She is member of the Executive Board of Zentrum Wasserstoff.Bayern (H2.B) and Director of the Laboratory for Experimental Research Nuremberg (LERN). She has received numerous awards in recent years for the transfer of scientific findings into practice.

Abstract: The transformation to climate neutrality requires a profound restructuring of national and global value chains as well as technological and societal innovations. Cooperation between countries worldwide, and especially between Germany and Brazil, is possible and mutually attractive in various dimensions. On the one hand, trade relations can be intensified in the area of energy trade or critical raw materials. On the other hand, technology cooperation can accelerate progress in the defossilisation of the economies. The talk will shed light on cooperation potentials and show which instruments are available to realise them.

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Witold-Roger Poganietz (KIT - Karlsruhe Institute of Technology, Institute for Technology Assessment and Systems Analysis)



Mini CV: Dr. Witold-Roger Poganietz is currently head of the Research Group “Socio-technical Energy Futures” at the Institute for Technology Assessment and Systems Analysis with the Karlsruhe Institute of Technology, Germany. There, he is member of the Steering Committees of the Graduate Schools for Energy (ENZo) and Environment (GRACE). Furthermore, he is assistant professor at the TU Darmstadt and teaches also at the FernUniversität in Hagen, both in Germany.

Abstract: Transition to sustainability is a search for ways to improve the capacity to guide interactions between nature, economy, and society toward a more sustainable future and, thus, a process of social learning in its broadest sense. That means also, it is not only learning that is at issue but education (cf. Barth and Michelsen, 2013). Systematic instruction in case of sustainability should address the dimensions of knowing how to deal with the complexity of sustainability, and acting together across professional, social, and cultural content. To find appropriate conditions for education is challenging; but the same is true regarding the object of learning: what means sustainability energy consumption and how to implement it? The aim of the presentation is to discuss the challenges appropriate education faces.