

Conference

# Cyber-Physical Perspective of Operation and Control of Future Power Grids

12-13 May 2025

DTU Lyngby Campus, Denmark

## About the Conference

The EU-funded MSCA-ITN project InnoCyPES (Innovative Tools for Cyber-Physical Energy Systems) is dedicated to advancing the transition towards a fully digitalized energy system. This transition demands significant improvements in the design of cyber and physical systems, end-to-end data processing tools, and the implementation of changes in policy, incentives, and regulatory mechanisms. This conference aims to disseminate the results achieved by the InnoCyPES project over the past four years, showcasing the collective efforts of 15 PhD projects within the consortium. Additionally, the conference will feature insights from the ADORed project, another MSCA-ITN initiative coordinated by DTU Wind.



Accelerating the Deployment of Offshore Wind using DC technology (ADORed) is one of the largest European industrial doctoral networks focused on training a new generation of researchers in Offshore Wind and HVDC technology in collaboration with academia and industry.



Disclaimer: The content of this conference represents the views of the author only and is his/her sole responsibility.

### Consortium of InnoCyPES



### Consortium of ADOred





**Funded by the  
European Union**

Marie Skłodowska-Curie Actions (MSCA)

Grant Agreements:

InnoCYPES: 956433

ADOrED: 101073554

## Day 1 - 12th May

8:30 -9:00 **Registration and Light Breakfast**

9:00 - 9:30 **Welcome**

9:30 - 11:00 PANEL SESSION 1  
**Latest research development on Grid forming converter control**

11:00-11:30 **Break**

11:30-12:20 PANEL SESSION 2  
**Static and Dynamic Assessment of Grid-Connected IBRs**

12:20 - 1:45 PM **Break and PowerLab tour**

1:45 -3:30 PM PANEL SESSION 3  
**Developing and Validating EMT Models**

3:30 -4:00 PM **Coffee Break**

4:00 - 4:45 PM PANEL DEBATE A  
**Looking Into The Crystal Ball: How will Power System Resilience evolve in the next 10 years?**

4:45-6:00 PM **Reception**

## Day 2 - 13th May

9:00 -10:30 PANEL SESSION 4  
**How big data can be managed and applied in future power systems?**

10:30-11:00 **Coffee Break**

11:00-12:20 PM PANEL SESSION 5  
**Interoperability and cyber resilience**

12:20-1:30 PM **Lunch**

1:30 - 2:30 PM PANEL SESSION 6  
**Is digitalization an alternative to grid reinforcement?**

2:30 - 3:30PM PANEL DEBATE B  
**How digitalization of distribution grid evolves in the next 10 years?**

3:30 PM **Conclusion**

## Day 1 - 12th May

8:30 -9:00 **Registration and Light Breakfast**

9:00 - 9:30

### Welcome

#### InnoCyPES: Overview and Highlights

Guangya Yang, Scientific Project Coordinator

#### Presentation of the programme ADOreD

Nicolaos Cutuliulis, Scientific Project Coordinator

9:30 - 11:00

#### PANEL SESSION 1

### Latest research development on Grid forming converter control

Moderator:  
Nicolaos A. Cutuliulis  
Professor  
DTU Wind and  
Energy Systems

Advancing the green transition requires new system and business use cases for grid operators and developers. Grid-forming technology is a key enabler in this transformation. This panel presents the latest advancements in grid-forming converter control from both academic and industry perspectives.

- **Functional Specification Development for Grid-Forming Offshore Wind Power Plants.**  
Sulav Ghumire, Siemens Gamesa Renewable Energy
- **Enhanced Hybrid Synchronization Control of Grid-forming Converters.**  
Benjamin Vilmann, PhD student DTU Wind
- **Holistic Grid-Forming Control for HVDC-Connected Offshore Wind Power Plants to Provide Frequency Response.**  
Zhenghua (Joshua) Xu, ADOreD
- **Modelling and Enhancing Transient Stability of Grid-forming Converters Equipped with Current Reference Limitation.**  
Bikash Pal, Professor, Imperial College London

11:00-11:30

### Break

#### PANEL SESSION 2

### Static and Dynamic Assessment of Grid-Connected IBRs

Moderator:  
Frank Martin  
Chief Grid Specialist  
European Energy

Explore innovative approaches to modeling inverters with both static and dynamic characterizations of inverter-based resources (IBRs). This panel provides insights into evaluating grid connectivity for IBRs, highlighting the latest techniques for inverter performance modeling and ensuring reliable grid operation.

- **Challenges in steady-state modelling of IBRs.**  
Ramon Abritta, InnoCyPES
- **Stability Certificates for Grid-Connected Converters via Scaled Relative Graphs.**  
Eder Baron, InnoCyPES
- **Impact of Grid Code Fault-Ride-Through Requirements on Wind Power Plant Protection.**  
Alexander Novikov, ADOreD

11:30-12:20

12:20 - 1:45 PM **Lunch and PowerLabDK Tour**

---

**PANEL SESSION 3**

1:45 - 3:30 PM **Developing and Validating EMT Models**

Gain a deeper understanding of the challenges in electro-magnetic transient (EMT) simulations for system stability. This panel discusses new methods to enhance model accuracy and introduce novel testing and validation technique. It covers the latest advancements in hardware-in-the-loop testing and EMT model development and validation.

**Moderator:**  
Oscar Saborío-Romano,  
Researcher,  
DTU Wind and  
Energy Systems

- **EMT study of interactions between Multi-vendor offshore wind power plants.**  
Germano Mugambi, ADOreD
  - **Theoretical and analytical approaches for EMT simulations investigation zones.**  
Nicolae Darii, ADOreD
  - **EMT model development and validation for wind turbines and wind power plants.**  
Frank Martin, Chief Grid Specialist, European Energy
- 

3:30 -4:00 PM **Break**

---

**PANEL DEBATE A**

4:00-4:45 PM **Looking Into The Crystal Ball: How will Power System Resilience evolve in the next 10 years?**

**Moderator:**  
Guangya Yang  
Associate Professor  
DTU Wind and  
Energy Systems

- Jacob Østergaard, Professor, DTU Wind and Energy Systems.
  - Johannes Stöckl, Thematic Coordinator, Austrian Institute of Technology.
  - Marija Illic, Senior Research Scientist, MIT.
  - Bikash Pal, Professor, Imperial College London.
- 

4:45-6:00 PM **Reception**

9:00-10:30

PANEL SESSION 4

## How big data can be managed and applied in future power systems?

Moderator:  
Peter Kjær Hansen  
Senior Chief Consultant  
Green Power Denmark

In the face of rising geopolitical tensions, economic volatility, and rapid technological shifts, the resilience of power systems is more critical than ever. As we push for a greener future, how will we balance the uncertainty ahead with the need for a stable and secure grid? Join a thought-provoking debate on the future of power system resilience. How could we strengthen our grids, balancing interoperability and resilience, or will the pressures of uncertainty push us toward familiar yet unsustainable solutions?

- **Power Quality Monitoring: Integrating Signal Processing and Deep Learning.**  
Han Shao, InnoCyPES
- **How to foster data driven and collaborative asset management of distribution grids?**  
Konrad Sundsgaard, InnoCyPES
- **Entity-based probabilistic modelling of power systems data.**  
Kutay Bölat, InnoCyPES
- **Modelling Databases for better Applications in Power Systems: Structured or Unstructured?**  
Lunodzo Mwinuka, InnoCyPES

10:30-11:00

Break

11:00-12:20

PANEL SESSION 5

## Interoperability and cyber resilience

Moderator:  
Alex Stefanov  
Associate Professor  
TU Delft

Power grid digitalization enhances system efficiency, flexibility, and monitoring and control capabilities. However, interoperability, resilience and cyber security remain key challenges especially as power systems become more complex, interconnected, and vulnerable to cyber attacks. In this session, we will dive into the cyber resilience of virtualized digital substations and offshore wind power plants, exploring cutting-edge strategies for engineering, simulation, and validation of novel digitalized infrastructures. Moreover, the emerging cyber security challenges will be discussed, and methodologies to detect and prevent cyber attacks on digital substations will be presented.

- **Virtualized digital substations: engineering, simulation and validation.**  
Nadine Kabbara, InnoCyPES
- **Intrusion prevention system and cyber attack source identification in digital substations.**  
Nicola Cibir, InnoCyPES
- **Analyzing the cyber-resilience of software-defined OT network in offshore wind power plants.**  
Agrippina Mwangi, InnoCyPES

12:20-1:30 PM Lunch Break

1:30-2:30 PM

PANEL SESSION 6

**Is digitalization an alternative to grid reinforcement?**

**Moderator:**  
Simon Tindemans  
Associate Professor  
TU Delft

For decades, power grids have been developed with a fit-and-forget approach, ensuring there is always enough capacity to meet demand. However, as renewable energy sources grow and electrification accelerates, this traditional strategy leads to soaring network costs. The challenge now lies in finding the right balance between expanding grid capacity and actively managing existing grid assets.

This session will explore the potential of digital solutions and flexible grid management as cost-effective alternatives to traditional infrastructure expansion. We'll uncover where and under what conditions these solutions can replace costly upgrades, considering technical, economic, and regulatory factors.

- **Cost-benefit analysis of digitalization in the energy sector: Concept, modeling, and applications.**  
Jose Angel Leiva Vilaplana, InnoCyPES
- **Overcoming Barriers to Digitalization in Power Distribution Systems: Accelerating the Transition to a Sustainable Future.**  
Roberto Monaco, InnoCyPES
- **Accounting for heterogeneous electricity consumption when insuring cost reflective tariff structures.**  
Casper Bjerregaard, Senior Consultant, Danish Utility Regulatory Agency

2:30-3:30 PM

PANEL DEBATE B

**How digitalization of distribution grid evolves in the next 10 years?**

**Moderator:**  
Claire Marie Bergaentzlé  
Associate Professor  
DTU Management

- Christine Brandstätt, Assistant Professor, Copenhagen Business School.
- Tilman Weckesser, Assistant Professor, DTU Wind and Energy Systems.
- Peter Kjær Hansen, Green Power Denmark.
- Christoffer Grejsen, Independent Advisor.
- Carsten Buhl Nielsen, Lead Data Analyst, Cerius-Radius.

3:30 PM

**Conclusion**

**Words by**  
Guangya Yang

## Location

Atrium of Building 329 - Technical University of Denmark (DTU)  
Elektrovej 329A  
2800 Kongens Lyngby  
Denmark



## Tour

We will visit the facilities of **PowerLabDK**, a world-class experimental platform for technology development, testing, training and demonstration within electric power and energy.

It consists of an interconnected network of laboratories that supports a wide range of experiments within digital energy solutions, interconnected energy systems and optimized energy technologies.

The facilities range from flexible fundamental research laboratories to a complete full-scale power distribution system that proves resourceful as a data source and platform for full-scale experiments and living labs.



# Speakers

## InnoCyPES Doctoral Network



**Agrippina Mwangi**

Received her BSc. in Electrical and Electronic Engineering from Dedan Kimathi University of Technology and MSc. in Electrical and Computer Engineering from Carnegie Mellon University. She is currently pursuing a Ph.D. in the Energy & Resources Group at Copernicus Institute of Sustainable Development, Utrecht University (The Netherlands). Her research interests are IoT-Edge architectures, SDN/NFV, autonomous networks, AI/ML, and offshore wind.



**Nadine Kabbara**

Received her MSc. degree in control and electrical engineering from Paris Saclay University. She is a third-year Industrial Ph.D. working with the French utility EDF in their R&D department. She is also part of the InnoCyPES European project on connected digital smart grids. Her research interests include virtualized digital substations, IEC 61850, virtualized IEDs, data modeling, and simulation frameworks.



**Nicola Cibin**

Nicola Cibin received his B.Sc. degree in Information Engineering and his M.Sc. degree in Telecommunications Engineering from University of Padua, Italy, in 2019 and 2021, respectively. After working as a research assistant at Aalborg University, Denmark, from 2021 to 2023, he joined the Cyber Resilient Power Grids (CRPG) research group at TU Delft, Netherlands, as a PhD student. His research interests include telecommunication networks, cyber security, smart grids, and blockchain.



**Lunodzo Justine Mwinuka**

Received his BSc. In Information Technology and Systems at Mzumbe University, Morogoro, Tanzania, and a master's degree in Wireless and Mobile Computing at Nelson Mandela African Institution of Science and Technology, Arusha, Tanzania. He is currently a PhD student at the Higher Technical Institute of the University of Lisbon under the InnoCyPES project. His research focuses on exploring advanced methods to manage and process large-scale data using distributed systems with an interest in data integration, distributed queries, and security.



**Kutay Bölät**

Kutay holds a double major bachelor's degree in Electronics and Communications Engineering and Control and Automation Engineering from Istanbul Technical University. He further specialized in Control and Automation Engineering during his master's at the same institution, where his thesis focused on interpretable low-dimensional data representations and uncertainty quantification using unsupervised deep generative models and fuzzy logic. Currently, Kutay is pursuing a PhD at TU Delft in the Electrical Sustainable Energy department, specifically within the Intelligent Electrical Power Grids group. His primary research interests lie in deep probabilistic modelling of smart meter data, aiming to generate privacy-preserving synthetic data and enhance data enrichment.



**Ramon Abritta**

Ramon received his B.Sc. and M.Sc. degrees in Electrical Engineering from the Federal University of Juiz de Fora (UFJF), Brazil. He was employed as a Ph.D. candidate at the Norwegian University of Science and Technology (NTNU), Trondheim, Norway, from 2022 to 2024. He is still enrolled at NTNU as a PhD student, taking part in the H2020 MSCA project InnoCyPES until his PhD defense occurs. From Feb/2025, he has been with Siemens Gamesa Renewable Energy, Denmark. His interests include inverter-based resources, optimization in electrical engineering, and computational methods for analyzing power systems.

# Speakers

## InnoCyPES Doctoral Network



**Han Shao**

Han Shao received her B.S. and M.S. degrees from Dalian Maritime University, Dalian, China, in 2018 and 2021, respectively. She is currently pursuing a Ph.D. at Norwegian University of Science and Technology, Trondheim, Norway. In addition, she is a Marie Skłodowska-Curie Early Stage Researcher taking part in the EU InnoCyPES project. Her research focuses on power quality monitoring, signal processing, deep learning, and data analysis.



**Konrad Sundsgaard**

Holds a MSc in Industrial Engineering (Electrical Power Systems) from the Technical University of Dortmund (Germany), with study experiences at IIT Chennai (India), ICAM Toulouse (France). From 2018 to 2020, he joined Innogy SE's (now E.ON's) international graduate program, contributing to smart grid and substation projects. He then worked as a Special Engineer at Westnetz GmbH, focusing on low-voltage grid digitalization. Currently, he is pursuing a PhD at DTU in collaboration with Green Power Denmark, developing reliability models for medium-voltage cable networks. His research explores digitalization in power distribution asset management.



**Ali Arjomandi Nezhad**

Received the B.Sc. degree in electrical engineering from Amirkabir University of Technology, Tehran, Iran, in 2016, and the M.Sc. degree in electrical engineering from Sharif University of Technology, Tehran, in 2018. In 2016, he ranked first in the Electrical Engineering Olympiad of Iran. He is currently an Early-Stage Researcher (Marie-Curie INT) and a PhD candidate at Imperial College London. His research interests include control, operation, and planning of modern power grids, especially grids with high-penetration of inverter-based resources.



**Jose Angel Leiva Vilaplana**

(Member IEEE) received a B.S. degree in energy engineering from the Polytechnic University of Valencia in 2018, and an M.Sc. joint degree in energy engineering and industrial engineering from the Polytechnic University of Catalonia in 2021, during which he carried out his M.Sc. thesis at the University of Colorado Boulder. He completed his Ph.D. at the Technical University of Denmark as part of the European H2020 project InnoCyPES and is now a Postdoctoral Researcher at the Department of DTU Engineering Technology. Since 2024, he has been a member of the Digitalization in Energy Task Force of the United Nations Economic Commission for Europe.



**Roberto Monaco**

Roberto Monaco holds a B.Sc. (2018) and an M.Sc. (cum laude, 2021) in Industrial Engineering from the University of Naples Federico II. Since 2022, he has been a Ph.D. candidate at DTU, contributing to the H2020 Marie-Curie project InnoCyPES. His research includes international collaborations with regulatory authorities, leading universities, and industry partners across Australia, Canada, Norway, and France. In 2024, he joined the UN Economic Commission for Europe's Task Force on Digitalization in Energy. His research interests include power distribution grid digitalization, energy regulation analysis, incentive policies for energy utilities, system dynamics modeling, and sustainability.



**Eder Baron-Prada**

Eder Baron-Prada received the B.S. degree in electrical engineering and the M.S. degree in industrial automation from the Universidad Nacional de Colombia, Bogotá, Colombia, in 2016 and 2019, respectively. In 2022, he joined the Austrian Institute of Technology, Vienna, where he started his joint Ph.D. Project with the Automatic Control Laboratory, Swiss Federal Institute of Technology (ETH) Zurich, Switzerland. His main research interests include power electronics and control theory with applications to the power system.

# Speakers

## ADORED Doctoral Network



**Alexander  
Novikov**

Received his BSc in Electrical Power Engineering from Ivanovo State Power Engineering University, Russia, and his MSc in Electrical Engineering from TU Delft, Netherlands. He is currently pursuing a PhD at the Technical University of Denmark (DTU) in collaboration with Siemens Gamesa Renewable Energy under the MSCA ADORed project. His research interests include offshore wind farms, relay protection, power system stability, power converter control, digital substations, and IEC 61850.



**Zhenghua  
(Joshua) Xu**

Received his B.Sc. and MSc. degrees in electrical engineering at Wuhan University, Wuhan, China. He is currently an industrial PhD student at Technical University of Denmark and Vattenfall under ADORed project funded by EU as part of the MSCA. His research interests include offshore wind energy, ancillary services, and control design.



**Nicolae  
Darii**

He holds a B.Sc. in Energy Engineering and an M.Sc. in Electrical Energy Engineering from the University of Padova, Italy, and has studied at Venice International University. Currently pursuing a Ph.D. in Wind and Energy Systems at the Technical University of Denmark in collaboration with Siemens Gamesa A/S, he joined the UNECE for Europe's Digitalization in Energy Task Force in 2024. His research focuses on power system stability and renewable energy integration.



**Germano  
Rugendo  
Mugambi**

Received his B.Sc. degree in Electrical and Control Engineering from Egerton University, Kenya, and M.Sc. degree in Electrical Engineering from the University of Rostock, Germany. He is currently working toward a Ph.D. degree with the Department of Wind and Energy Systems, Technical University of Denmark and Vattenfall Vindkraft A/S, Denmark. His research interests include power system stability analysis and integration and EMT modeling.

# Speakers

## Panel Debate A - Guests



**Jacob Østergaard**

Jacob Østergaard is an internationally recognized research leader in the field of renewable-based energy systems. Throughout his career, he has been committed to making a substantial contribution to the green transition by leading the development of the technology for the future sustainable energy system. His research has contributed to the advancement of a more integrated, market-based, flexible, and resilient energy system. He has made contributions within power system stability, flexibility markets, offshore wind power hubs (energy islands), and application of quantum computers within energy systems. He is founder of PowerLabDK and he has been the driving force behind initiatives like EnergyLab Nordhavn and Baltic Energy Island.



**Bikash C. Pal**

He received his Ph.D. degree in electrical engineering from Imperial College London, U.K., in 1999. Currently, he is a Professor in the Department of Electrical and Electronic Engineering, Imperial College London. His current research interests include renewable energy modelling and control, state estimation, and power system dynamics. He was Vice President Publications, IEEE Power & Energy Society (2019-2023). He was Editor-in-Chief of IEEE Transactions on Sustainable Energy (2012-2017) and Editor-in-Chief of IET Generation, Transmission and Distribution (2005-2012) and is a Fellow of IEEE for his contribution to power system stability and control. He is Fellow of The Royal Academy of Engineering, UK for the industrial impact of his research in power network control.



**Johannes Stöckl**

Received his PhD in physics from the Technical University of Vienna in 2003 on ion-surface interactions. After research visits at Lawrence Berkeley National Lab (USA), Humboldt University (Germany), Commissariat à l'énergie atomique et aux énergies alternatives and Grand Accélérateur National d'Ions Lourds (France), he joined Infineon Technologies in manufacturing and technology transfer of power semiconductors, where he spent three years in Kulim (Malaysia). Then he developed novel IGBT technologies until he joined AIT Austrian Institute of Technology as Thematic Coordinator for power electronics in 2011. There, he works on grid connected inverters for renewable energies for low voltage and medium voltage power electronics including novel control methods for grid forming and rapid prototyping.



**Marija Ilic**

Senior Research Scientist at MIT's Laboratory for Information and Decision Systems (LIDS) and an Adjunct Professor in Electrical Engineering and Computer Science at MIT. She is also Professor Emerita at Carnegie Mellon University, where she previously led the Electric Energy Systems Group (EESG). A globally recognized expert in electric power systems, she has published extensively and supervised around 50 Ph.D. students. Prof. Ilic has held key roles at MIT, Lincoln Laboratory, and TU Delft and served as an NSF Program Director. She is an IEEE Life Fellow and co-authored Dynamics and Control of Large Electric Power Systems. Her research focuses on smart grids, dynamic monitoring, and the integration of distributed energy resources.

# Speakers

## Panel Debate B - Guests



**Christine Brandstätt**

Assistant Professor with the Copenhagen School of Energy Infrastructure (CSEI) at Copenhagen Business School. Her main research interest is in network regulation, pricing and market design. In her research, she analyses the interactions of different regulatory, market design and policy options in energy systems. Thus, she has participated in and led several research projects on flexible network users, smart grids and the integration of renewable energy sources into the energy systems.



**Tilman Weckesser**

Tilman Weckesser received his M.Sc. and Ph.D. degree from the Technical University of Denmark (DTU), Lyngby, Denmark, in 2011 and 2015, respectively. He was affiliated with the University of Liège, Belgium, as a post-doctoral researcher. From 2019 – 2022 he was a consultant at the Danish Energy Association in the Grid technology department. Currently, he is affiliated with the Technical University of Denmark as Assistant Professor (tenure track). His research interests are in electric power system dynamics, stability and integration of active distribution grids.



**Peter Kjær Hansen**

Peter Kjær Hansen (M.Sc EE) is working as senior chief consultant in Green Power Denmark, the association representing the voice of the Danish utilities and energy companies. Peter received his M.Sc. degree from DTU in 2006. Throughout the years he has been working in the field of asset management, continuity and security of supply, fault statistics, digitalization, network planning and risk assessment.



**Christoffer Greisen**

Christoffer Greisen received his M.Sc.Eng degree from the Technical University of Denmark (DTU) in 2001. He is currently advising various stakeholders on renewable energy. From 2022-2024, as COO in Hybrid Greentech, he lead among other activities a portfolio of collaborative engagements on microgrids, PtX integration in the power grid, ancillary services from BESS and the provision of local flexibility from EV fleets. Before that he built and lead EnergyLab Nordhavn (2015-2022), a collaborative project and living lab in Copenhagen, demonstrating a host of solutions for the integration of district heating and power grids. In the earlier part of his career he had various project management and technology development roles within SOEC, SOFC, microtechnology, sensors and LED development anchored with Topsoe Fuel Cell, Danfoss and others.



**Carsten Buhl Nielsen**

Carsten Buhl Nielsen received his M.Sc. degree from the Technical University of Denmark (DTU), Lyngby, Denmark, in 1995. From 2004 he has been working in electrical utility, first as a grid planner and later more strategically with grid data and analytics. Digitalization is a big part of improving effectiveness and data driven approaches in utilities and he has been working for the last 6 years with building an analytic system in Cloud with multiple data sources. He is Danish representative in the European DSO Entity Task Force - Digitalizing the Energy System Action Plan (DESAP) to make recommendations for European legislation. He is also member of Data Ethical Council at Anel.

# Speakers

## Guests



**Sulav Ghimire**

Received the bachelor's degree in electrical engineering from the Institute of Engineering, Tribhuvan University, Lalitpur, Nepal, in 2018, and the M.Sc. degree in energy systems from Skolkovo Institute of Science and Technology, Moscow, Russia, in 2021. He is currently an Innovation Fund Denmark-funded joint Industrial Ph.D. Student at Siemens Gamesa Renewable Energy (SGRE) and the Technical University of Denmark (DTU). He was an Assistant Lecturer with United Technical College, Pokhara University, Chitwan, Nepal, in 2019. From 2017 to 2019, he was the Founding Director of Karnika Innovations Pvt. Ltd. His research interests include power converter modeling, control optimization, and stability studies for offshore wind power plant applications.



**Oscar Saborío-Romano**

Received the BSc (Hons) degree in Electrical Engineering from the University of Costa Rica in 2013. In 2015, he received the MSc degrees in Electrical Engineering and Wind Energy from Delft University of Technology and the Norwegian University of Science and Technology, respectively, within the Electric Power Systems track of the Erasmus Mundus European Wind Energy Master. He joined the Department of Wind Energy and Energy Systems at the Technical University of Denmark in 2016, where he did his PhD and is currently a researcher. His research interests include power system control and stability, grid integration of renewable energy sources, and modelling and control of voltage source converters, hybrid/wind power plants, HVDC transmission, and microgrids.



**Benjamin Vilmann**

Holds a BSc and MSc in Electrical Engineering from Technical University of Denmark (DTU), and a MEd in Philosophy from Aarhus University (AU). He is currently pursuing a PhD in power system engineering at DTU, and is member of the CIGRE NGN Denmark executive committee. His research interest lies in development of safe and stable grid-forming converter control.



**Alex Ștefanov**

Alex Ștefanov received the M.Sc. degree from the University Politehnica of Bucharest, Romania, in 2011, and the Ph.D. degree from University College Dublin, Ireland, in 2015. He is Associate Professor in intelligent electrical power grids in the Department of Electrical Sustainable Energy at TU Delft, The Netherlands. He is the Director of Control Room of the Future (CRoF) Technology Centre. He is leading the Cyber Resilient Power Grids (CRPG) research group. His research interests include cyber security of power grids, resilience of cyber-physical systems, and next generation grid operation. He holds the professional title of Chartered Engineer from Engineers Ireland.



**Frank Martin**

Frank Martin (Member, IEEE) received the M.Sc. degree in renewable energies/wind engineering from the University of Kassel, Germany, in 2007. He has been a Chief Grid Specialist in the grid connection area with European Energy A/s, since 2024. He worked for three years with Germanischer Lloyd Industrial Services as an Expert for grid code compliance and in the area of electrical certification. Between 2010 and 2024, he was with Siemens Gamesa Renewable Energy, supporting product and technology development. His area of expertise is in the area of grid codes and requirements for wind turbines and wind power plants. Since 2023, he has been the Chair of IEC TC8 SC8A and is active in international grid code and standardization work.



**Simon Tindemans**

Associate Professor in the Intelligent Electrical Power Grids group at TU Delft, focusing on uncertainty and risk management for power systems. With his team, he works at the intersection of electrical engineering, (computational) statistics and computer science. He has a background in theoretical (bio-)physics, but has since gained over 10 years' experience in the power engineering domain, contributing to the energy transition.

# Speakers

## Guests



**Casper Bjerregaard**

Casper received his M.Sc. degree in economics from the University of Copenhagen in 2016. He wrote his PhD (“Macro-economic impacts of energy saving policies in Denmark”) at the Technical University of Denmark (DTU) where he received his degree in 2020. Currently, Casper is working at the Danish Utility Regulator (DUR) and in collaboration with the Technical University of Denmark he is an industrial postdoc. The postdoc focuses on future investment costs in the DSO’s grid, cost reflective tariff structures and consumers electricity consumption patterns. The postdoc is funded by Innovation Fund Denmark.



**Claire Marie Bergaentzle**

Associate Professor at Denmark Technical University and a research associate in the Chair of European Electricity Markets at Paris Dauphine University. Her research focuses on the regulation of electricity distribution networks, grid tariffs, and sector coupling between energy systems and across the energy-digital industry nexus.

## Scientific Coordinators



**Guangya Yang**

Associate Professor at Denmark Technical University. His research areas focus on power system stability, control and protection, electromagnetic transient modelling and simulation of power grids and real-time control and protection testing. Top 2% scientist ranked by Stanford University. Scientific Coordinator of the industrial doctoral network InnoCyPES (Innovative Tools for Cyber-Physical Energy Systems).



**Nicolaos A. Cutululis**

Professor in Offshore Wind Power Integration, based in the Department of Wind Energy at the Technical University of Denmark. His main research area is integration and operation of wind power moving towards 100% RES power systems, with a special focus on offshore wind and HVDC, low-inertia systems and converter-based systems. Scientific Coordinator of the industrial doctoral network ADORed (Accelerating the Deployment of Offshore Wind using DC Technology).

