

**Contact information**

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www: <http://cutululis.eu>

**Personal**

Greek/Romanian (D.o.B. 27<sup>th</sup> of May 1974)  
Married to Irina Alina Cutululis – Father of Sebastian Peter

**Research Interests**

Wind power technology, Offshore wind, Integration and Grid Connection, Control and Operation low inertia power systems, Offshore grids, Wind Variability and Uncertainty, Renewable power systems, Sustainable energy systems

**Appointments**

*Technical University of Denmark, DTU Wind and Energy Systems, Roskilde, Denmark*

**Professor**

**02/2019 - ...**

- Research on integration of offshore wind, with applications to design and optimization of electrical infrastructure for offshore wind, technical capabilities of offshore wind power plants (e.g. black-start, grid forming operation, frequency control, etc) and operation and control of offshore wind power plants and clusters
- Research on hybrid AC/DC power systems & Operation & control of low-inertia power systems
- Principal investigator for Nordic, EU and Danish projects
- Teaching and Supervision at M.Sc and Ph.D level

**Scientific Director**

**09/2022 - ...**

- Scientific director in DTEC (DTU-TotalEnergies Excellence Center) in Clean Energy; responsible of “Hybrids, Grids and Storage” programme, member of DTEC’s scientific committee

**Senior Scientist**

**10/2010 – 02/2019**

- Research on offshore wind technology, offshore grids, HVDC, electrical infrastructure design
- Principal investigator for Nordic, EU and Danish projects
- Teaching and Supervision at M.Sc and Ph.D level

*Risø National Laboratory for Sustainable Energy, Roskilde, Denmark*

**Scientist**

**10/2006 – 10/2010**

- Modelling of wind power variability
- Wind turbine control
- Capabilities for ancillary services

*Risø National Laboratory for Sustainable Energy, Roskilde, Denmark*

**Post-Doc**

**02/2005 – 10/2006**

- Modelling of electrical components
- Integrated design of wind power plants

*“Dunarea de Jos University” of Galati, Romania*

**Teaching assistant**

**10/1998 – 02/2005**

- Teaching control theory, electrical drives, power electronics

## Education

*“Dunarea de Jos University” of Galati, Romania*

**Ph.D. , Automatic Control (01/2005)**

Title: *Contributions to the synthesis of control strategies for renewable energies systems with hybrid structures;*

*“Dunarea de Jos University” of Galati, Romania*

**MS.c., Automatic Control (06/1998)**

Title: *“Friction control in servo-systems“*

## Languages

**Greek:** Mother tongue

**Romanian:** Mother tongue

**English:** Full professional proficiency

**Danish:** Fluent

## Teaching

**2021 - ...: DTU course – “46905 – Research in wind and energy systems; challenges and methods” (Ph.D.)**

**2021-...: DTU course – “46550 Offshore wind grid connection and high voltage DC (HVDC) transmission”**

**2020: DTU special MSc course – “Offshore wind grid connection and HVDC transmission”**

**2019: DTU special MSc course – “Offshore wind grid connection and integration”**

**2019 - 2022: DTU course – “46905 – Research in wind energy; challenges and methods” (Ph.D.)**

**2019 - ...: DTU course – “46915 – Project planning for PhD students at DTU Wind Energy” (Ph.D.)**

**2018 - ...: DTU course – “46W27 - Grid connection and integration of wind power” (M.Sc.)**

**2018: DTU course – “46000 – Research Immersion at DTU Wind Energy” (Ph.D.)**

**2016 - ...: multiple ad-hoc special courses (Ph.D.)**

## Service

**Editorial membership:**

**Journals**

**2022 - ...: Wind Energy Science Journal – Chief Editor area Electrical conversion, integration and impacts**

**2021 - ...: IEEE Trans on Sustainable Energy – Editorial Board member**

**2021 - ...: IET Renewable Power Generation – Deputy Subject Editor**

**2019-2020: IEEE Trans on Power Systems – Guest Editor: “Towards 100% renewable energy system”**

**2019: Wind Energy Science Journal – Guest Editor: “Wind Energy Science Conference 2019”**

**2017: IET Renewable Power Generation – Co-Chief Guest Editor: “Coordinated Control and Protection of Offshore Wind Power and Combined AC/DC Grids”**

**2016 - 2020 IET Renewable Power Generation – Associate Editor**

**2016: IET Renewable Power Generation – Guest Editor: “Active Power Control of Renewable Energy Generation Systems”**

**2015:** IEEE Trans on Power Delivery – Guest Editor: “Transmission systems for large offshore wind power plants”

**Conferences**

**2023:** Wind Energy Science Conference – Coordinator and Chair of Theme 4: Electrical Conversion, Energy System and Wind Power-to-X

**2021:** Wind Energy Science Conference – Coordinator and Chair of Theme 4: Electrical Conversion, Energy System and Wind Power-to-X

**2021:** IEEE POWERTECH 2021 Conference – Member of International Advisory Committee

**2020:** Renewable Power Generation conference – Member of the Technical Programme Committee

**2019:** WindEurope Offshore 2019 – member in the Technical Programme Committee

**2019:** Wind Energy Science Conference – Coordinator and Chair of Theme 3 Wind to Wire Power Systems

**2018 & 2019:** Power Systems Computation Conference – Member in the Technical Programme Committee

**Journal referee:**

IEEE Transactions on Power Systems, IEEE Transactions on Energy Conversion, IEEE Transactions on Sustainable Energy, IEEE Transactions on Power Delivery, Wind Energy, Applied Energy, Energies, Energy, IEEE Proceedings, Energy Procedia, Renewable Energy, Energy Conversion and Management, International Journal of Electrical Power and Energy Systems, Journal of Renewable and Sustainable Energy, Journal of Solar Energy Engineering, ASME, etc

**Reviewer for book proposals:**

IET, John Willey & Sons, Springer

**Reviewer for research proposals**

Research Councils UK Energy Programme (UK), KU Leuven (Belgium), NWO (Netherlands), SEAI (Ireland), VLAIO (Belgium)

**Committee for academic evaluation and recruiting.**

Aalborg University, KU Leuven, Monash University

**Conferences (Scientific/Programme Committee/Reviewer):**

RPG 2023, ACDC 2023, IEEE PowerTech 2022, IET RPG 2020, WindEurope Offshore 2019, PSCC 2018, EnergyCon 2018, Wind Energy Science Conference (WESC) 2017, IEEE PowerTech 2017, Offshore Wind Energy 2017, WindEurope Conference 2017, PSCC 2016, EnergyCon 2016, IET RPG 2016, Torue 2016, EWEA Annual Event 2016, IEEE PES GM 2015, IEEE PowerTech 2015, IET RPG 2015, OPTIM 2015, EWEA Annual Event 2015, EWEA Annual Event 2014, EWEA Annual Event 2013

**Publications**

**Books/Book chapters:** 5

**Journal Articles:** 52

**Conference papers:** 101

Detailed list available [here](#)

## Impact

### Citations (October 2022)

ISI Web of Knowledge ≈1,483 citations; h-index = 18

Google Scholar ≈4,672 citations; h-index = 27

[ORCID](#)

## Management & Memberships

- 2022 - ... Member of EAWE's Excellent Young Wind Doctor Award Committee
- 2021 - ... Co-chair of SET Plan HVDC working group
- 2021 - ... Co-chair of EAWE's Technical Committee on Power Conversion & Grid Integration
- 2018 - 2022 JP EERA WIND, Management Board member, coordinator of sub-programme System Integration
- 2018-2022 ETIPWind – executive committee member
- 2012-... IEA Wind Task 25 Design and Operation of Power Systems with Large Amounts of Wind Power, Danish Representative
- 2008-... IEEE, Member (Power & Energy Society)
- 2016-... CIGRE, Member
- 2014 - MEGAVIND working group, Member

## Projects & Fundings

### European & Nordic

- **ADOREd** (PI, 2022-2026): Offshore wind and HVDC
- **TwinSolar** (DTU PI, 2022-2025): Improving research and innovation to achieve a massive integration of solar renewables
- **GreenHyScale** (CI, 2021-2025): Hydrogen; multi-energy hubs; <https://greenhyscale.eu/>
- **TotalControl** (CI, 2018-2021): Wind power plant control; <https://www.totalcontrolproject.eu/>
- **InnoDC** (DTU PI, 2017 – 2021): Innovative Tools for Offshore Wind and DC Grids; [www.innodc.org](http://www.innodc.org)
- **PROMOTion** (DTU PI, 2016-2019): Progress on Meshed HVDC Offshore transmission networks; [www.promotion-offshore.net](http://www.promotion-offshore.net)
- **Baltc Integrid** (DTU Wind PI, 2017 – 2019): Offshore grid design for the Baltic Sea; [www.baltic-integrid.eu](http://www.baltic-integrid.eu)
- **EERA IRPWIND** (CI, 2015 – 2018): Wind Power Plant Control; [www.irpwind.eu](http://www.irpwind.eu)
- **MEDOW** (DTU PI, 2014-2017): Multi-terminal DC grids for offshore wind; <http://sites.cardiff.ac.uk/medow/>
- **GARPUR** (DTU PI, 2014-2017): Generally Accepted Reliability Principle with Uncertainty modelling and through probabilistic Risk assessment; <https://www.sintef.no/projectweb/garpur>
- **EERA-DTOC** (DTU CI, 2012-2015): Power output variability and predictability; [www.eera-dtoc.eu](http://www.eera-dtoc.eu)
- **REserviceS** (DTU PI, 2012-2014): Economic grid support from variable renewables; wind power capabilities and costs; <https://www.reservices-project.eu/>
- **OffshoreDC (PI, 2011-2016)**: DC Grids for Integration of Large Scale Wind Power; <http://www.offshoredc.dtu.dk/>
- **TWENTIES** (CI, 2010-2013): Wind turbine high wind speed control and impact of offshore wind power variability on European power system;
- **TradeWind** (CI, 2006-2009): Wind Integration in Trans-European Power Markets; <https://windeurope.org/policy/eu-funded-projects/tradewind/>

- **UpWind** (CI, 2006-2011): Substantially improved models of the principal wind turbine components; <https://windeurope.org/policy/eu-funded-projects/upwind/>

#### Danish

- **Offshore Energy Hubs** (DTU Co-PI, 2022–2026): Offshore wind and HVDC
- **IEA Wind Task 25 Phase 3-6** (PI, 2016-2024): Integration of wind power
- **Integrated Optimization of Offshore Wind Power Plants** (PI, 2021-2025)
- **PowerKey** (CI, 2017-2020): Enhanced wind turbine control for optimized wind power plant operation;
- **CONCERT** (CI, 2016-2019): Control and uncertainties in real-time power curves of offshore wind power plants; <http://www.posspow.vindenergi.dtu.dk/concert>
- **RePlan** (CI, 2015-2018): Ancillary services from Renewable power Plants; <http://www.replanproject.dk/>
- **EaseWind** (CI, 2011-2014): Relevant forecasting products for wind turbines to provide ancillary services in order to support grid operations
- **Radar@Sea** (CI, 2009-2012): Plant controller using short-term wind (power) forecasting at Horns Rev using real-time data from an onsite Local Area Weather Radar
- **Integrated design of wind power systems** (CI, 2008-2009): Impact of grid faults on wind turbine loading
- **Mesoscale atmospheric variability and the variation of wind and production for offshore wind farms** (CI, 2007-2010):
- **Power fluctuations in large offshore wind farms** (CI, 2005-2008): Research and development on modelling of fluctuations based on Horns Rev and Nysted data
- **Simulation Platform for Wind Turbines II** (CI, 2005-2008): Electrical models for wind turbines simulation platform

#### Industrial/Collaborative

- **OTC Tool** (PI, 2022-2023): development of offshore transmission calculation tool wind TotalEnergies
- **DYNAMOD** (CI, 2022-2024): analysis and optimization of mooring and dynamic cable systems with TotalEnergies
- **Hybrid power plants** (Co-PI, 2022-2026): development and optimization of hybrid power plants with TotalEnergies
- **ModFarm** (CI, 2019-2020): development of electrical cables design and optimization for offshore wind power plants with Shanghai Electric Wind Power Generation (SEWPG)
- **Pan-European Climate Database** (PI, 2014-2019): development of pan-European wind and PV power time series for the European Network of Transmission System Operators (ENTSO-E) and used in the Ten Years Network Development Plan (TYNDP)
- **SIMBA** (CI, 2010-2015): collaborative project with Danish Transmission System Operator Energinet.dk for the development of wind power variability and uncertainty models to be include in the simulation of balancing (SIMBA) tool

#### Mentoring & Supervision

##### Post-doc researchers:

- Juan-Andrés Rúa-Pérez (2020-2022)
- Oscar Saborio-Romano (2019-2022)
- Jayachandra N. Sakamuri (2018-2019)

- Ömer Göksu (2016-2017)
- Domenico Ricchiuto (2016)
- Braulio Barahona (2012-2014)

#### Ph.D. Students (graduated: 12, current 5, recruiting 5)

- **Arash July** (with Mehdi Savaghebi, Gen Li): Coordinated control of energy storage units and grid-forming converters in energy islands (2023-...)
- **Mahmoud Al Sadat** (with Oscar-Saborío-Romano, Moataz El Sied and Mustapha Amine Rahmani): Electrical topologies for Hybrid Power Plants (2022-...)
- **Mauricio Souza de Alencar** (with Juan-Andrés Pérez-Rúa): AI based surrogate models for integrated optimization of wind power plants (2022-...)
- **Nikita Taranin** (with Oscar Saborío-Romano): Design and control of multi-energy hubs (2022-...)
- **Alessandra Follo** (with Oscar Saborío-Romano and Elisabetta Tedeschi): MVDC collection system for large offshore wind farms (2019-...)
- Amir Arasteh: (with Oscar Saborío-Romano): *Advanced wind Turbine Converter Control in HVDC-connected Wind Power Plants* (2018-2022)
- Liang Lu (with Oscar Saborío-Romano and Gunner Larsen): Enhanced frequency control capabilities from wind turbine/plant (2018-2022)
- Anubhav Jain (with Ömer Göksu and Kaushik Das): *Black start and islanding operation capabilities of offshore wind power plants* (2018-2021)
- Juan-Andrés Pérez-Rúa (with Mathias Stolpe, Kaushik Das and Poul Sørensen): *Design and optimization of electrical infrastructures in offshore wind power clusters* (2017-2020) – not postdoc at DTU Wind Energy
- Ali Bidadfar (with Poul Sørensen and Müfit Altin): *Control and stability of meshed offshore grids with diode rectifiers and VSC HVDC* (2016-2019) – now power system engineer at Ørsted
- Oscar Saborío-Romano (with Poul Sørensen and Ömer Göksu): *Integration of wind power plants connected to HVDC via diode rectifiers* (2016-2019) – now postdoc at DTU Wind Energy
- Jonas Kazda (with Mike Courtney): *Multi-objective wind farm control* (2015-2018) – now postdoc at DTU Wind Energy
- Elliot Simon (with Mike Courtney): *The uses of remote sensing technology in wind farm control* (2015-2019) – now postdoc at DTU Wind Energy
- Edgar Nuño Martinez (with Poul Sørensen): *Impact of Renewable Energy Uncertainty on Electric Power System Reliability* (2014-2017) – now R&D Engineer at Suzlon (DE)
- Jayachandra N. Sakamuri (with Poul Sørensen and Anca D. Hansen): *Coordinated Control of Wind Power Plants in offshore HVDC grids* (2014-2017) – **received EAWE Young Doctor Award 2017** – now R&D Engineer at Vattenfall (SE)
- Juan Gallego-Calderon (with Anand Natarajan): *Electro-mechanical Drivetrain Simulation* (2012-2015) – now Scientist at Sentient Science (US)
- Braulio Barahona (with Poul Sørensen and Anca D. Hansen): *Integrated design of wind power systems* (2009-2012) – now postdoctoral fellow at ETH Zurich (CH)

#### Ph.D. guests

- Anukriti Pokhriyal (IREC) 2022
- Gayan Abeynayake (Cardiff), 2019

- Kevin Schönleber (UPC), 2016
- Muhammad Raza (UPC), 2016
- You Rui (Tsinghua University), 2015

#### **M.Sc. Students (graduated: 24)**

- Pau-Ramon Casas Cachinero: *Integration of offshore wind clusters to weak grids using p2X and BESS* (2022)
- Mauricio Souza de Alencar (2022): *Optimization heuristics for offshore wind power plant collection systems design*
- Anandu Ajith (2022): *Updated requirements for grid compliance for offshore wind farms*
- Maria Banasiou: *Experimental verification of wind turbine grid forming control* (2022)
- Jann Bathmann: *Investigating inertia characteristics of a wind plant and evaluating its contribution to grid frequency events* (2021)
- Yue Sun: *Hybrid Power Plant Emulator* (2021)
- Stian Rasmussen: *Harmonic filter design for large offshore wind power plants* (2021)
- Ioannis Panos: *Experimental investigation of HVDC connected wind power plants* (2021)
- Alina Kacic: *Test environment to verify the dynamic performance of Wind turbines simulation models* (2020)
- Georgios Tsiakas: *Fault response and control solutions of Wind Turbines and HVdc converter in Offshore Wind Power Plants* (2020)
- Pawel Waliszewski: *Grid code compliance of offshore wind power plants* (2020)
- Yatin Bisne: *Offshore wind cluster grid connection via multi-infeed HVDC system* (2020)
- Georgios Papakonstantinou: *Modelling and control of modular multilevel converter on a HVDC interconnection* (2018)
- Daniel Herмосilla Minguijon: *Development of algorithms to solve the Wind Farm Electrical Collection System Design and Optimization Problem* (2018)
- Feng Guo: *Security and stability of high wind penetrated power system during storm conditions* (2017)
- Joan Oliva Gratacos: *In-operation learning of optimal wind farm operation strategy* (2017)
- Christoph Wolter: *Overplanting in offshore wind power plants in different regulatory regimes* (2016)
- Francesc Uya: *Analysis of overplanting with dynamic cable rating for large offshore wind farms* (2016)
- Nick Gerardus Cornelis Janssen: *Uncertainties in aggregation of wind power generation in power system areas* (2015)
- Henrik Stade: *Space-time Analysis of Wind Power Forecast Error in Denmark* (2015)
- Christina Angeloudi: *Availability Aspects in Large Offshore Wind Farms* (2014)
- Georgia Roussi: *Methods for representations of wind farms in dynamic power system studies* (2013)
- Blanca Naudin Aparicio: *Aggregated power curve for multiple wind turbines in power system areas* (2013)
- Brian Rasmussen: *Dynamics of variable-speed wind turbine drive-train* (2012)

**Ph.D.  
Evaluation  
committee**

**Evaluated:**

- Artur Avazov (2022), AC Connection of Wind Farms to Transmission System: from Grid-Following to Grid-Forming, Centrale Lille and KU Leuven, France
- Ndamulelo Mararakanye (2022), Characterizing variable renewable energy generation uncertainty towards improved forecasting and operational decision making, Stellenbosch University, South Africa
- Behnam Nouri (2021), Generic Multi-Frequency Modelling and Model Validation Methods for Converter-Based Renewable Energy Generators, Technical University of Denmark (chair)
- Andrea Tosatto (2021), Optimization and Market Integration of Multi-Area AC/HVDC Grids, Technical University of Denmark (chair)
- Moumita Sarkar (2020), Modelling of Wind Power under Stressed Voltage Conditions, Technical University of Denmark (chair)
- Simon Camal (2020), Forecasting and optimization of ancillary services provision by renewable energy sources, MINES ParisTech, France
- Florian Thams (2018), Data-driven and HVDC Control Methods to enhance Power System Security, Technical University of Denmark (chair)
- Ingeborg Graabak (2018), Balancing of wind and solar power production in Northern Europe with Norwegian hydropower, NTNU Norway
- Kevin Schönleber (2018), Control and operation of wind power plants connected to DC grids, Universitat Politècnica de Catalunya, Spain
- Robert Renner (2017), *Interaction of HVDC grids and AC power systems – Operation and Control*, Katholieke Universiteit Leuven, Belgium
- Mikkel P.S. Grygning (2016), *Offshore Wind Park Control Assessment methodologies to Assure Robustness*, Technical University of Denmark (chair)
- Nicolas Espinoza (2015), *Grid code testing of wind turbines by VSC based test equipment* (Licentiate), Chalmers University, Sweden
- Abdul Basit (2015), *Wind Power Plant System Services*, Technical University of Denmark (chair)
- Antonio Viguera Rodriguez (2008), Modelling of the power fluctuations in large offshore wind farms, Universidad Politecnica de Cartagena, Spain