CoNDyNet-Conference:

"Dynamics in Power Systems: From Science to Industry"

at the Potsdam Institute for Climate Impact Research

June 12 - 14, 2017

(http://www.condynet.de/konferenz2017pik.html)

Part I: Science Sessions (presentations 20 + 10 min.)

Monday 12th June 2017

13:00 – 13:45 Registration scientific partners

13:45 – 14:00 Welcome address to scientific partners (Prof. Jürgen Kurths)

14:00 – 15:30 **Science Session I: Mathematical Methods**

- Dr. Frank Hellmann (PIK):
  "The Whole (dynamical) System Perspective: Probabilistic Methods and Conceptual Models"
- Prof. Stefan Kettemann (JUB):
  "Propagation of Disturbances in Electricity Grids"
- Prof. Florian Dörfler (ETH Zürich):
  "Control of Power Converters in Low-Inertia Power Systems"

15:30 – 16:00 Discussion over Coffee

16:00 – 18:00 **Science Session II: Structural Aspects**

- Prof. Marc Timme (MPIDS):
  "Nonlinear Rerouting and Propagation of Perturbations in Power Grids"
- Prof. Jörg Raisch (TU Berlin):
  "A Framework for Hierarchical Control of Power Systems"
- Prof. Martin Braun (Fraunhofer IWES):
  "New Operational Strategies and Planning Approaches"
- Prof. Philippe Jacquod (HES-SO, Schweiz):
  "The Price of Synchrony in a Power Grid with Fluctuating Feed-In"

18:00 – 20:00 **Poster Session** and Dinner at Michelson-Haus

Tuesday 13th June 2017

09:00 – 10:30 **Science Session III: Dynamical Aspects**

- Prof. Stefan Schramm (FIAS):
  "Structural aspects of electricity grid for high shares of renewables"
- Prof. Hildegard Meyer-Ortmanns (JUB):
  "Stability of Power Grids: Fluctuations from the Production Side"
- Prof. Philipp Maaß (Uni Osnabrück):
  "Short-time stability of electricity grids against stochastic power injection"

10:30 – 11:00 Discussion over Coffee

11:00 – 12:00 **Science Session IV: System Integration**

- Dr. Wilhelm Kuckshinrichs (FZJ):
  "Assessment of grid extension costs in the context of avoided electricity blackouts"
- Julian Gollenstede (EFZN / TU Clausthal) :
  "The necessity of synthetic inertia due to the reduction of conventional power plants"

12:00 – 12:30 WrapUp / Key Learning (Prof. Dirk Witthaut)

12:30 – 14:00 Lunch at Michelson-Haus; 13:30 h: Michelson-Experiment

Part II: Industry Sessions (presentations 12 + 3 min.)

Tuesday 13th June 2017

13:00 – 14:00 Registration industry partners

14:00 – 14:15 Welcome address to industry partners (Prof. Jürgen Kurths)

14:15 – 15:45 **Industry Session I: Ensuring Short-term Stability**

- Sabine Auer (PIK):
  "Transient Stability and Power Grid Resilience Analysis"
- Benjamin Schäfer (MPIDS):
  "Self-Organized Smart Grids and their Fluctuation Response"
- Dr. Andrei Szabo (Siemens):
  "Hierarchical control of electrical grids for system stability"
- Dr. Thomas Walter (Easy Smart Grid):
  "Shifting loads with variable prices"
- Dr. Anne-Katrin Marten (50Hertz):
  "Netzstabilität im operativen Netzbetrieb von 50Hertz"
- Dr. Michael Fette (Fette Consulting):
  "Behavior of Nonlinear Power Systems and Industry Grids in Praxis"

15:45 – 16:30 Discussion over Coffee

16:30 – 18:00 **Breakout Groups**

- Dr. Oliver Kamps (Univ. Münster):
  "Models vs. Reality - Where do they have to meet?"
- Dr. Pedro Lind (Univ. Osnabrück):
  "What can engineers and physicists learn from each other? What fundamental questions are of practical relevance in power grid operation?"
- Sabine Auer / Tim Kittel (PIK):
  "Power Grids with High Share of Power Electronics"

19:00 – 22:00 Dinner in town

Wednesday 14th June 2017

09:00 – 10:45 **Industry Session II: Flexibility Options & Market Design**

- Christine Brandstätt (JUB):
  "Coordination mechanisms in liberalized electricity systems with distributed generation"
- Felix Schäfer (Bürgerwerke):
  "Prosumer business models and decentralized energy markets"
- Dr. Jochen Bühler (Reiner Lemoine Inst.):
  "The open_eGo Project – Development of a multi-voltage-level grid planning tool"
- Dr. Lorenzo Sindoni (Invenia):
  "OPF, Market Structure and Randomness"
- Hannes Kirchhoff (SOLshare):
  "Optimal powerflow without optimal information? -The role of decentralized agents in peer to peer microgrids"
- Dr. Johannes Brunnemann (XRG Simulation):
  "Sector Coupling in Energy Grids at High Shares of Renewables: Model Based Scenario Evaluation using Modelica"
- Dr. Sandra Maeding (Stromnetz Berlin):
  "Flexibilities: The Impact Energiewende on Urban Distribution Grids"

10:45 – 11:15 Discussion over Coffee

11:15 – 12:30 **Breakout Groups**

- Lia Strenge (TU Berlin):
  "Microgrids - a bottom up perspective"
- Dr. Sarah Becker (Univ. Kassel):
  "How local can we go?"
- open discussion

12:30 – 14:00 Lunch at Michelson-Haus

14:00 – 15:30 **Industry Session III: Long-term Strategies**

- Dr. Tom Brown (FIAS):
  "Long-term planning for high shares of renewables"
- Dr. Heidi Heinrichs (FZJ):
  "Coal phase-out scenarios for Germany"

- Juliane Weber (FZJ):
  "Impact of Climate Change on Backup and Storage Needs in Future Renewable Energy Systems"
- Charlotte Hussy (Ecofys):
  "Completing the renewables puzzle – Perspectives from an energy consulting company"
- Dr. Mathias Duckheim (Siemens):
  "Statistical State Estimation in Low-Voltage Grids"
- Dr. Stephanie Ropenus (Agora Energiewende):
  "Long-term strategies for increasing flexibility in the grid from a regulatory perspective"

15:30 – 16:00 Discussion over Coffee

16:00 – 17:00 **Breakout Groups**

- Antonella Battaglini (Renewables Grid Initiative):
  "Long-term Strategies: Social forces that influence the deployment of infrastructure, the fairness of the energy transition and the needed governance."
- Dr. Johannes Brunnemann (XRG Simulation):
  "An integral view: Energy market, electric grid, sector coupling and unified cross-sectoral control strategies. What can we learn from coupled models (market, grid (electric/heat/gas), control) for economic, resilient design/operation of coupled energy grids at high shares of renewables?"
- open discussion

17:00 – 17:30 WrapUp / Future Activities (Prof. Marc Timme)

Part III: CoNDyNet internal

Wednesday 14th June 2017

17:30 – 18:00 Coffee break

18:00 – 19:00 CoNDyNet Project Internal Meeting

PARTICIPANTS:

Industry Speaker

Dr. Johannes Brunnemann (XRG Simulation GmbH, Hamburg)
Dr. Jochen Bühler (Reiner Lemoine Institut)
Dr. Mathias Duckheim (Siemens Corporate Technology)
Dr. Michael Fette (Siemens Corporate Technology)
Charlotte Hussy (Ecofys - A Navigant Company)
Hannes Kirchhoff (Solshare, TU Berlin / Bangladesh)
Dr. Sandra Maeding (Stromnetz Berlin)
Dr. Anne-Katrin Marten (50Hertz, Berlin)
Dr. Stephanie Ropenus (Agora Energiewende)
Felix Schäfer (Bürgerwerke eG)
Dr. Lorenzo Sindoni (Invenia Labs, Cambridge, UK)
Dr. Andrei Szabo (Siemens Corporate Technology)
Dr. Thomas Walter (Easy Smart Grid)

Academic Speaker

Sabine Auer (Potsdam-Institut für Klimafolgenforschung)
Antonella Battaglini (Renewables Grid Initiative)
Julian Gollenstede (EFZN / TU Clausthal)
Dr. Sarah Becker (Universität Kassel)
Christine Brandstätt (Jacobs University Bremen)
Prof. Martin Braun (Universität Kassel)
Dr. Tom Brown (Frankfurt Institute for Advanced Studies)
Prof. Florian Dörfler (ETH Zürich)
Dr. Frank Hellmann (Potsdam-Institut für Klimafolgenforschung)
Prof. Philippe Jacquod (HES-SO Valais-Wallis, Schweiz)
Dr. Oliver Kamps (Westfälische Wilhelms-Universität Münster)
Prof. Stefan Kettemann (Jacobs University Bremen)
Dr. Wilhelm Kuckshinrichs (Forschungszentrum Jülich)
Prof. Jürgen Kurths (Potsdam-Institut für Klimafolgenforschung)
Dr. Pedro Lind (Universität Osnabrück)
Prof. Philipp Maaß (Universität Osnabrück)
Prof. Hildegard Meyer-Ortmanns (Jacobs University Bremen)
Prof. Jörg Raisch (Technische Universität Berlin)
Benjamin Schäfer (Max-Planck-Institut für Dynamik und Selbstorganisation)
Prof. Stefan Schramm (Frankfurt Institute for Advanced Studies)
Lia Strenge (Technische Universität Berlin)
Prof. Marc Timme (Max-Planck-Institut für Dynamik und Selbstorganisation)
Juliane Weber (Forschungszentrum Jülich)
Prof. Dirk Witthaut (Max-Planck-Institut für Dynamik und Selbstorganisation)

Guests

Mehrnaz Anvari (Jacobs University Bremen)
Björn Bäuchle (Universität Kassel)
Prof. Hans-Peter Beck (EFZN / TU Clausthal)
Michael Conrath (Jacobs University Bremen)
Deniz Eroglu (HU Berlin)

Prof. Chao Gao (Southwest University, China)
Fabian Gotzens (Forschungszentrum Jülich)
Dr. Jobst Heitzig (Potsdam-Institut für Klimafolgenforschung)
Jonathan Hirdes (HU Berlin)
Fabian Hofmann (Frankfurt Institute for Advanced Studies)
Jonas Hörsch (Frankfurt Institute for Advanced Studies)
Maria Jarolin (Potsdam-Institut für Klimafolgenforschung)
Johannes Kassel (Universität Göttingen)
Dr. Alexander Kies (Frankfurt Institute for Advanced Studies)
Tim Kittel (Potsdam-Institut für Klimafolgenforschung)
Florian Kühnlenz (Universität Oulu, Finnland)
Astrid Lewalter (Projektträger Jülich)
Guosong Lin (EFZN / TU Clausthal)
Anton Plietzsch (Potsdam-Institut für Klimafolgenforschung)
David Schlachtberger (Frankfurt Institute for Advanced Studies)
Markus Schlott (Frankfurt Institute for Advanced Studies)
Thomas Schröder (Forschungszentrum Jülich)
Paul Schultz (Potsdam-Institut für Klimafolgenforschung)
Prof. Sudeshna Sinha (Indian Institute of Science Education and Research Mohali, India)
Samyak Tamrakar (Jacobs University Bremen)
Johannes Weidner (50Hertz, Berlin)
Prof. Meng Zhan (Wuhan Universität, China)
Xiaozhu Zhang (Max-Planck-Institut für Dynamik und Selbstorganisation)