

RWTH - Tokyo Tech Joint Workshop on Sustainable Energy

May 22 - 23, 2019

Institute for Combustion Engines, VKA
Forckenbeckstraße 4, 52074 Aachen



Thinking the Future
Zukunft denken

Welcome

- 08:00 Registration and Welcome Coffee
- 09:00 Opening by the Organizers
Prof. S. Pischinger, RWTH Aachen University
Dr. Watanabe, Tokyo Institute of Technology

Keynote-Speeches

- 09:10 The Basic Hydrogen Strategy and Future Prospect in Japan
Prof. Okazaki, Tokyo Institute of Technology
- 09:40 CO₂ Neutral Energy Supply Systems – Challenges and Opportunities
Prof. De Doncker, E.ON Energy Research Center, RWTH Aachen University
- 10:10 Future Outlook of Energy System based on Techno-Economic Study and Tokyo Tech's Energy Research Activities
Prof. Ihara, Tokyo Institute of Technology
- 10:40 Coffee Break

Materials for Sustainable Energy Society I

- 11:10 Systematic Material Design and Development for Fuel Cells and Water Electrolysis
Prof. Yamaguchi, Tokyo Institute of Technology
- 11:30 Energy Materials Modeling across the Scales
Prof. Spatschek, Thermochemistry of Energy Materials section, Forschungszentrum Jülich
- 11:50 Multi-Scale Structure Control for Thermoelectric Material Design based on Phase Equilibria
Prof. Kimura, Tokyo Institute of Technology
- 12:10 All-Solid-State Batteries – Knowledge-Based Materials Design
Prof. Eichel, Institute of Climate Research, Forschungszentrum Jülich
- 12:30 Long-life, Safe and Low-Cost Energy Storage Devices for Electric Vehicles and Renewable Energy Storage
Prof. Arai, Tokyo Institute of Technology
- 12:50 Lunch Break

Materials for Sustainable Energy Society II

- 14:10** Mechanical Ageing in Lithium Ion Battery Cells
Prof. Figgemeier, Faculty of Electrical Engineering and Information Technology, RWTH Aachen University
- 14:30** Electrolysis of Organic Hydrides, New Cathode Catalysts for Toluene Hydrogenation and CO₂ Reduction
Prof. Yamanaka, Tokyo Institute of Technology
- 14:50** Development and Characterization of Materials for All-Solid-State Batteries
Prof. Hirayama, Tokyo Institute of Technology
- 15:10** All-Solid-State Batteries based on Oxide Electrolytes
Prof. Guillon, Institute of Energy and Climate Research, Forschungszentrum Jülich
- 15:30** Advanced Measurement Technology of Mass Transfer on PEFC with Soft X-Ray
Prof. Hirai, Tokyo Institute of Technology
- 15:50** Coffee Break

Energy System for Sustainable Energy Society

- 16:20** Innovation, Innovation Model and Transition Management toward Sustainable Society
Prof. Kajikawa, Tokyo Institute of Technology
- 16:40** Impacts of Phasing-Out Nuclears and Coal on Security of Supply
Prof. Praktijnjo, E.ON Energy Research Center, RWTH Aachen University
- 17:00** Power Electronics Cooling
Prof. Kneer, Institute of Heat and Mass Transfer, RWTH Aachen University
- 17:20** Improvement of Thermal Efficiency of Super-Lean Burn SI Engine by Water Direct Injection
Prof. Kosaka, Tokyo Institute of Technology
- 17:40** Summary Day 1
- 18:00** Networking Dinner at the VKA - Foyer
- 20:00** End of Day 1

Hydrogen Energy for Sustainable Energy Society

- 08:30** DNS and Advanced Laser Diagnostics of Hydrogen-Oxygen Combustion for Future Electric Power Generation
Prof. Tanahashi, Tokyo Institute of Technology
- 08:50** Combustion Instabilities of Hydrogen Flames studied by Experiments and Direct Numerical Simulations
Prof. Pitsch, Institute for Combustion Technology, RWTH Aachen University
- 09:10** Potential of Hydrogen Fueled Gas Turbines in Heat and Power Generation
Prof. Wirsum, Institute of Power Plant Technology, Steam and Gas Turbines, RWTH Aachen University
- 09:30** Hydrogen and Fuel Cells
Prof. Stolten, Institute of Energy and Climate Research, Forschungszentrum Jülich
- 09:50** Coffee Break

Sources for Sustainable Energy Society

- 10:20** Electrochemical Treatment of Biomass Resources
Prof. Palkovits, Institute of Technical and Macromolecular Chemistry, RWTH Aachen University
- 10:40** System Theory for Harmonized Power System Control based on Photovoltaic Power Prediction
Prof. Imura, Tokyo Institute of Technology
- 11:00** Center for Wind Power Drives – Bringing the Real Wind Turbine Behaviour into the Lab
Dr. Bosse, Center for Wind Power Drives, RWTH Aachen University
- 11:20** Unlocking European Deep Geothermal Resources - Chances and Challenges
Prof. Amann, Chair of Engineering Geology and Hydrogeology, RWTH Aachen University

Plenary Session

- 11:40 Global Energy Systems Analysis and Beyond
Prof. Tokimatsu, Tokyo Institute of Technology
- 12:10 On the Economics of Technical Change, Technological Diffusion, Efficiency and Policy in the Energy Domain
Prof. Madlener, Institute of Future Energy Consumer Needs and Behavior, RWTH Aachen University
- 12:40 Trapping Mechanisms of Carbon Geosequestration
Prof. Suekane, Tokyo Institute of Technology
- 13:10 Hydrogen and E-Fuels as Building Blocks for Sustainable Energy & Mobility
Prof. S. Pischinger, Institute for Combustion Engines, RWTH Aachen University
- 13:40 Summary Day 2 and Final Remarks
Dr. Watanabe, Tokyo Institute of Technology
Prof. S. Pischinger, RWTH Aachen University
- 14:00 Laboratory Tour and optional Lunch

Laboratory Tour

1. Center of Mobile Propulsion
Forckenbeckstraße 4, 52074 Aachen
2. Center for Wind Power Drives
Campus-Boulevard 61, 52074 Aachen
3. E.ON Energy Research Center
Mathieustraße 10, 52074 Aachen
4. Institute of Power Plant Technology, Steam and Gas Turbines
Mathieustraße 9, 52074 Aachen

