

## Symposium Climate and energy: Challenges and options from a physics perspective (SYCE)

jointly organised by  
the Physics of Socio-economic Systems Division (SOE),  
the Dynamics and Statistical Physics Division (DY), and  
the Working Group on Energy (AKE)

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Climate change poses pressing challenges about its implications as well as about understanding complex systems, including the transition of our energy system to completely renewable supply, understanding boundary conditions and understanding climate function and impact. Physics essentially contributes to this issue because it underlies developing and improving renewable energy supply devices and plants and also adds a holistic perspective towards planning and operation of fully renewable energy systems as well as socio-economic systems as a whole. The Symposium on the energy transition, climate and its impact as well as human interactions with these processes brings together approaches from physics and the exact sciences to provide a platform for cross-disciplinary discussions. Specifically, we address the pivotal issue how to most effectively and quickly make the transition to renewable generation and distribution in the areas of heating, and mobility, both in the private and industrial sectors.

### Overview of Invited Talks and Sessions

(Lecture hall Audimax 1)

#### Invited Talks

SYCE 1.1	Thu	13:30–14:00	Audimax 1	<b>The challenge of anthropogenic climate change - Earth system analysis can guide climate mitigation policy</b> — ●MATTHIAS HOFMANN
SYCE 1.2	Thu	14:00–14:30	Audimax 1	<b>Towards a carbon-free energy system: Expectations from R&amp;D in renewable energy technologies</b> — ●BERND RECH, RUTGER SCHLATMANN
SYCE 1.3	Thu	14:30–15:00	Audimax 1	<b>Decarbonizing the Heating Sector - Challenges and Solutions</b> — ●FLORIAN WEISER
SYCE 1.4	Thu	15:15–15:45	Audimax 1	<b>A carbon-free Energy System in 2050: Modelling the Energy Transition</b> — ●CHRISTOPH KOST, PHILIP STERCHELE, HANS-MARTIN HENNING
SYCE 1.5	Thu	15:45–16:15	Audimax 1	<b>The transition of the electricity system to 100% renewable energy: agent-based modeling of investment decisions under climate policies</b> — ●KRISTIAN LINDGREN

#### Sessions

SYCE 1.1–1.5	Thu	13:30–16:15	Audimax 1	<b>Climate and energy: Challenges and options from a physics perspective</b>
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