

## Physics of Socio-economic Systems Division Fachverband Physik sozio-ökonomischer Systeme (SOE)

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### Overview of Invited Talks and Sessions

(Lecture hall H11; Poster P2)

#### Plenary Talk Ricard Sole

PLV IX Thu 14:00–14:45 H1 **Evolutionary transitions: universality, complexity and predictability** —  
•RICARD SOLE

#### Lunch Talk Nicolas Wöhrle

PSV II Tue 13:15–13:45 H2 **Wissenschaftskommunikation - für wen eigentlich?** — •NICOLAS WÖHRL, PE-  
TER KOHL, AXEL LORKE

#### Invited Talks

SOE 2.1 Mon 9:30–10:15 H11 **Two-armed bandits versus Carnapian truth seekers and epistemic free  
riders with bounded confidence** — •RAINER HEGSELMANN  
SOE 8.1 Tue 9:30–10:15 H11 **Musicians' Synchronization and the Enigma of Swing** — •THEO GEISEL  
SOE 11.1 Wed 9:30–10:15 H11 **The Corona Data Donation Project - When Citizens Collaborate to  
Fight a Pandemic** — •DIRK BROCKMANN

#### Invited Tutorial Talks

SOE 1.1 Sun 16:00–16:50 H4 **Diffusion approximations for particles in turbulence** — •BERNHARD MEHLIG  
SOE 1.2 Sun 16:50–17:40 H4 **Probabilities in physics, paradoxes and populations** — •TOBIAS GALLA  
SOE 1.3 Sun 17:40–18:30 H4 **Risk Revealed: Cautionary Tales, Understanding and Communication** —  
•PAUL EMBRECHTS

#### Invited Talks of the joint Symposium SKM Dissertation Prize 2022 (SYSD)

See SYSD for the full program of the symposium.

SYSD 1.1 Mon 10:15–10:45 H2 **Charge localisation in halide perovskites from bulk to nano for efficient  
optoelectronic applications** — •SASCHA FELDMANN  
SYSD 1.2 Mon 10:45–11:15 H2 **Nonequilibrium Transport and Dynamics in Conventional and Topolog-  
ical Superconducting Junctions** — •RAFFAEL L. KLEES  
SYSD 1.3 Mon 11:15–11:45 H2 **Probing magnetostatic and magnetotransport properties of the antifer-  
romagnetic iron oxide hematite** — •ANDREW ROSS  
SYSD 1.4 Mon 11:45–12:15 H2 **Quantum dot optomechanics with surface acoustic waves** — •MATTHIAS  
WEISS

#### Invited Talks of the joint Symposium United Kingdom as Guest of Honor (SYUK)

See SYUK for the full program of the symposium.

SYUK 1.1 Wed 9:30–10:00 H2 **Structure and Dynamics of Interfacial Water** — •ANGELOS MICHAELIDES

SYUK 1.2	Wed	10:00–10:30	H2	<b>A molecular view of the water interface</b> — ●MISCHA BONN
SYUK 1.3	Wed	10:30–11:00	H2	<b>Motile cilia waves: creating and responding to flow</b> — ●PIETRO CICUTA
SYUK 1.4	Wed	11:00–11:30	H2	<b>Cilia and flagella: Building blocks of life and a physicist’s playground</b> — ●OLIVER BÄUMCHEN
SYUK 1.5	Wed	11:45–12:15	H2	<b>Computational modelling of the physics of rare earth - transition metal permanent magnets from SmCo<sub>5</sub> to Nd<sub>2</sub>Fe<sub>14</sub>B</b> — ●JULIE STAUNTON
SYUK 2.1	Wed	15:00–15:30	H2	<b>Hysteresis Design of Magnetic Materials for Efficient Energy Conversion</b> — ●OLIVER GUTFLEISCH
SYUK 2.2	Wed	15:30–16:00	H2	<b>Non-equilibrium dynamics of many-body quantum systems versus quantum technologies</b> — ●IRENE D’AMICO
SYUK 2.3	Wed	16:00–16:30	H2	<b>Quantum computing with trapped ions</b> — ●FERDINAND SCHMIDT-KALER
SYUK 2.4	Wed	16:45–17:15	H2	<b>Breaking the millikelvin barrier in cooling nanoelectronic devices</b> — ●RICHARD HALEY
SYUK 2.5	Wed	17:15–17:45	H2	<b>Superconducting Quantum Interference Devices for applications at mK temperatures</b> — ●SEBASTIAN KEMPF

### Invited Talks of the joint Symposium Collective Social Dynamics from Animals to Humans (SYSO)

See SYSO for the full program of the symposium.

SYSO 1.1	Thu	9:30–10:00	H1	<b>Capturing group interactions: The next frontier of modeling social and biological systems</b> — ●FRANK SCHWEITZER
SYSO 1.2	Thu	10:00–10:30	H1	<b>Modelling Individual Mobility Behavior</b> — ●LAURA MARIA ALESSANDRETTI
SYSO 1.3	Thu	10:30–11:00	H1	<b>Validating argument-based opinion dynamics with survey experiments</b> — ●SVEN BANISCH
SYSO 1.4	Thu	11:15–11:45	H1	<b>Self-organization, Criticality and Collective Information Processing in Animal Groups</b> — ●PAWEŁ ROMANCZUK
SYSO 1.5	Thu	11:45–12:15	H1	<b>Collective dynamics and physiological interactions in bird colonies</b> — ●HANJA BRANDL

### Sessions

SOE 1.1–1.3	Sun	16:00–18:30	H4	<b>Tutorial: Stochastic Processes from Financial Risk to Genetics (joint session SOE/TUT/BP/DY)</b>
SOE 2.1–2.1	Mon	9:30–10:15	H11	<b>Invited Talk Rainer Hegselmann: Opinion Formation</b>
SOE 3.1–3.5	Mon	10:15–11:45	H11	<b>Economic Models</b>
SOE 4.1–4.2	Mon	12:00–12:30	H11	<b>Financial Risk</b>
SOE 5.1–5.4	Mon	12:30–13:30	H11	<b>Social Systems, Opinion and Group Dynamics</b>
SOE 6.1–6.10	Mon	15:00–17:45	H18	<b>Data Analytics for Complex Systems (joint session DY/SOE)</b>
SOE 7.1–7.2	Mon	17:45–18:15	H18	<b>Big Data and Artificial Intelligence (joint session SOE/DY)</b>
SOE 8.1–8.1	Tue	9:30–10:15	H11	<b>Invited Talk Theo Geisel: Human Synchronization in Music Performance</b>
SOE 9.1–9.3	Tue	10:15–11:15	H11	<b>Physics of Contagion Processes</b>
SOE 10.1–10.6	Tue	11:15–12:45	H19	<b>Nonlinear Dynamics 1: Synchronization and Chaos (joint session DY/SOE)</b>
SOE 11.1–11.1	Wed	9:30–10:15	H11	<b>Invited Talk Dirk Brockmann: Big Data in Epidemic Dynamics (joint session SOE/DY)</b>
SOE 12.1–12.6	Wed	10:15–12:45	H11	<b>Networks: From Topology to Dynamics (joint session SOE/BP/DY)</b>
SOE 13.1–13.2	Wed	12:45–13:15	H11	<b>Energy Networks (joint session SOE/DY)</b>
SOE 14.1–14.5	Wed	15:00–16:45	H11	<b>Computational Social Science</b>
SOE 15.1–15.3	Wed	17:00–18:15	H11	<b>Traffic Dynamics, Urban and Regional Systems</b>
SOE 16	Wed	18:15–19:30	H11	<b>Members’ Assembly</b>
SOE 17.1–17.6	Thu	15:00–18:00	P2	<b>Poster</b>
SOE 18.1–18.1	Fri	9:30–10:00	H19	<b>Invited Talk Kathy Lüdge (joint session DY/SOE)</b>
SOE 19.1–19.5	Fri	10:00–11:15	H19	<b>Machine Learning in Dynamics and Statistical Physics (joint session DY/SOE)</b>
SOE 20.1–20.5	Fri	11:30–12:45	H19	<b>Nonlinear Dynamics 2: Stochastic and Complex Systems, Networks (joint session DY/SOE)</b>

## Members' Assembly of the Physics of Socio-economic Systems Division

Wednesday 18:15–19:30 H11

Agenda:

- Report on Activities
- Announcements
- Elections
- Miscellaneous