

Entropy and the Second Law of Thermodynamics – The past, the present, and the future

761. WE-Heraeus-Seminar

July 14 - 17, 2022

**Hybrid at the Physikzentrum
Bad Honnef/Germany**

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Thursday, 14 July 2022

12:00 – 19:00	Registration	
12:30	<i>LUNCH</i>	
14:00 – 14:15	Scientific organizers	Welcome
14:15 – 14:30	Stefan Jorda (online)	About the Wilhelm and Else Heraeus Foundation
14:30 – 15:30	Johannes Orphal	„Rudolph Clausius (1822-1888) - the discoverer of entropy. What do we know about his life and his ideas?“
15:30 – 16:00	<i>COFFEE BREAK</i>	
16:00 – 16:45	Ken Dill (online)	The principle of Maximum Caliber for nonequilibrium statistical physics
	Hot Topic Talks	
16:50 – 17:10	Thomas Busch	Efficient Quantum Engines in Interacting Ultracold Gases
17:10 – 17:30	Simone Pezzotti (online)	Mapping local hydration entropy in biology from THz spectroscopy
17:30 – 17:50	Jenny Poulton	Fundamental limits on prediction
18:30	<i>DINNER</i>	

Program

Friday, 15 July 2022

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Yael Roichman	Active matter information engines
09:45 – 10:30	Masahito Ueda (online)	Universal Thermodynamic Uncertainty Relation in Non- Equilibrium Dynamics
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Frank Jülicher	Active processes in Cells and Tissues
11:45 – 12:30	Rajibul Islam	Probing coherent and dissipative dynamics on a trapped ion quantum simulator
12:30	<i>LUNCH</i>	
14:00 – 14:45	Aljaz Godec	Time-reversal symmetry and dissipation in dynamics with memory
14:45 – 15:30	Nicolai Kiesel	Levitated optomechanics and the second law
15:30 – 16:00	<i>COFFEE BREAK</i>	
16:00 – 16:45	Martin Gruebele (online)	Quantum information Scrambling in Molecules
16:45 – 18:15	Poster Session I	
18:30	<i>HERAEUS DINNER at the Physikzentrum (cold & warm buffet, with complimentary drinks)</i>	

Program

Saturday, 16 July 2022

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	NN	tba
09:45 – 10:30	Massimiliano Esposito	Towards a Nonequilibrium Thermodynamics of Complex Systems
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Udo Seifert	From stochastic thermodynamics to thermodynamic inference
	Hot Topic Talks	
11:50 – 12:10	Mauro Paternostro (online)	Informational steady-states and conditional entropy production in continuously monitored systems
12:10 – 12:30	Lingna Wu	Dynamical phase transition in an open quantum system
12:30	<i>LUNCH</i>	
14:00 – 18:30	Excursion	
18:30 – 20:00	<i>DINNER</i>	
20:00 – 21:00	Poster Session II	

Program

Sunday, 17 July 2022

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Manas Mukherjee	Single atom heat engine with quantum load
09:45 – 10:30	Karin Hauser	The role of entropy in protein folding – insights from IR-spectroscopic studies
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Larissa von Krbek	Guest recognition in dynamic libraries and spin-crossover cages
11:45 – 12:30	Dieter Braun	Non-equilibrium conditions for the Emergence of Life
12:30 – 12:40	Scientific Organizers	Closing remarks and poster awards
12:40	<i>LUNCH</i>	

End of seminar and departure