



Out of equilibrium nanothermodynamics with levitated particles

24-25 Jun 2024 Gif-sur-Yvette (France)

8:30 - 9:15	Welcome Coffee		
9:15 - 9:30	Introduction	Welcome coffee	9:00 - 9:30
9:30 - 10:30	Tutorial: The details are in the devil: Maxwell's demon in the real world <i>John Bechhoefer (Simon Fraser University)</i>	Tutorial: If action and reaction don't match: Implications of nonreciprocity on fluctuating scales <i>Sarah A. M. Loos (University of Cambridge)</i>	9:30 - 10:30
10:30 - 11:00	Coffee break		10:30 - 11:00
11:00 - 11:30	Two applications of feedback control on a nano and micro-system: Thermodynamic of Information & Optical Levitation in the Dark <i>Salambô Dago (University of Vienna)</i>	Inertial effects in levitated particles after fast parameter changes: Kovacs effect and motional squeezing <i>Andrei Militaru (Institute of Science and Technology Austria)</i>	11:00 - 11:30
11:30 - 12:00	An Underdamped Stochastic Heat Engine <i>Molly Message (King's College London)</i>	Thermal and mechanical quenches with trapped Brownian particles <i>Raúl Rica (University of Granada)</i>	11:30 - 12:00
12:00 - 12:20	Arbitrary nonequilibrium steady-state construction with a levitated nanoparticle <i>Zheng Yu (University of Science and Technology of China)</i>	Resetting as a swift equilibration protocol in an anharmonic potential <i>Goerlich Rémi (Raymond & Beverly Sackler School of Chemistry, Tel Aviv University)</i>	12:00 - 12:20
12:20 - 12:40	Non-equilibrium thermodynamics of repulsive time-delayed feedback <i>Robin A. Kopp (Technical University of Berlin)</i>	Non-Hermitian dynamics and nonreciprocity of two optically coupled nanoparticles <i>Abuzarli Murad (Vienna Center for Quantum Science and Technology -VCQ)</i>	12:20 - 12:40
12:40 - 14:00	Lunch break		12:40 - 14:00
14:00 - 14:30	Experimental realization of a discrete sampling information engine <i>Caroline Crauste (Laboratoire de Physique de l'ENS de Lyon)</i>	Giant diffusion of nanomechanical rotors in a tilted washboard potential : from 1D to 6D Langevin dynamics <i>Matthias Perrin (Laboratoire Onde et Matière d'Aquitaine, CNRS-Université de Bordeaux)</i>	14:00 - 14:20
14:30 - 14:50	Information bound on work extraction for continuous sampling information engines <i>Aubin Archambault (Laboratoire de Physique de l'ENS de Lyon)</i>	Optimal time-entropy bounds and speed limits for Brownian thermal shortcuts <i>Luis Pires (Institut de Science et d'Ingénierie Supramoléculaires, Strasbourg University)</i>	14:20 - 14:40
14:50 - 15:10	Fast is hot: energetics of information erasure and the overhead to Landauer's bound at low dissipation <i>Ludovic Bellon (Laboratoire de Physique de l'ENS Lyon)</i>	Direct Measurements of Nonequilibrium Optimal Processes in Optical Traps <i>Thalyta Tavares Martins (Instituto de Física de São Carlos, USP)</i>	14:40 - 15:00
15:10 - 15:30	Optomechanical study of thermal and charge wave propagation in suspended SiC nanowires <i>Cattleya Dousset (Institut Néel, CNRS, Univ. Grenoble Alpes)</i>	Break	15:00 - 15:20
15:30 - 16:00	Break	Nanomechanical thermal noise squeezing and circulation generated by curl forces <i>Olivier Arcizet (Institut Néel, CNRS)</i>	15:20 - 15:40
16:00 - 16:30	Controlling complex systems, from quantum mechanics to stochastic thermodynamics and vice versa <i>David Guéry Odélin (Université Toulouse)</i>	Two new arenas for quantum friction: topological insulators and rotating molecules <i>Franca Santiago Omar Jesus (Institut für Physik, Kassel)</i>	15:40 - 16:00
16:30 - 16:50	Optimal Control of Underdamped Systems: An Analytic Approach <i>Marco Baldovin (Institute for Complex Systems - CNR)</i>	Closing remarks	16:00 - 16:10
16:50 - 17:10	Underdamped Optimal Protocols with a levitated particle <i>Ines Ben Yedder (Laboratoire Lumière, Matière et Interfaces - LuMIn)</i>		
17:10 - 17:30	Probabilistic work extraction on a classical oscillator beyond the 2nd law <i>Barros Nicolas (Laboratoire de Physique de l'ENS Lyon)</i>		
17:30 - 21:00	Poster session		