

Frontiers in Non-equilibrium Physics 2024

Report of Contributions

Contribution ID: 3

Type: **not specified**

Misaki Ozawa "Elasticity, facilitation, avalanches of relaxation, and dynamic heterogeneity in glass-forming liquids"

Monday, July 29, 2024 11:30 AM (50 minutes)

Contribution ID: 4

Type: **not specified**

Yiqiu Zhao "Jamming and Memory Formation in Densely-Filled Soft Composites"

Tuesday, July 30, 2024 9:30 AM (50 minutes)

Contribution ID: 5

Type: **not specified**

Yujie Wang "Experimental study of the statistical mechanics and dynamics of granular materials"

Tuesday, July 30, 2024 10:20 AM (50 minutes)

Contribution ID: 6

Type: **not specified**

Mahesh Bandi "Dynamical Transition between Failure Modes in a Quasi-2D Granular System"

Contribution ID: 7

Type: **not specified**

Poster preview (5th week)

Wednesday, July 31, 2024 2:00 PM (1 hour)

Contribution ID: 8

Type: **not specified**

Poster session (5th week)

Wednesday, July 31, 2024 3:30 PM (2 hours)

Contribution ID: 9

Type: **not specified**

Itamar Procaccia "Elasticity, plasticity and screening in amorphous solids"

Monday, July 29, 2024 9:30 AM (50 minutes)

Contribution ID: 10

Type: **not specified**

Yuliang Jin "Jamming is a first-order transition with quenched disorder in amorphous materials sheared by cyclic quasistatic deformations"

Monday, July 29, 2024 10:20 AM (50 minutes)

Contribution ID: 11

Type: **not specified**

Matthias Fuchs "Vibrational phenomena in athermal amorphous solids and the un-jamming transition"

Tuesday, July 30, 2024 11:30 AM (50 minutes)

Contribution ID: 12

Type: **not specified**

Hideyuki Mizuno "Effective medium theory for viscoelasticity of soft jammed solids"

Thursday, August 1, 2024 10:20 AM (50 minutes)

Contribution ID: 13

Type: **not specified**

Satoshi Takada "Kinetic theory of moderately dense dry granular particles under a simple shear"

Thursday, August 1, 2024 11:30 AM (30 minutes)

Presenter: TAKADA, Satoshi (Tokyo University of Agriculture and Technology)

Contribution ID: 14

Type: **not specified**

YITP Colloquium: Jorge Kurchan "Time-reparametrization invariance: from glasses to toy black holes"

Tuesday, July 30, 2024 3:30 PM (1h 30m)

Glassy dynamics have time-reparametrization "softness": glasses fluctuate, and respond to external perturbations, primarily by changing the pace of their evolution. Remarkably, the same situation also appears in toy models of quantum field theory such as the Sachdev-Ye-Kitaev (SYK) model, where the excitations associated to reparametrizations play the role of an emerging "gravity". I will describe how these two seemingly unrelated systems share common features, arising from a technically very similar origin.

Contribution ID: 15

Type: **not specified**

Takeaki Araki "Cooperative motion caused by thermally activated jumps in Johari-Goldstein mode"

Monday, July 29, 2024 2:00 PM (30 minutes)

Johari-Goldstein (JG) relaxation is a relaxation phenomenon observed in supercooled liquids and glasses, and plays a significant role in impacting various properties. We delved into the JG mode in both ionic glass CKN and metallic glasses, employing molecular dynamics simulations. Our simulations unveiled the intricate microscopic dynamics characterizing the JG mode. Specifically, we observed that a subset of particles undergoes thermally activated jump motions. These jump motions triggered a collective local relaxation among neighbouring particles that were conventionally assumed to be immobile. This collective relaxation, involving both jumping and non-jumping particles, played a pivotal role in the stress relaxation of the entire glass structure. By bridging findings from gamma ray quasi-elastic scattering experiments with the computational insights, our work provides a deeper understanding of the underlying mechanisms governing the JG mode in diverse glassy materials.

Contribution ID: 16

Type: **not specified**

Samuel Poincloux "Jamming of a sponge-like granular media"

Monday, July 29, 2024 2:30 PM (30 minutes)

Contribution ID: 17

Type: **not specified**

Tetsuo Yamaguchi "Mechanics of plant root pullout from soil"

Monday, July 29, 2024 3:30 PM (30 minutes)

Contribution ID: **18**

Type: **not specified**

Yuki Takaha "Avalanche criticality of rearrangements in aging glasses"

Thursday, August 1, 2024 9:50 AM (30 minutes)

Contribution ID: 19

Type: **not specified**

Harukuni Ikeda "Jamming with Tunable Roughness"

Friday, August 2, 2024 9:30 AM (50 minutes)

Contribution ID: 20

Type: **not specified**

Ning Xu "Similarities between active matter and sheared systems"

Friday, August 2, 2024 10:20 AM (50 minutes)

Contribution ID: 21

Type: **not specified**

Hsuan-Yi Chen "Statistics of stick-slip dynamics in contact line motion and dry friction"

Friday, August 2, 2024 11:30 AM (50 minutes)

Contribution ID: 24

Type: **not specified**

Takeshi Kawasaki "Unified Understanding of Nonlinear Rheology Near the Jamming Transition Point"

Wednesday, July 31, 2024 9:30 AM (50 minutes)

Contribution ID: 25

Type: **not specified**

Ryohei Seto "Constitutive modeling of dense suspensions"

Wednesday, July 31, 2024 10:20 AM (50 minutes)

Contribution ID: 26

Type: **not specified**

Kuniyasu Saitoh "Jamming of deformable foams"

Wednesday, July 31, 2024 11:30 AM (30 minutes)

Primary author: Prof. SAITOH, Kuniyasu (Kyoto Sangyo University)

Presenter: Prof. SAITOH, Kuniyasu (Kyoto Sangyo University)

Contribution ID: 27

Type: **not specified**

Michio Otsuki "Flow of jammed granular materials"

Wednesday, July 31, 2024 12:00 PM (30 minutes)

Primary author: OTSUKI, Michio (Osaka University)

Presenter: OTSUKI, Michio (Osaka University)

Contribution ID: 28

Type: **not specified**

Shin-ichi Sasa "Non-equilibrium Phase Coexistence"

Monday, July 22, 2024 10:00 AM (50 minutes)

Contribution ID: 29

Type: **not specified**

Zhiyue Lu "Geometry of Nonequilibrium Non-Stationary Processes"

Monday, July 22, 2024 11:10 AM (50 minutes)

Contribution ID: 30

Type: **not specified**

John Bechhoefer "Anomalous thermal relaxation in a colloidal system"

Tuesday, July 23, 2024 10:20 AM (50 minutes)

Contribution ID: 31

Type: **not specified**

Andrés Santos "Unraveling the Mpemba and Kovacs effects using time-delayed Newton's cooling law"

Tuesday, July 23, 2024 9:30 AM (50 minutes)

Contribution ID: 32

Type: **not specified**

Marija Vucelja "Anomalous thermal relaxations of physical systems"

Tuesday, July 23, 2024 11:30 AM (50 minutes)

Contribution ID: 36

Type: **not specified**

Hisao Hayakawa "Thermodynamics of Mpemba effect"

Wednesday, July 24, 2024 9:30 AM (30 minutes)

Primary author: HAYAKAWA, Hisao (Yukawa Institute for Theoretical Physics)

Presenter: HAYAKAWA, Hisao (Yukawa Institute for Theoretical Physics)

Contribution ID: 37

Type: **not specified**

Amit Kumar Chatterjee "Quantum Mpemba effect: exceptional points and complex eigenvalues"

Wednesday, July 24, 2024 10:00 AM (50 minutes)

Contribution ID: 38

Type: **not specified**

Filberto Ares "Entanglement asymmetry and the quantum Mpemba effect"

Wednesday, July 24, 2024 11:10 AM (50 minutes)

Contribution ID: 39

Type: **not specified**

Poster preview (4th week)

Wednesday, July 24, 2024 2:00 PM (1 hour)

Contribution ID: 40

Type: **not specified**

Poster session (4th week)

Wednesday, July 24, 2024 3:30 PM (2 hours)

Contribution ID: 41

Type: **not specified**

Ryo Hanai "Non-reciprocal frustration physics"

Thursday, July 25, 2024 9:30 AM (30 minutes)

Contribution ID: 42

Type: **not specified**

Jaime Agudo-Canalejo "Self-organisation through nonequilibrium catalytic activity"

Thursday, July 25, 2024 11:10 AM (50 minutes)

Contribution ID: 43

Type: **not specified**

Tzer Han Tan "Odd dynamics in living chiral crystal"

Thursday, July 25, 2024 10:00 AM (50 minutes)

Contribution ID: 44

Type: **not specified**

Frédéric van Wijland "Accelerating sampling by irreversible methods"

Thursday, July 25, 2024 1:40 PM (50 minutes)

Contribution ID: 45

Type: **not specified**

Masaki Sano "Integer Topological Defects Reveal Hidden Nonlinear Active Force in Active Nematics"

Thursday, July 25, 2024 2:30 PM (30 minutes)

Contribution ID: 46

Type: **not specified**

Grzegorz Szamel "Extremely Persistent Dense Active Fluids"

Thursday, July 25, 2024 3:30 PM (50 minutes)

Contribution ID: 48

Type: **not specified**

Hong-Yan Shih "Statistical model and universality class of transitional turbulence"

Friday, July 26, 2024 9:30 AM (50 minutes)

Contribution ID: 49

Type: **not specified**

Kenta Ishimoto "Non-reciprocity in microswimming"

Friday, July 26, 2024 10:20 AM (50 minutes)

Contribution ID: 50

Type: **not specified**

Kazumasa A. Takeuchi "Route to turbulence of bacterial suspensions under confinement"

Friday, July 26, 2024 11:30 AM (50 minutes)

Contribution ID: 51

Type: **not specified**

Opening address

Monday, July 29, 2024 9:25 AM (5 minutes)

Contribution ID: 52

Type: **not specified**

Opening address

Monday, July 8, 2024 10:00 AM (10 minutes)

Contribution ID: 53

Type: **not specified**

Marti Perarnau-Llobet "Collective Advantages in Finite-Time Thermodynamics"

Monday, July 8, 2024 10:10 AM (50 minutes)

Contribution ID: 54

Type: **not specified**

Yue Liu "Collective advantages in memory erasure: Beyond the Landauer principle"

Monday, July 8, 2024 11:00 AM (30 minutes)

Contribution ID: 55

Type: **not specified**

Takase Shimizu "Experimental verification of Landauer principle under a constraint of nonequilibrium initial state"

Thursday, July 11, 2024 9:30 AM (30 minutes)

Contribution ID: 57

Type: **not specified**

Géraldine Haack (online) "Manipulating entanglement at exceptional points in dissipative quantum systems"

Thursday, July 11, 2024 3:30 PM (30 minutes)

Contribution ID: 58

Type: **not specified**

Yoshihiko Hasegawa "Thermodynamic tradeoff relations in quantum systems"

Tuesday, July 9, 2024 9:30 AM (50 minutes)

Contribution ID: 59

Type: **not specified**

Xhek Turkeshi "Error-resilient transitions in random circuits"

Tuesday, July 9, 2024 10:20 AM (50 minutes)

Contribution ID: **60**

Type: **not specified**

Ken Mochizuki "Measurement-induced spectral transition"

Friday, July 12, 2024 11:10 AM (30 minutes)

Contribution ID: 63

Type: **not specified**

Gentaro Watanabe "Fluctuations in small heat engines — from quasi-static to finite-time regimes"

Wednesday, July 10, 2024 9:30 AM (50 minutes)

Contribution ID: 64

Type: **not specified**

Victor Mukherjee "Collective effects enhanced quantum engines"

Wednesday, July 10, 2024 10:20 AM (30 minutes)

Contribution ID: 65

Type: **not specified**

John Goold "The thermodynamics of the quantum Mpemba effect"

Wednesday, July 10, 2024 11:10 AM (50 minutes)

Contribution ID: **66**

Type: **not specified**

Poster preview (2nd week)

Wednesday, July 10, 2024 1:40 PM (1h 20m)

Contribution ID: 67

Type: **not specified**

Poster session (2nd week)

Wednesday, July 10, 2024 3:30 PM (2 hours)

Contribution ID: 68

Type: **not specified**

Keiji Saito "Third-law like trade-off relation in stochastic thermodynamics"

Monday, July 8, 2024 11:30 AM (30 minutes)

Contribution ID: 69

Type: **not specified**

Andreas Dechant "Maxwell's demon improves sensing out of equilibrium"

Thursday, July 11, 2024 10:00 AM (50 minutes)

Contribution ID: 70

Type: **not specified**

Ken Funo "Dynamics of a quantum system interacting with non-Gaussian baths"

Thursday, July 11, 2024 11:10 AM (50 minutes)

Contribution ID: 71

Type: **not specified**

Paul Fabian Menczel "Unravelings of time-local quantum master equations"

Friday, July 12, 2024 9:30 AM (30 minutes)

Contribution ID: 72

Type: **not specified**

Kay Brandner "Mesoscopic systems with weak memory: A mathematical framework beyond the Markov approximation"

Friday, July 12, 2024 10:00 AM (50 minutes)

Contribution ID: 73

Type: **not specified**

Tan Van Vu "Thermodynamics of fidelity in quantum gates"

Tuesday, July 9, 2024 11:30 AM (30 minutes)

Primary author: Prof. VU, Tan (Yukawa Institute for Theoretical Physics, Kyoto University)

Presenter: Prof. VU, Tan (Yukawa Institute for Theoretical Physics, Kyoto University)

Contribution ID: 74

Type: **not specified**

Ludovico Tesser "Out-of-Equilibrium Fluctuation-Dissipation Bounds"

Friday, July 12, 2024 11:40 AM (30 minutes)

Contribution ID: 75

Type: **not specified**

Massimiliano Gennaro Esposito "Nonequilibrium phase transitions: Energetics and macroscopic fluctuations"

Tuesday, July 16, 2024 9:30 AM (50 minutes)

Contribution ID: 76

Type: **not specified**

Takahiro Sagawa "Thermodynamically optimal measurement and feedback in finite time"

Tuesday, July 16, 2024 10:20 AM (50 minutes)

Contribution ID: 77

Type: **not specified**

Haitao Quan "Hierarchical structure of fluctuation theorems for a driven system in contact with multiple heat reservoirs"

Tuesday, July 16, 2024 11:30 AM (30 minutes)

Contribution ID: **80**

Type: **not specified**

Simone Pigolotti "Statistical physics of proliferating systems"

Wednesday, July 17, 2024 9:30 AM (50 minutes)

Contribution ID: **81**

Type: **not specified**

Anatoli Polkovnikov "Universal slow relaxation of weakly nonintegrable systems"

Wednesday, July 17, 2024 10:20 AM (50 minutes)

Contribution ID: 82

Type: **not specified**

Shiling Liang "A Minimal Model for Carnot Efficiency at Maximum Power"

Wednesday, July 17, 2024 11:30 AM (30 minutes)

Contribution ID: **83**

Type: **not specified**

Poster preview (3rd week)

Wednesday, July 17, 2024 1:40 PM (1h 20m)

Contribution ID: **84**

Type: **not specified**

Poster session (3rd week)

Wednesday, July 17, 2024 3:30 PM (2 hours)

Contribution ID: 85

Type: **not specified**

Kiyoshi Kanazawa "Stochastic thermodynamics for general non-Markovian processes"

Thursday, July 18, 2024 9:30 AM (30 minutes)

Contribution ID: 86

Type: **not specified**

Archak Purkayastha "Quantum transport and exceptional points of transfer matrix"

Thursday, July 18, 2024 10:00 AM (50 minutes)

Contribution ID: 87

Type: **not specified**

Sosuke Ito "Optimal transport and thermodynamics for the learning"

Thursday, July 18, 2024 11:10 AM (50 minutes)

Contribution ID: 88

Type: **not specified**

Iman Marvian "Energy-conserving quantum circuits, new conservation laws, and their implications for equilibration"

Friday, July 19, 2024 9:30 AM (50 minutes)

Contribution ID: 89

Type: **not specified**

Hiroyasu Tajima "Coherence costs and effects in dynamics of thermodynamics"

Friday, July 19, 2024 10:20 AM (50 minutes)

Contribution ID: 90

Type: **not specified**

Atsushi Noguchi "Quantum engine with superconducting qubits"

Friday, July 19, 2024 11:30 AM (50 minutes)

Contribution ID: **91**

Type: **not specified**

Opening address

Monday, July 1, 2024 1:25 PM (5 minutes)

Contribution ID: 92

Type: **not specified**

Sergej Flach "Many Body Thermalization Close to Integrability"

Monday, July 1, 2024 1:30 PM (50 minutes)

Contribution ID: 93

Type: **not specified**

Naomichi Hatano "Non-Hermitian Quantum Mechanics: How we came up with the Hatano-Nelson model"

Monday, July 1, 2024 2:20 PM (50 minutes)

Contribution ID: 94

Type: **not specified**

Ken Imura "Wave-packet and entanglement dynamics in a non-Hermitian system"

Monday, July 1, 2024 3:35 PM (25 minutes)

Contribution ID: 95

Type: **not specified**

Savannah Garmon "Weak-coupling bound states in semi-infinite topological waveguide QED"

Monday, July 1, 2024 4:00 PM (25 minutes)

Contribution ID: 96

Type: **not specified**

Jiangbin Gong "Universal fluctuations in 2D Anderson localization"

Monday, July 1, 2024 4:25 PM (50 minutes)

Contribution ID: 97

Type: **not specified**

Kohei Kawabata "Symmetry classification of non-Hermitian random matrices and open quantum systems"

Tuesday, July 2, 2024 9:30 AM (50 minutes)

Contribution ID: 98

Type: **not specified**

Tingzhang Shi "Exact work distribution and the Jarzynski's equality of a relativistic particle in an expanding piston"

Tuesday, July 2, 2024 10:45 AM (25 minutes)

Contribution ID: 99

Type: **not specified**

Haitao Quan "Special Relativistic Covariant Fluctuation Theorems"

Wednesday, July 3, 2024 1:30 PM (50 minutes)

Contribution ID: **100**

Type: **not specified**

Susumu Goto "Dynamics of particles in turbulent flow"

Tuesday, July 2, 2024 1:30 PM (50 minutes)

Contribution ID: **101**

Type: **not specified**

Poster preview 1 (odd numbers/YKIS2024)

Tuesday, July 2, 2024 2:20 PM (50 minutes)

Contribution ID: **102**

Type: **not specified**

Poster session 1 (Odd numbers/YKIS2024)

Tuesday, July 2, 2024 3:35 PM (1h 55m)

Contribution ID: 103

Type: **not specified**

Sadhitro De† "Surprising aspects of Lagrangian dispersion in shock-dominated turbulence" (Online)

Wednesday, July 3, 2024 9:30 AM (25 minutes)

Contribution ID: **104**

Type: **not specified**

Yunyun Li "Clustering of quorum sensing colloidal particles"

Wednesday, July 3, 2024 9:55 AM (25 minutes)

Presenter: LI, Yunyun (Tongji University)

Contribution ID: 105

Type: **not specified**

Youngkyoung Bae "Decoding the underdamped Langevin equation from trajectories via Bayesian neural networks"

Wednesday, July 3, 2024 10:45 AM (25 minutes)

Contribution ID: **106**

Type: **not specified**

Urna Basu "Activity driven energy transport"

Wednesday, July 3, 2024 11:10 AM (50 minutes)

Contribution ID: **107**

Type: **not specified**

Kohei Nakajima "Chaos in reservoir computing"

Tuesday, July 2, 2024 11:10 AM (50 minutes)

Contribution ID: 108

Type: **not specified**

Kazumasa A. Takeuchi "Evaluating the instability and the inertial manifold dimension of space-time chaos from time series data"

Wednesday, July 3, 2024 2:20 PM (25 minutes)

Contribution ID: 109

Type: **not specified**

Chikeung Chan "Detection of Anticipatory Dynamics Between a Pair of Zebrafish"

Wednesday, July 3, 2024 2:45 PM (25 minutes)

Contribution ID: 110

Type: **not specified**

Sibaram Ruidas† "Onset and growth of many-body chaos in a symmetry-broken phase" (Online)

Wednesday, July 3, 2024 3:35 PM (25 minutes)

Contribution ID: 111

Type: **not specified**

Tomasz Kapitaniak "Chimera states for coupled pendula"

Wednesday, July 3, 2024 4:00 PM (25 minutes)

Contribution ID: 112

Type: **not specified**

Hiroshi Kori "Synchronization and desynchronization in higher-order networks"

Wednesday, July 3, 2024 4:25 PM (50 minutes)

Contribution ID: 113

Type: **not specified**

Kiyoshi Kanazawa "Statistical physics of the long-memory order flow in financial market microstructure"

Thursday, July 4, 2024 9:30 AM (50 minutes)

Contribution ID: 114

Type: **not specified**

Kazuya Fujimoto "Random matrix statistics in correlation dynamics of fermions"

Thursday, July 4, 2024 10:45 AM (25 minutes)

Contribution ID: 115

Type: **not specified**

Jae Sung Lee "Stochastic Differential Equation for a System Coupled to a Thermostatic Bath via an Arbitrary Interaction Hamiltonian"

Thursday, July 4, 2024 11:10 AM (50 minutes)

Contribution ID: 116

Type: **not specified**

Pik-Yin Lai "Extreme value statistics and avalanches in moving contact line and solid friction"

Thursday, July 4, 2024 1:30 PM (50 minutes)

Contribution ID: **117**

Type: **not specified**

Poster preview YKIS2024 (Even numbers/YKIS2024)

Thursday, July 4, 2024 2:20 PM (50 minutes)

Contribution ID: **118**

Type: **not specified**

Poster session 2 (Even numbers/YKIS2024)

Thursday, July 4, 2024 3:35 PM (1h 55m)

Contribution ID: 119

Type: **not specified**

Ling Feng "Asymptotic Edge of Chaos as Guiding Principle for Neural Network Training"

Friday, July 5, 2024 9:30 AM (25 minutes)

Contribution ID: 120

Type: **not specified**

Fumito Mori "Inference theory for coupling direction between synchronized oscillators and its experimental verification"

Friday, July 5, 2024 9:55 AM (25 minutes)

Contribution ID: 121

Type: **not specified**

Yuki Ishiguro "Exact solutions in the multi-dimensional ASEP"

Friday, July 5, 2024 10:45 AM (25 minutes)

Contribution ID: 122

Type: **not specified**

Leihan Tang "Emergence of Mattis-type order in annealed SK spin glass: exact results and simulations"

Friday, July 5, 2024 11:10 AM (50 minutes)

Contribution ID: **123**

Type: **not specified**

Closing remarks

Friday, July 5, 2024 12:00 PM (5 minutes)

Contribution ID: 125

Type: **not specified**

Daniel Maria Busiello "Tuning transduction from hidden observables to optimise information harvesting"

Thursday, July 18, 2024 12:00 PM (30 minutes)

Contribution ID: **126**

Type: **not specified**

Closing remarks

Friday, July 19, 2024 12:20 PM (10 minutes)

Contribution ID: **127**

Type: **not specified**

Opening address

Monday, July 22, 2024 9:55 AM (5 minutes)

Contribution ID: **128**

Type: **not specified**

Closing remarks

Friday, August 2, 2024 12:20 PM (10 minutes)