

France-Japan CREST Workshop on Nanomechanics

Date : 13th-15th of Nov. 2024

Venue : Laboratoire de Tribologie et Dynamique des Systèmes (LTDS),
Ecole centrale de Lyon, France, Amphi 1

Wednesday 13th of November 2024

10:00 Opening remarks

CREST Nanomechanics at JST, Kohzo Ito

(Research Center for Macromolecules and Biomaterials, National Institution of
Materials Science)

10:20 Talks

Kohzo Ito (Research Center for Macromolecules and Biomaterials, National Institution of
Materials Science)

Denis Mazuyer (LTDS, Ecole centrale de Lyon)

“Elucidation of friction mechanisms in water-rubber multi-asperity interfaces”

Masashi Mizukami (Tohoku University)

“Multi-scale elucidation of friction mechanisms in ice-rubber interfaces: Nano approach”

12:00 *Lunch*

13:30 Talks

Daniel Nelias (LaMCoS, INSA Lyon)

“Fatigue of materials, a few ideas to go further, faster: ultrasonic testing”

Katsuhiko Kakuda (Bridgestone)

“Innovative Toughening of Elastomers Based on Elucidating and Maximizing the Strain-
Induced Crystallization Mechanism”

Pierre-Emmanuel Mazeran (UTC)

“A unique nanotribology platform”

Yuji Kanno, (Michelin)

“TBA”

15.30 Coffee break and LTDS visit

Banquet

Thursday 14th of November 2024

9:00 Talks

Koshi Adachi (Tohoku University)

“Creation of continuous ultra-low friction interface by controlling concerted tribochemical reaction and construction of design concept for long-term reliable mechanical systems”

Li Fu (LTDS, Ecole centrale de Lyon)

“Inverse design strategies for textured surfaces: achieving targeted friction laws”

Yuji Kinose (Kyoto University)

“Hierarchical understanding and controlling the wear phenomena of ultralow-friction polymer brushes”

10:30 *Coffee break*

11:00 Talks

Julien Scheibert (LTDS, Ecole centrale de Lyon)

“Designing Metainterfaces with Specified Friction laws”

Koichi Mayumi (The University of Tokyo)

“Elucidation of robust-toughening mechanism of gels and development of artificial tendon and ligament”

Gaylord Guillonneau (LTDS, Ecole centrale de Lyon)

“Surface mechanical properties and metallurgical evolutions along temperature ramp by High Temperature Scanning Indentation”

12:30 *Lunch*

14:00 Talks

Jun Yamamoto (Kyoto University)

“Nano mechanics based on the space-time hierarchical structure and the dynamic heterogeneity in soft matter”

Juliette Cayer Barrioz (LTDS, Ecole centrale de Lyon)

“Squeeze and nanomechanics of adsorbed boundary layers in a lubricated interface”

Ken Nakano (Yokohama National University)

“Hierarchical understanding and controlling the wear phenomena of ultralow-friction polymer brushes”

15:30 *Coffee break*

16:00 Short presentations of young participants

Ph.D student, Anderson Kaiser (LTDS, Ecole centrale de Lyon)

Dr. Michael Stevens (Tohoku University)
Dr. Yutaka Takahashi (Tohoku University)
Ph.D student, Ikki Yasuda (Keio University)
Ph.D student, Takumi Sato (Keio University)
PhD student, A. Mille (LTDS)
PhD student, M. Yokoi (Tohoku University)
Ass Prof Yixin Su, (Tohoku University)

18:40 *End of the day / Dinner on your own*

Friday 15th of November 2024

9:00 Talks

Kazue Kurihara (Tohoku University)

“Molecular mechanism of boundary lubrication”

Vincent Fridrici (LTDS, Ecole centrale de Lyon)

“Multiscale analysis of the tribological behavior of polymer-based composite in contact with steel under grease lubrication: from nanoscale tribofilms to macroscale damage”

Kenji Yasuoka (Keio University)

“Molecular simulation and machine learning for friction mechanism”

Sylvain Dancette (Mateis, INSA Lyon) or Dr Davy Dalmas (LTDS, Ecole centrale de Lyon)

“In situ X-ray computed tomography study of a sphere/plane contact under normal and shear loadings”

11.00 Closing remarks