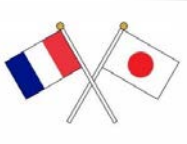
France-Japan CREST Workshop on Nanomechanics











13-15 November 2024

Laboratory of Tribology and Dynamics of Systems (LTDS),
Ecole centrale de Lyon, France

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France-Japan CREST Workshop on Nanomechanics, Multiscale Mechanics and Tribology

Date : 13th-15th of Nov. 2024
Venue : Amphitheater 1, Laboratory of Tribology and Dynamics of Systems (LTDS), Ecole centrale de Lyon, France

Program

Wednesday 13th of November 2024

10:00 Opening remarks
CREST nanomechanics at JST, Kohzo Ito
(Research Center for Macromolecules and Biomaterials, National Institute for Materials Science/Graduate School of Frontier Sciences, The University of Tokyo)

10:10 Kohzo Ito (Research Center for Macromolecules and Biomaterials, National Institute for Materials Science/Graduate School of Frontier Sciences, The University of Tokyo)
"Introduction of Slide-Ring Materials for Circular Economy"

Masashi Mizukami (Tohoku University)
"Multi-scale elucidation of friction mechanisms in ice-rubber interfaces: Nano approach"

Denis Mazuyer (LTDS, Ecole centrale de Lyon)
"Elucidation of friction mechanisms in water-rubber multi-asperity interfaces"

12:00 *Lunch*

13:30 Daniel Nelias (LaMCoS, INSA Lyon)
"Fatigue of materials, a few ideas to go further, faster: ultrasonic testing"

Katsuhiro Tsunoda (Bridgestone)
"Quantifying the Enhancement Effect of Strain Induced Crystallization on Tearing Energy by Edge Crack Test Method"

Pierre-Emmanuel Mazeran (UTC)
"A unique nanotribology platform"

Eric Berge (Michelin)
"Michelin, Tire Grip on Ice"

15.30 Coffee break and LTDS visit

Banquet

Thursday 14th of November 2024

9:00 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 Julien Scheibert (LTDS, Ecole centrale de Lyon)
"Designing Metainterfaces with Specified Friction laws"

Koichi Mayumi (The University of Tokyo)
"Tough Polymer Gels Reinforced by Strain-Induced Crystallization"

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 Jun Yamamoto (Kyoto University)
"Fluctuation Microscopy"

Juliette Cayer Barrioz (LTDS, Ecole centrale de Lyon)
"Squeeze and nanomechanics of adsorbed boundary layers in a lubricated interface"

Ken Nakano (Yokohama National University)
"Abnormal Stribeck Curves of Concentrated Polymer Brushes in Macro and Nanoscales"

15:30 *Coffee break*

16:00 Short presentations of young participants
Anderson Kaiser (LTDS, Ecole centrale de Lyon)
"In situ Analysis of a Rubber/Ice Interface"

Michael Stevens (Tohoku University)
"Investigating the viscoelastic properties of the rubber-ice interface using the low temperature surface force apparatus"

Yutaka Takahashi (Tohoku University)
"Effect of Hyperbranched Polymers as Additive on Lubrication Properties of Base Oil"

Antoine Mille (LTDS, Ecole centrale de Lyon)
"Evolution of stress/displacement fields and contact area of PDMS sphere during oblique loading and shearing"

Yixin Su (Tohoku University)
"Interfacial Friction in Carbon Nanotubes (CNTs)/Ceramics Composites: A ReaxFF Study to Reveal CNT Reinforcing Mechanisms"

Ikki Yasuda (Keio University)
"In-layer inhomogeneity of molecular dynamics in quasi-liquid layers of ice"

Takumi Sato (Keio University)
"Molecular Simula-on of Fric-on Phenomena at the Ice-Polymer Interface"

Mizuho Yokoi (Tohoku University)
"Fracture and Degradation Mechanisms in Nitrided Steel Surface through Reactive Molecular Dynamics Simulations"

18:30 *End of the day / Dinner on your own*

Friday 15th of November 2024

9:00 Kazue Kurihara (Tohoku University)
"Confined Liquids Studied by Resonance Shear Measurement：
Molecular Mechanism of 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"

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