

## OS21: Smart Fluids & Soft Matters and Their Advanced Applications

November 20, 2024

EX-4-A

- OS21-1  
9:00-9:30  
**Advanced Applications of Flexible Soft Materials in Impact Protection: Shape Memory Semi-active Safeguarding and Triboelectric Nanogenerator Smart Sensing** (*Invited*)  
Xinglong Gong, Wenhui Wang (University of Science and Technology of China, China)
- OS21-2  
9:30-10:00  
**The Vibration Bandgaps in Linkage Magnetorheological Elastomer Acoustic Metamaterial** (*Invited*)  
Zexin Chen, Guanxiang Jing, Weihua Li (University of Wollongong, Australia)
- OS21-3  
10:00-10:30  
**Thermomechanical Properties of Natural Rubber: Application to Refrigeration** (*Invited*)  
Gaël Sebald (ELyTMaX IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Atsuki Komiya (ELyTMaX IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University / Tohoku University, Japan), Marianne Sion (ELyTMaX IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University / Tohoku University, Japan / Université Claude Bernard Lyon 1, France), Shihe Xin (Université Claude Bernard Lyon 1, France), Gildas Coativy (INSA Lyon, France)
- OS21-4  
10:40-11:10  
**Electro-Rheological Behavior of Suspensions Based on Titanium Dioxide Nanoparticles in Various Types of Modified Silicone Oil** (*Invited*)  
Katsufumi Tanaka, Xin Lin, Shingo Yonezumi, Masahiro Kawaguchi, Haruki Kobayashi (Kyoto Institute of Technology, Japan), Masami Nakano (SmartTECH Lab. Inc., Japan)
- OS21-5  
11:10-11:30  
**Size-dependent Magnetomechanically Enhanced Photothermal Antibacterial Efficacy in Fe<sub>3</sub>O<sub>4</sub>@Au/polydopamine Magnetic Fluid**  
Yunqi Xu, Kang Wang, Shouhu Xuan, Xinglong Gong (University of Science and Technology of China, China)
- OS21-6  
11:30-11:50  
**A Smart Shear Thickening Fluid (STF)-based Warning-protection Sponge towards Sensing Performance and Impact Resistance with Excellent Flame Retardant**  
Yucheng Pan, Min Sang, Xinglong Gong (University of Science and Technology of China, China)
- OS21-7  
11:50-12:10  
**Superior Yarns-Based Fabrics with Satisfied Mechanical and Thermal Properties towards Safeguarding**  
Hong Chen, Min Sang, Xinglong Gong (University of Science and Technology of China, China)

- OS21-8  
15:00-15:30 **Visco-Elasto-Plastic Behaviour of Magnetorheological Elastomers under Shear Loading** *(Invited)*  
Kostas Danas (ELyTMax IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan /Ecole Polytechnique, France), Gaël Sebald (ELyTMax IRL 3757, CNRS, Univ. Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Japan), Masami Nakano (SmartTECH Lab. Inc., Japan)
- OS21-9  
15:30-16:00 **Rheological Properties of MR Elastomers under Normal Compression** *(Invited)*  
Tongfei Tian, Philip Milosevski (University of the Sunshine Coast, Australia), Masami Nakano (SmartTECH Lab. Inc., Japan)
- OS21-10  
16:00-16:20 **Development of a Rotary Fluid Inerter with Variable Damping Characteristics**  
Wenlang Xie, Lei Deng, Weihua Li (University of Wollongong, Australia)
- OS21-11  
16:30-17:00 **Development and Implementation of MR Fluid Shaft Coupling for Driving Axial Pump** *(Invited)*  
Masami Nakano, Osamu Taguchi (SmartTECH Lab. Inc., Japan), Kazuhiko Sugiyama, Yusuke Watanabe (EBARA Corporation, Japan)
- OS21-12  
17:00-17:20 **Effects of Arbitrary Particle Morphology on Dynamic Performance of Magnetorheological Fluids**  
Kang Wang, Bing Liu, Yunqi Xu, Huaxia Deng, Xinglong Gong (University of Science and Technology of China, China)
- OS21-13  
17:20-17:40 **Design, Modelling, and Experimental Evaluation of a Variable Inertance Bypass Fluid Inerter**  
Kim Thach Tran, Lei Deng, Weihua Li (University of Wollongong, Australia)