

# Society for Experimental Mechanics

## Conference and Exposition on Experimental and Applied Mechanics

### Track 2: **Challenges in Mechanics of Time-Dependent Materials**

Sponsored by the SEM Time-Dependent Materials Technical Division

Organized by: Meredith Silberstein, *Cornell University*; Alireza V. Amirkhizi, *University of Massachusetts, Lowell*; Jevan Furmanski, *ExxonMobil*; Bonnie Antoun, *Sandia National Laboratories*; Alex Arzoumanidis, *Psylotech*; Aaron Forster, *National Institute of Standards and Technology*; Richard Hall, *Air Force Research Laboratory*; Yuhang Hu, *Georgia Tech*; Jae-Hwang Lee, *University of Massachusetts, Amherst*; Hongbing Lu, *University of Texas-Dallas*; Takenobu Sakai, *Saitama University, Japan*

**Abstract Submission:** <https://sem.org/annualauthor>

We are soliciting papers on 1) characterization, 2) modeling and 3) applications of time dependence in materials, which includes strain rate, creep, stress relaxation or frequency effects. We are interested in all materials: polymers, metals, biomaterials, granular materials, gels, fluids, foams and glasses. A wide range of topics are solicited, including papers in the following general technical research areas:

**Viscoelasticity and Viscoplasticity** – low, moderate & high strain rates and large strain response

**Metallic Materials** – time dependence in metals, including additive manufacturing modeling

**Damage, Fracture, Fatigue, and Durability** – challenges in characterizing & modeling

**Environmental Effects and Extreme Environments** – damage, degradation and aging at high temperatures, high pressure, solvents and radiation

**Composites and Effects of Inhomogeneities and Interfaces** – composite, hybrid and multifunctional materials

**Soft Materials** – polymer and polymeric gels; biological materials; flexible electronics

**Characterization Across Scales** – time-dependent effects at variable length scales, in-situ material testing of time-dependent materials under microscopy

**Structure, Function, Performance** – molecular structure and nano-/micro-morphology effects on the function and performance of time-dependent material

Conference-wide sessions on **additive manufacturing** and effects of rate- and time-dependent material response in processing and behavior of fabricated parts are co-sponsored by TDM-TD. Additionally, sessions on time-dependence of **biomaterials**, **composites**, and **fracture** are jointly organized by TDM-TD in collaboration with these SEM Technical Divisions.

#### Keynote Presentations

**Prof. Hans van Dommelen**, Associate Professor of Micromechanics in the Department of Mechanical Engineering Eindhoven University of Technology

**Dr. Jevan Furmanski**, Member of Technical Staff, ExxonMobil Corporate Strategic Research