

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*; Alex Arzoumanidis, *Psylotech*; Alireza Amirkhizi, *University of Massachusetts Lowell*; Bonnie Antoun, *Sandia National Laboratories*; Jevan Furmanski, *ExxonMobil*; H. Jerry Qi, *Georgia Institute of Technology*; Hongbing Lu, *University of Texas-Dallas*; Richard Hall, *Air Force Research Laboratory*; Yuhang Hu, *University of Illinois at Urbana-Champaign*; Jonathon Tanks, *Tokyo Institute of Technology*; Yong Zhu, *North Carolina State University*

Abstract Submission: <https://sem.org/papers/?pty=annual>

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

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

Metals – time dependence in metallic materials at high temperatures, including additive manufacturing modeling.

Additive Manufacturing and Advanced Manufacturing Techniques – property characterization, process modeling & simulation and material design.

Damage, Fracture, Fatigue – challenges in characterizing & modeling of long term durability.

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

Inhomogeneities & Interfaces – effects from composite, hybrid and multifunctional materials.

Soft Materials – polymer and polymeric gels; biological materials including cells and soft tissues; soft matrix electronics.

Characterization Across Scales – time-dependent effects at variable length scales, in-situ material testing of time-dependent materials under microscopy, instrumented nanoindentation, including micro/nano scale.