

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*; Aaron Foster, *National Institute of Standards and Technology*; Jevan Furmanski, *ExxonMobil*; H. Hongbing Lu, *University of Texas-Dallas*; Richard Hall, *Air Force Research Laboratory*; Yuhang Hu, *University of Illinois at Urbana-Champaign*; 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, fluids, 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.

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.

Keynote Presentations

Prof. David Dillard, The Adhesive and Sealant Science Professor of Biomedical Engineering and Mechanics, Virginia Tech

Dr. Gale Holmes, Materials Research Engineer, Materials Science and Engineering Division, National Institute of Standards and Technology