

SUBMIT AN ABSTRACT FOR THE FOLLOWING SYMPOSIUM

MECHANICS OF MATERIALS

Fracture and Deformation Across Length Scales: Celebrating the Legacy of William Gerberich

William (Bill) Gerberich's contributions to materials science span decades and encompass a wide range of length scales. During his tenure at the University of Minnesota, he played a pivotal role in advancing the understanding of fracture and deformation mechanisms through innovative approaches, diverse materials, and mentorship of students. Prof. Gerberich was a major force in the fields of nanoindentation, micromechanics, and small-scall deformation, tackling challenges in hydrogen embrittlement, ductile-to-brittle transitions, thin-film delamination, indentation pop-ins, and the deformation of silicon nanospheres. In addition to his research, he was a passionate educator, inspiring students of all levels to explore the fundamentals of fracture, deformation, and the mechanical behavior of materials.

This symposium will celebrate TMS Fellow William (Bill) Gerberich's legacy, who passed away in October 2024 and made seminal contributions to the topical area in his career spanning six decades.

It is planned as a 2-day symposium, with 1 day reserved for Gerberich memorial sessions where speakers will be invited by the organizers, and the other day will be featuring talks from contributed abstracts in the topical area of the symposium as joint sessions planned with Mechanical Behavior at the Nanoscale VIII (planned topic "Advanced Indentation Methods").

The planned invited speakers will address the following topics:

- Local analysis of stress and strain around crack tips
- Fracture and deformation of nanostructured materials (thin films, printed structures, nanocrystalline materials, etc.)
- Size effects on fracture and deformation behavior
- Advancing indentation techniques (high temperatures, low temperatures, humidity controlled, acoustic emission, high strain rates, mapping, machine learning, etc.)
- Interface and grain boundary fracture

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TMS Materials Processing & Manufacturing Division; TMS Nanomechanical Materials Behavior Committee

ORGANIZED BY:

- Megan Cordill, Erich Schmid Institute of Materials Science
- David Bahr, Purdue University
- Nathan Mara, University of Minnesota
- Youxing Chen, University of North Carolina at Charlotte
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