

2019 Call for Papers

THE MATERIALS DIVISION is soliciting papers describing innovations in integrating materials concepts into engineering education and assessing their impacts. Accepted papers may focus on materials science and engineering education or on the teaching and application of materials-related concepts in the context of other disciplines (e.g. integration of concepts of material structure with the teaching of mechanics of materials, consideration of material properties and processing within engineering design, etc.). Creativity in the educational materials and the learning experiences provided to students, as well as the assessment of these activities, are hallmarks of our papers. Papers focusing on one of the following areas are especially requested:

- Curriculum Implementation of Emerging Materials: Integration of materials for sustainability, biomaterials, nanomaterials, and other innovative materials into laboratories and courses in undergraduate programs.
- Innovations in Materials Education: active learning, approaches to integrating design, project-based learning, innovative collaborations, joint degrees, interdisciplinary study, certificate programs, partnerships between community colleges and four-year schools, and international collaborations.
- Best Practices for Introduction to Materials Courses: New ideas for teaching introductory materials science lecture and/or lab courses. Unique labs or other hands on demonstrations for materials engineering.
- Materials Education for non-Materials Scientists: Innovative ideas for teaching concepts to students whose main focus may not be on materials behavior, particularly in the context of 'service' courses.
- Materials Education Outreach: New efforts in promoting materials education at the K-12 level through formal and informal learning experiences.
- Materials Education in Support of Other Disciplines: Creative methods to integrate materials education into design projects or typically non-materials courses.

Papers will be accepted on a publish-to-present basis.

The Division also hopes to convene two additional non-standard sessions. Presenters interested in either should contact the Program Chair:

- 1) A 'post-card' session for work that may not be ready/intended for publication but which demonstrates innovation in materials science and engineering education. Presenters will be given a short time to explain their work (~5 minutes) with a significant portion of the session dedicated to group discussion.
- 2) A 'bring your favorite class activity' session for educators to share in-class activities, student feedback, and implementation tips. Demonstrations should not require additional

safety or protection equipment beyond that found in a typical conference room. Demonstrations should be approximately 5 minutes in length. Proposals for presenting recordings of demonstrations requiring specialized facilities or additional site preparation will be considered.

Proposals for workshops or panel discussions will also be considered.

For further information, contact Alison Polasik, Program Chair, alison.polasik@gmail.com, or Matt Cavalli, Division Chair, matthew.cavalli@wmich.edu.