# SEMINAR

APPLIED MATHEMATICS AND MECHANICS

FS1028 7 May 2026

A DCAMM seminar No. 802 will be presented by

**Professor Ramesh Talreja**
**Department of Aerospace Engineering**
**Department of Materials Science and Engineering**
**Texas A&M University, College Station, Texas 77843, USA**

The title of the lecture is

**A failure analysis strategy for polymer matrix composites considering manufacturing defects**

**Abstract:**

Polymer matrix composites are manufactured by a variety of methods, ranging from labor-intensive hand layups to fully automated techniques employing robotics. Depending on the degree of control in the manufacturing process different defects appear in the final product. These defects can be described as deviations from the intended morphology of the internal structure of a composite. Examples are nonuniform fiber distribution and fiber misalignment, imperfect fiber-matrix bonding, and matrix voids. All such defects can be initiators of local damage that can lead to deterioration of the composite performance. This presentation will discuss a strategy for performance evaluation of composite structures accounting for the severity of manufacturing defects. A statistical methodology for construction of representative volume elements combined with local stress and failure analysis applicable to polymers will be presented. Certain fundamental issues concerning descriptors of randomness and nonuniformity will also be addressed.

DATE: **Wednesday, 13 May 2026**

TIME: **11:00 – 11:45**

PLACE: **Building RI503, Room RS67 – Risø Campus**
**Frederiksborgvej 399, 4000 Roskilde**
**DTU, Technical University of Denmark**

Virtual participation: Link

Danish pastry, coffee and tea will be served 15 minutes before the seminar starts.

All interested persons are invited.

Bent F. Sørensen/Jan Becker Høgsberg