der Bundeswehr
Universität München

Forschungskolloquium Computational Science and Engineering

Einladung zum Vortrag

Physics-based machine learning for computational failure mechanics

**Prof. Dr.-Ing. habil. Fadi Aldakheel, Leibniz Universität Hannover,
Institut für Baumechanik und Numerische Mechanik (IBNM)**

Zeit: Freitag, 27.02.2026, 10:00 Uhr

Zusammenfassung: This presentation introduces a physics-based machine learning framework for modeling brittle and ductile fracture, as well as cyclic damage and fatigue. Physical principles, such as governing equations and fundamental constraints, are embedded directly into the neural network architecture. As a result, the proposed framework overcomes key limitations of classical data-driven models, which depend heavily on large datasets and provide no guarantees of physical consistency.

Ort: Gebäude 35, Raum 1004
Universität der Bundeswehr München
Werner-Heisenberg-Weg 39
85577 Neubiberg

Kontakt: Philipp Zilk M.Sc.
philipp.zilk@unibw.de
+49 89 6004 3408

Veranstalter:

Prof. Dr. Thomas Apel
Prof. Dr.-Ing. Alexander Popp

Universität der Bundeswehr München
Institut für Mathematik und Computergestützte Simulation

Prof. Dr.-Ing. Michael Brünig
Prof. Dr.-Ing. Josef Kiendl

Universität der Bundeswehr München
Institut für Mechanik und Statik