

Structured Chaos: The solution of the century-old conundrum in the elastic stability of thin-walled shells

Lecture of

November 13, 2025, 4 pm

Dr. Ronald Wagner

Institute of Adaptronics and
Functional Integration,
Siemens Mobility GmbH

Institute of Applied Mechanics
Seminar room (ground floor)
Pockelsstraße 3
38106 Braunschweig

The extreme variability of structural loads that has characterized the design of thin-walled shells for decades was no accident, but follows a hidden logic. With the new MDC approach, this physics of variability is deciphered, decades-old test data are rehabilitated, and the era of grossly over-dimensioned shell structures comes to an end. The result is a paradigm shift in stability design: from empirical estimation to physically grounded prediction.

This enables weight savings of 10% to 31% with the same level of safety – a breakthrough that redefines lightweight construction in aerospace, automotive, and architecture.