



10th International Congress of Serbian Society of Mechanics

Niš, Serbia, June 18-20, 2025

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Hosted by the Serbian Society of Mechanics at the Faculty of Mechanical Engineering and the Faculty of Civil Engineering and Architecture, University of Niš



R. Kienzler is a Professor i.R. at the University of Bremen, Germany, with 50 years of experience in applied mechanics specializing in fracture, material and structural mechanics. R. Kienzler was Editor-in-Chief of the Archive of Applied Mechanics and Vice Secretary of the GAMM. He published ten books and about 250 papers in scientific journals. R. Kienzler is Honorary Member of the Polish and the Hellenic Societies of Theoretical and Applied Mechanics and holds a Dr. h.c. from the Ilia Vekua Institute of Applied Mathematics of the Ivane Javakhishvili Tbilisi State University, Georgia.

Plenary lecture

Dimension Reduction in Elasticity

Abstract:

Consistent two- and one-dimensional theories are derived from the three-dimensional theory of linear elasticity by the combination of the uniform-approximation method with the pseudo-reduction technique. Well-known equations and extended theories for structural components both for two-dimensional members as plates and discs as well as one-dimensional members as bars, beams and shafts. Neither a-priori assumptions nor any correction factors are invoked.