

# ACE-X2018

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## BIOGRAPHICAL SKETCH OF J. N. REDDY



Dr. Reddy, the Oscar S Wyatt Endowed Chair Professor, Distinguished Professor, and Regents Professor of Mechanical Engineering at Texas A&M University, is a ISI highly-cited researcher, author of 21 textbooks and over 650 journal papers, and a leader in the applied and computational mechanics field for more than 40 years.

Reddy is known worldwide for his significant contributions to the field of applied mechanics through the authorship of widely used textbooks on the linear and nonlinear finite element analysis, variational methods, composite materials and structures, and continuum mechanics. His pioneering works on the development of shear deformation theories (that bear his name in the literature as the *Reddy third-order plate theory* and the *Reddy layerwise theory*) have had a major impact and have led to new research developments and applications. Some of his ideas on shear deformation theories and penalty finite element models of fluid flows have been implemented into commercial finite element computer programs like ABAQUS, NISA, and HyperXtrude.

His earlier research focused primarily on mathematics of finite elements, variational principles of mechanics, shear deformation and layerwise theories of laminated composite plates and shells, analysis of bimodular materials, modeling of geological and geophysical phenomena, penalty finite elements for flows of viscous incompressible fluids, least-squares finite element models of fluid flows and solid continua. In recent years, Reddy's research deals with 7- and 12-parameter shell theories, nonlocal and non-classical continuum mechanics problems, and problems involving couple stresses, surface stress effects, discrete fracture and flow, micropolar cohesive damage, and continuum plasticity of metals from considerations of non-equilibrium thermodynamics.

Dr. Reddy earned many honors and awards. Recent honors and awards include: 2016 *Prager Medal*, Society of Engineering Science, 2016 Thomson Reuters IP and Science's Web of Science Highly Cited Researchers - *Most Influential Minds*, and the 2016 *ASME Medal* from the American Society of Mechanical Engineers, the 2017 *John von Neumann Medal* from the US Association of Computational Mechanics, and the 2018 *von Karman Medal* from the American Society of Civil Engineers. He is a member US National Academy of Engineering and foreign fellow of Indian National Academy of Engineering, the Canadian Academy of Engineering, and the Brazilian National Academy of Engineering.