

**FROM FOUNDATIONAL COMPUTATIONAL MECHANICS TO
EMERGING CROSS-DISCIPLINARY METHODS AND
APPLICATIONS**

A MINISYMPOSIUM ON THE OCCASION OF JN REDDY'S 75TH BIRTHDAY

**TRACK NUMBER 700 – NUMERICAL METHODS AND ALGORITHMS IN
SCIENCE AND ENGINEERING**

**N. R. ALURU^{*}, GLAUCIO H. PAULINO[†]
AND DEBASISH ROY[#]**

^{*} University of Illinois at Urbana-Champaign
Urbana, IL 61801
aluru@illinois.edu, <https://aluru.mechse.illinois.edu/>

[†] Georgia Institute of Technology
Atlanta, GA 30332
paulino@gatech.edu, <https://paulino.ce.gatech.edu/>

[#] Indian Institute of Science
Bangalore, India 560012
royd@iisc.ac.in, <http://civil.iisc.ernet.in/~royd/>

Key words: Solids, Fluids, Emerging Applications, Computational Mechanics, Novel Methods, New Mathematical Models, Non-Classical Theories

ABSTRACT

Professor JN Reddy made seminal contributions to classical computational mechanics including areas such as the finite element method, shell theories, solid mechanics, variational methods, mechanics of composites, functionally graded materials, fracture mechanics, plasticity, biomechanics, classical and non-Newtonian fluid mechanics, applied functional analysis, etc. His pioneering contributions have laid foundations for novel mathematical models, non-classical and non-local theories, novel computational methods and design of novel materials for many emerging areas in science and engineering. The focus of this minisymposium is to celebrate Professor Reddy's contributions to computational mechanics by bringing together researchers who have worked in areas ranging from foundational computational mechanics to emerging cross-disciplinary methods and applications.

This minisymposium will include contributions in areas such as computational mechanics of solids and fluids, non-local and non-classical continuum mechanics, non-classical and geometrically inspired mathematical models for mechanics of emerging problems including complex interfaces, mechano-biology, micro and nanomechanics, multiphysics and multiscale methods for emerging applications in science and engineering, computation-driven design and manufacturing of novel materials, data-driven methods in mechanics, etc.

Other contributions building upon Professor JN Reddy's foundational work are also welcome.