

Solid Mechanics and Design



Dr. Sriram Sundar

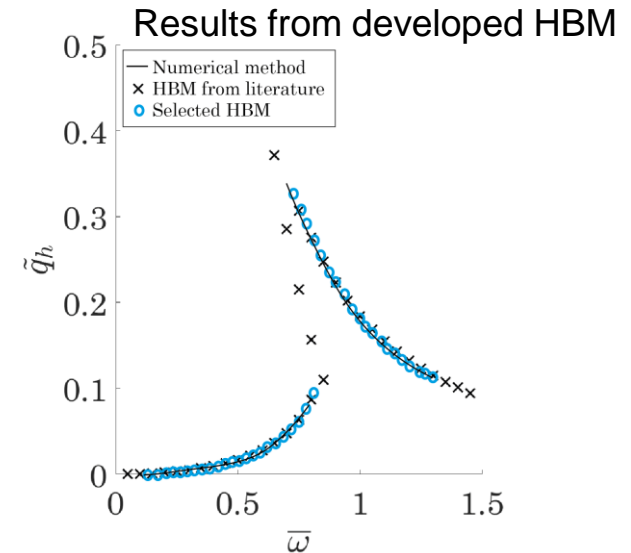
Associate Professor, Dept. of Mechanical
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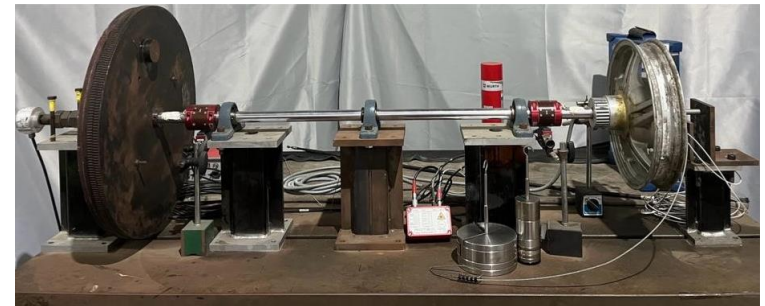
- PhD – The Ohio State University
- Areas of Specialization – Non-linear dynamics, vibrations, contact mechanics, fault detection

Areas of Research

- Dynamic analysis and contact mechanics of combined rolling-sliding systems
- Automotive brake NVH and fault detection
- Vehicle pavement interaction noise and dynamics
- Ergonomics of automotive passenger
- Energy and stability analysis of human body



In-house drum brake dynamics experiment



Dr. Subba Reddy Daggumati

Associate Professor, Dept. of Mechanical Engineering

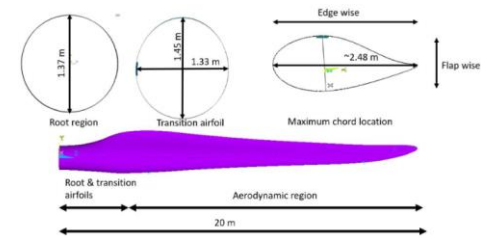
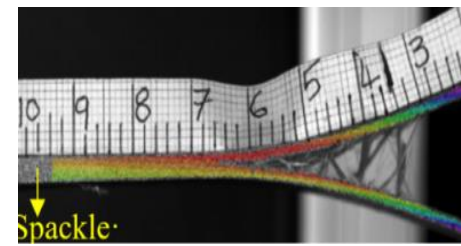
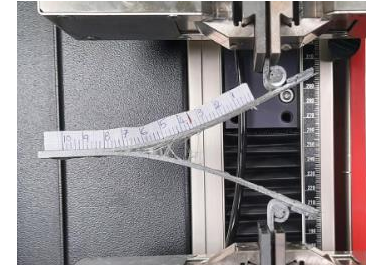
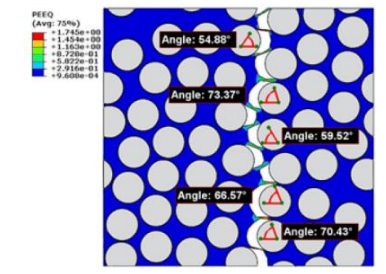
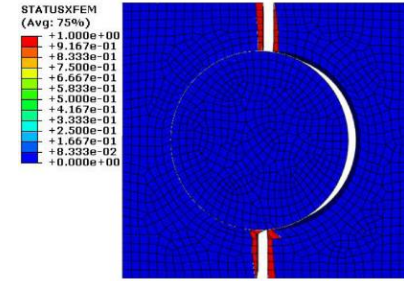
+91-8008890497, subbareddy.daggumati@iittp.ac.in



- PhD – Ghent University, Belgium
- Postdoc experience – GE Global Research, SIEMENS Wind Power R&D
- Area of Specialization – Mechanics of Advanced Fibre Reinforced Composites

Areas of Research

- Multiscale Modeling of Composites
- Design of Composite Structures
- Life estimation of Composite Materials & Structures
- Manufacturing of Composites



Akkala, Y., & Daggumati, S. (2023). On the failure behavior of a GFRP composite cylinder under Brazier crushing force – An experimental and computational study. *Composite Structures*, 322, 117378. <https://doi.org/10.1016/j.compstruct.2023.117378>



Dr. P. Venkataraman

Associate Professor, Dept. of Mechanical
Engineering

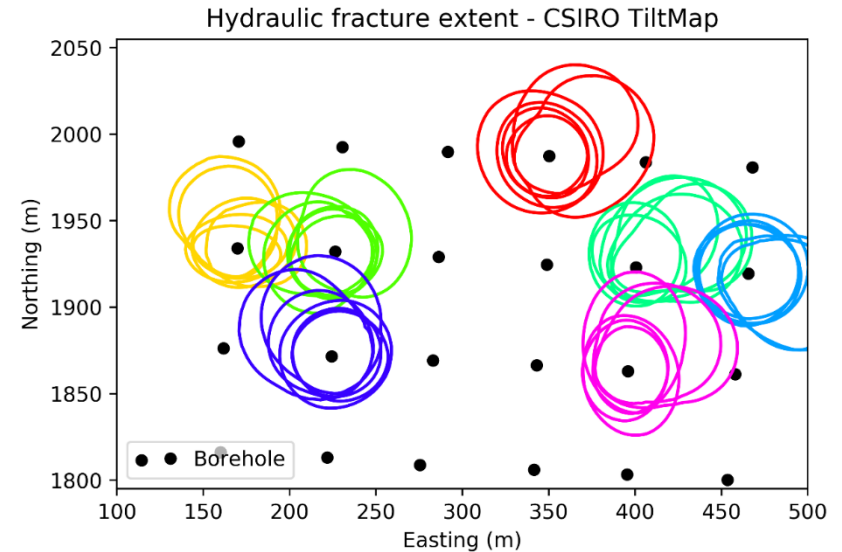
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- PhD – NTU, Singapore
- Postdoc experience – CSIRO, Melbourne
- Areas of Specialization – Computational mechanics

Areas of Research

- Mapping of Hydraulic fractures from Tilt data
- Development of Multiscale algorithms
- Real time monitoring of product quality in additive manufacturing



The hydraulic fracture extent plot showing the boundary edge of the hydraulic fractures for 07 boreholes at multiple depths. The colors represent different boreholes.

V Pandurangan, A Peirce, ZR Chen, RG Jeffrey, Tiltmeter Mapping of Measured Nonsymmetric Hydraulic-Fracture Growth in a Conglomerate/Sandstone Formation Using the Implicit Level-Set Algorithm and the Extended Kalman Filter, *SPE Journal*, 2018, 23 (01), 172-185



Dr. Anup Basak

Assistant Professor, Dept. of Mechanical
Engineering

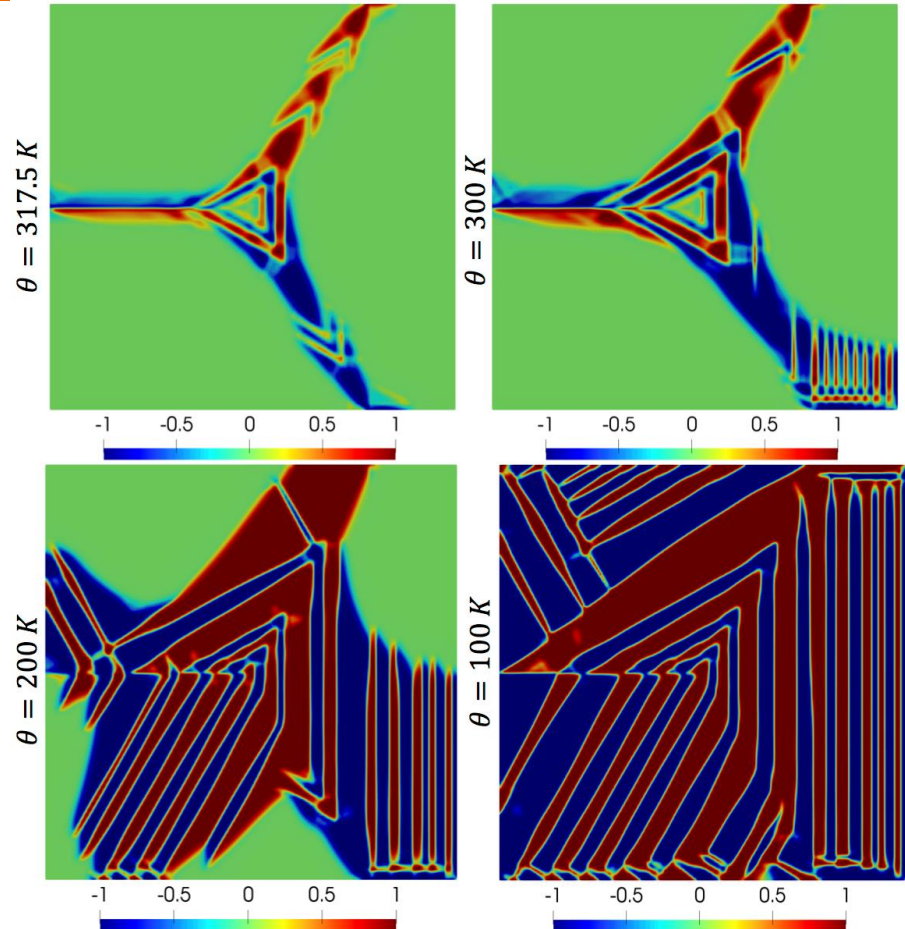
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- PhD – IIT Kanpur
- Postdoc experience – Iowa State University
- Areas of Specialization – Continuum mechanics, theoretical mechanics of materials and biological tissues, computational mechanics

Areas of Research

- Continuum thermomechanics
- Theoretical modeling of structural transformations in materials
- Micromechanics of crystalline solids with emphasize on phase transformations and plasticity
- Mechanics of biological growth
- Computational mechanics
- Phase-field methods





Dr. Abir Dutta

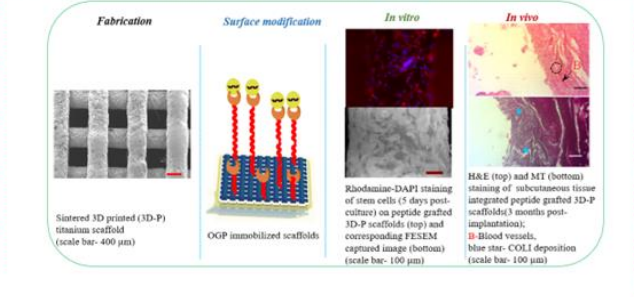
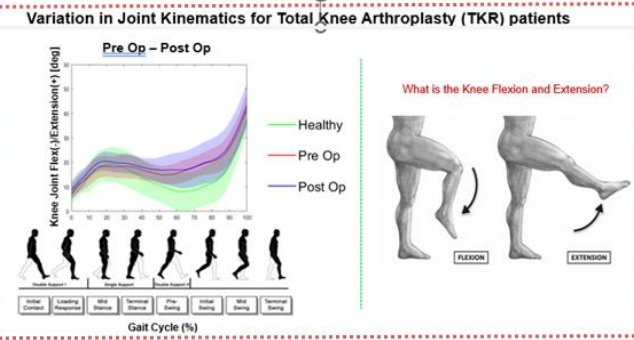
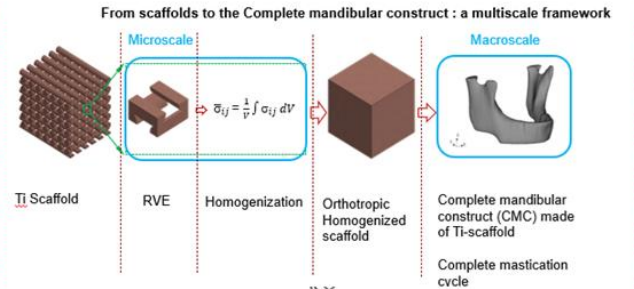
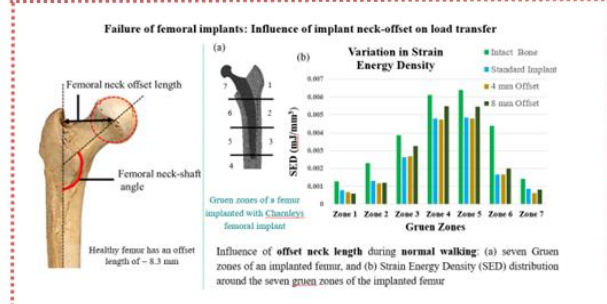
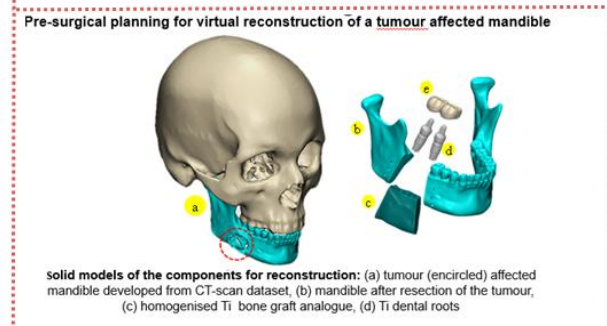
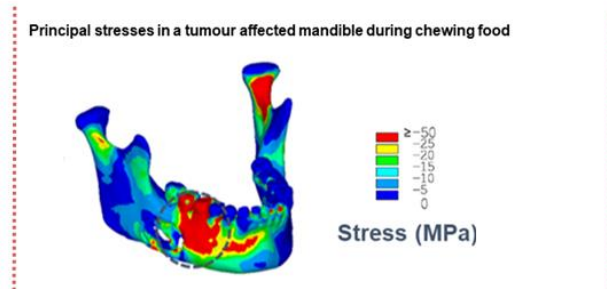
Assistant Professor,
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- **Ph.D.** – IIT Kharagpur, India
- **Post-doc** –
 - Indian Institute of Technology Delhi, IN (2021-2022)
 - University College London, UK (2022-2024)
- **Areas of Specialization** – Orthopaedic Biomechanics, Solid Mechanics, Finite Element Analysis, 3D Printing, Medical Device Design

Areas of Research

- Translational Research in Clinical and Healthcare
- Surgical Planning
- Device Design
- Pre-Clinical Evaluation of Implant Designs
- Fabrication and Characterization
- *In vitro* assessment
- *In vivo* assessment
- Human cadaveric studies



Solid Mechanics and Design: Research Facilities

