

Dr. Kodanda Ram Mangipudi

Contact Institut für Materialphysik
Georg-August-Universität Göttingen
Friedrich-Hund-Platz 1
D-37077 Göttingen
Germany

Stauffenberggring 1
Apartment 54
D-37075 Göttingen, Germany

Phone +49 551 395028 (Off)
+49 551 5083214 (Home)

E-mail mangipudi@ump.gwdg.de
k.r.mangipudi@gmail.com

Skype kodandaram.mangipudi



Research interests

Cellular materials: metal foams, bone, and nanoporous metals
Mechanical behavior of composites
Deformation and fracture at micro and nanoscales
Acoustic and phonon band gap engineering
Surface elasticity
Phase-field modelling of microstructural evolution
3D tomography and Quantitative microstructural characterization

Professional experience

- Since 11/2012 **Principal investigator**
Nanomechanics group, Prof. C.A. Volkert
Institut für Materialphysik, Georg-August-Universität Göttingen
- Support PhD and Masters projects on mechanical behavior studies of nanoscale thin films and porous structures
 - Conduct training sessions for experimental material physics students on Finite Element Method for thermomechanical analysis
 - Developed nanotomography program “Auto Slice and View” for FEI NanoLab 600 Focused Ion Beam/SEM system
 - Developed MATLAB-based analysis software [PSRECON3D](#) for Tomographic Reconstruction and Quantitative Topological and Morphological analysis of 3D porous microstructures
 - Finite element analysis of nanoporous gold and its composites to reveal structure-property correlations.
- 03/2010-10/2012 **Postdoctoral researcher**
Nanomechanics group, Prof. C.A. Volkert
Institut für Materialphysik, Georg-August-Universität Göttingen
- Acoustic and phonon band gap engineering in multilayer structures
 - Mechanical behavior of nanoporous gold

- 12/2004-09/2009 **Ph.D. student**
 Micromechanics group, Prof. P.R. Onck
University of Groningen, Groningen, The Netherlands
- Developed a multiscale model to study deformation and fracture in metal foams
 - Developed Finite Element code in FORTRAN for structural analysis
- 09/2004-11/2004 **Senior Engineer,**
Materials Analysis Laboratory, R&D Center, Ashok Leyland Ltd., Chennai, India.
- Fracture analysis of automobile components
- 1996-1997 **Apprentice trainee**
Visakhapatnam steel plant, AP, India (6 months)
 Blast furnace and Steel melt shop - operations
Apprentice trainee
Samkrp pistons Ltd., AP, India (6 months)
 Foreman trainee (Foundry and Mechanical testing)

Education

- 12/2004-09/2009* **Ph.D.**
 University of Groningen, Groningen, The Netherlands
Thesis: Multiscale modelling of deformation and fracture in metal foams
 (*Degree awarded on 20-01-2012)
- 2002-2004 **Master of Engineering (Metallurgy) with distinction**, Indian Institute of Science, Bangalore, India
 Phase-field modelling of microstructural evolution
- 1998-2002 **Bachelor of Technology (Metallurgical Engineering) with distinction**, National Institute of Technology (formerly REC), Warangal, AP, India
- 1994-1998 **Diploma in Metallurgical Engineering (Sandwich course) with distinction**, MRAGR Govt. Polytechnic, Vizianagaram, AP, India.

Research grants and funding

- 2012-2015 Deutsche Forschungsgemeinschaft: "Influence of morphology on the elastoplastic behavior of nanoporous gold". [DFG-MA5785/1-1; €245,375 out of €352,545] *Role: Co-PI, together with Prof. C.A. Volkert*
The central goal of this study is to identify and incorporate relevant microstructural descriptors into the constitutive laws for nanoporous gold.

Awards, prizes and academic achievements

- Best poster award, Fysica-2009, Groningen, The Netherlands.
- Ubbo-Emmius scholarship for PhD research, University of Groningen, The Netherlands
- Ministry of Human Resources Development scholarship during Masters, for 2 years.
- All India 12th rank (out of 891 students) in GATE (Metallurgy)-2002
- Second best topper in B. Tech, REC Warangal, India.
- 4th rank in Engineering Common Entrance Examination Test, India (out of 400 students)
- 191 rank (out of 80,000 students) in Common Entrance Examination -1994 for Diploma, India
- State "Pratibha Puraskar" merit scholarship for High School toppers, for 5 consecutive years

Professional memberships

- Past Member of European Mechanics Society
- Executive member of Metallurgical Association, REC, Warangal (2001-2002)
- Member of Indian Institute of Metals

Ad-hoc journal reviewer service

- Acta Materialia
- Mechanics of Materials
- Scripta Materialia
- Metals
- International Journal of Solids and Structures
- European Journal of Mechanics

Research guidance

2011	Stefan Jagsch, Bachelor's thesis, University of Göttingen
2010	Rene J. Kerkdyk, Bachelor's thesis, University of Göttingen
2007	S.W. van Buuren, Master's thesis, University of Groningen

Teaching experience

<i>Sem. Year</i>	<i>Course Title</i>	<i>Co-docents</i>	<i>Topics taught</i>
WS 2014	Introduction to Finite Element Method	---	Basics of continuum mechanics and heat transfer, Introductory concepts and basic machinery of FEM, Group projects, Classroom exercises in COMSOL
WS 2014	Materials Physics at nanoscale	Dr. R. Maaß	Elasticity
WS 2013	Materials Physics at nanoscale	Dr. R. Maaß	Elasticity, Fracture, Fatigue, Structure-Property relations, Processing, Materials selection and design
SS 2012	Kinetics and Phase transformations (Integrated lectures)	Prof. C Jooß Prof. A. Pundt Prof. U. Krebs Dr. C. Nowak Dr. J. Hoffmann Dr. C. Borchers	Stress-induced diffusion and creep
WS 2012	Materials Physics	Prof. C.A. Volkert	Strength, Plasticity, and Strengthening mechanisms

Computational skills

Modelling softwares	COMSOL, ABAQUS and FE programming in FORTRAN95/C Phase-field modeling using FFTW spectral methods LAMMPS
---------------------	--

Programming	C, C++, FORTRAN95, Python, MATLAB, Mathematica
Other	OpenDX, Paraview, TecPlot, VMD, OVITTO, LaTeX, Linux, Windows

Languages known

English	Proficient in reading, writing, and speaking
Hindi and Telugu	Proficient in reading, writing, and speaking
German	Basic (A1 level)