

Curriculum vitae

Dr. Rajesh Korla

Assistant Professor
Department of MSME
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RESEARCH EXPERTISE:

EDUCATION:

Doctor of Philosophy (Ph.D.) (Defended in 2015)

Department of Materials Engineering, Indian Institute of Science, Bangalore, India
Dissertation: Grain boundary sliding in bicrystals: Experiments and atomistic simulations.
Supervisors: Prof. Atul H. Chokshi and S. Karthikeyan
Emphasis: Understanding the mechanisms behind tension-compression asymmetry using experimental analysis and molecular dynamics simulations.

Master of Engineering (M.E.) (2006)

Department of Materials Engineering, Indian Institute of Science, Bangalore, India
Dissertation: *Creep and grain boundary sliding in AZ31 Mg alloy*
Supervisor: Prof. Atul H. Chokshi
Emphasis: Developed a constitutive equation for grain boundary sliding in the grain size regime where both grain boundary sliding and dislocation creep mechanisms contribute significantly to the overall strain in the material.

Bachelor of Technology (B.Tech.) (2004)

Department of Metallurgical & Materials Engineering, National Institute of Technology, Warangal, India

EXPERIENCE:

Post-doctoral research fellow

March 2014 to Feb 2016
University of Oxford, Oxford.

Research experience: Micromechanical deformation of Ti and irradiated Zr.

Research assistant

August 2006 to July 2007 (1 year)
Indian Institute of Science, Bangalore.

Research experience: Role of twinning on plastic deformation in magnesium alloys

SKILLS AND EXPERTISE:

Characterization techniques: TEM, SEM, EBSD, Micro and Nanoindentation, FIB, AFM, XRD, Bulk X-ray texture and Optical profilometer.

Testing: Mechanical testing at high temperatures in constant load, stress and cross head velocity modes. Experience in design and setting-up creep testing frame with a provision of high temperature imaging for strain measurement using digital image correlation technique.

Simulations: Molecular dynamic simulations using LAMMPS and XMD, FEM simulations (still learning).

Visualization software: Atomeye, VMD.

Software packages: Matlab, TSL micro-texture analysis, XRD analysis, image analysis software and Abaqus.

AWARDS AND RECOGNITIONS:

- MHRD Fellowship, Government of India
 - All India 15th rank in Graduate Aptitude Test in Engineering (GATE–2004, Metallurgical Engineering)
 - 1st rank in M E
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EXTRA-CURRICULAR ACTIVITIES:

- Served as a president - Materials Advantage chapter, IISc, Bangalore (2010-2011)
 - Convener for the institute open day in 2010-2011
 - Organizing committee member of student symposium (for 5 years) at IISc, Bangalore
 - Convener - Journal club seminars at Indian institute of science, Bangalore.
 - Setting up EDM wire cutting machine facility, Diffusion bonding facility in the department
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LIST OF PUBLICATIONS

1. Rajesh K and Atul H. Chokshi, “Strain-rate sensitivity and microstructural evolution in a Mg–Al–Zn alloy” *Scripta Materialia*, **63** (2010), 913-16.
2. Rajesh K and Atul H. Chokshi, “A Constitutive Equation for Grain Boundary Sliding: An Experimental Approach”, *Metallurgical Transactions*, **45**, (2014), 698-708.
3. Eswar Prasad K, Rajesh K and Ramamurthy U., “Micro- and macro-pillar compression responses of magnesium single crystals oriented for single slip or extension twinning”, *Acta Materialia*, **15**, (2014), 316-325.
4. N. T. B. N. Koundinya, Nandha Kumar , Niraj Chawake, Rajesh Korla, Ravi Sankar Kottada, A simple and versatile machine for creep testing at low loads (6–300 N) and on miniaturized specimens: Application to a Mg-base alloy, *Rev. Sci. Instruments.*, **89**, (2018) 105102
5. Angus J Wilkinson, David M Collins, Yevhen Zayachuk, Rajesh Korla, Arantxa Vilalta-Clemente, *Ultramicroscopy, Applications of Multivariate Statistical Methods and*

Simulation Libraries to Analysis of Electron Backscatter Diffraction and Transmission Kikuchi Diffraction Datasets, **196**, (2019), 88-98.

6. Ganguly, R., Rajesh, K., Acharyya, A., & Ramadurai, R. (2019). Study of Stiffness and flexible sensing performance of poly-vinylidene fluoride (PVDF) a piezo polymer with varying polarization components. 2019 IEEE 14th Nanotechnology Materials and Devices Conference (NMDC), Query date: 2020-05-29 15:14:38, 1–5.

MANUSCRIPTS IN PREPARATION

1. Rajesh K, Karthikeyan S and Chokshi A H., “Tension compression asymmetry in Grain boundary sliding in pure aluminum”.
2. Grain growth studies of $Al_{0.2}CoCrFeNi$ high entropy alloy.

LIST OF CONFERENCES AND SYMPOSIA ORAL PRESENTATIONS

1. Rajesh Korla, S. Karthikeyan and Atul H. Chokshi, “Substructure Evolution during Grain Boundary Sliding in Al Bicrystals”, TMS 2013, San Antonio, Texas, USA.
2. Rajesh Korla, S. Karthikeyan and Atul H. Chokshi , “Molecular dynamics study of γ surfaces of special boundaries of Al” ICSMA-16 (2012), Bangalore, India.
3. Rajesh Korla, S. Karthikeyan and Atul H. Chokshi, “Molecular dynamic study of tension compression asymmetry in γ surface of $\langle 100 \rangle \Sigma 5$ symmetrical tilt grain boundary” International symposium for research scholars on metallurgy, materials science & engineering-2012, IIT-Madras, India.
4. Rajesh Korla and Atul H. Chokshi, “Texture reversibility in Mg AZ31 alloy under multi axial compression: Influence on flow behavior’, ICOTOM-2011 Mumbai, India.
5. Rajesh Korla and Atul H Chokshi, Dynamic recrystallization in AZ31 Mg alloy and its influence on grain boundary sliding contribution to creep, NMD-ATM-2010, Bangalore, India.
6. Srinivas Dudala, Chenna Krishna S and Rajesh Korla, Influence of grain size and temperature on the deformation behavior of $Al_{0.2}CoCrFeNi$ High entropy alloy, International conference on high entropy materials, Jeju Island, South Korea, 9-12 Dec 2018
7. K.Sairam Gouda Korla Rajesh, Texture reversibility in Mg AZ31 alloy by twinning under multi axial compression, NMD-ATM, Jamshedpur, Kolkata, 11-13 Nov 2018.
8. Yasam Palguna and Rajesh Korla, Microstructure and Mechanical Behaviour of $Al_{(0.5,2)}CoCrFeNiMo_{0.5}$ High Entropy Alloy, NMD-ATM, Jamshedpur, Kolkata, 11-13 Nov 2018.

9. Srinivas Dudala, Chenna Krishna S and Rajesh Korla, Microstructural Evolution and Grain Growth Kinetics in $Al_{0.2}CoCrFeNi$ High Entropy Alloy, NMD-ATM, Jamshedpur, Kolkata, 11-13 Nov 2018.
10. S. Chenna Krishna, Abhay K Jha, Bhanu Pant, Rajesh Korla, Processing and Characterization of Cu-Cr-Nb-Zr alloy produced through Ingot Metallurgy, Research Scholar symposium on Materials Science and Engineering-IIM, Trivandrum, 2018.
11. Rajesh Korla and Yasam Palguna, Design of high entropy alloys for high temperature applications, Conference on High Temperature Structural Materials, Bangalore, Indian Institute of Science, Feb 2020.