

Rasool Ahmad

CONTACT INFORMATION	Postdoctoral Researcher Micro and Nano Mechanics Group Department of Mechanical Engineering Stanford University CA 94305, USA	e-mail: rasool@stanford.edu e-mail: rasoolahmad.a@gmail.com Mobile: +1 408 384 2528 OrcID: 0000-0002-4154-6902 Google Scholar: ujjgd08AAAAJ
RESEARCH INTERESTS	Computational materials science, dislocation mechanics, atomistic simulation, plasticity, machine learning for science	
EDUCATION	École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland Ph.D. in Mechanics Advisor: Dr. William Curtin	Aug 1, 2016 - Oct 30, 2020
	Indian Institute of Technology, Kanpur, India B.Tech.-M.Tech. Dual Degree in Mechanical Engineering	Jul 15, 2011 - Jul 15, 2016
PUBLICATIONS	R. Ahmad , and W. Cai, “Free energy calculation of crystalline solids using normalizing flow”, <i>arXiv preprint</i> (2021) arXiv:2111.01292. R. Ahmad , S. Paul and S. Basu, “Characterization of entanglements in glassy polymeric ensembles using the Gaussian linking number”, <i>Phys. Rev. E</i> 101 (2020) 022503. R. Ahmad , Z. Wu and W. A. Curtin, “Analysis of double cross-slip of pyramidal I $\langle c + a \rangle$ screw dislocations and implications for ductility in Mg alloys”, <i>Acta Mater.</i> 183 (2020) 228-241. R. Ahmad , B. Yin, Z. Wu and W. A. Curtin, “Designing high ductility in magnesium alloys”, <i>Acta Mater.</i> 172 (2019) 161-184. R. Ahmad , Z. Wu, S. Groh and W. A. Curtin, “Pyramidal II to basal transformation of $\langle c + a \rangle$ edge dislocations in Mg-Y alloys”, <i>Scr. Mater.</i> 155 (2018) 114-118. R. Ahmad , S. Groh, M. Ghazisaeidi and W. A. Curtin, “Modified embedded-atom method interatomic potential for Mg-Y alloys”, <i>Modelling Simul. Mater. Sci. Eng.</i> 26 (2018) 065010. Z. Wu, R. Ahmad , B. Yin, S. Sandlöbes and W. A. Curtin, “Mechanistic origin and prediction of enhanced ductility in magnesium alloys”, <i>Science</i> 359 (2018) 447-452.	
CONFERENCE/ SUMMER SCHOOL	R. Ahmad , Z. Wu, and W. A. Curtin, “Pyramidal $\langle c + a \rangle$ cross-slip mediated ductility in Mg alloys ductility”, <i>The Minerals, Metals & Materials Society (TMS)</i> (2020) San Diego, USA. W. A. Curtin, R. Ahmad , B. Yin and Z. Wu, “Design of Ductile Rare-Earth-Free Magnesium Alloys”, <i>Magnesium Technology 2020</i> , 19-24 R. Ahmad , Z. Wu, S. Groh and W. A. Curtin, “Pyramidal II to basal transformation of $\langle c + a \rangle$ edge dislocations in Mg-Y alloys and its implication for ductility”, <i>Euromat</i> (2019) Stockholm, Sweden. <i>Mechanics and Physics of Stretchable Objects</i> (2018) Corsica, France.	
RESEARCH EXPERIENCES	Postdoctoral Researcher Micro and Nano Mechanics Group, Stanford University, California, USA Advisor: Dr. Wei Cai	May 1, 2021 - current
	Postdoctoral Researcher Laboratory for Multiscale Mechanics Modeling, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland Advisor: Dr. William Curtin	Nov 1, 2020 - April 30, 2021
	Ph.D. Thesis Atomic Scale Investigations into the Origins of Ductility in Mg Alloys École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland Advisor: Dr. William Curtin	Aug 1, 2016 - Oct 30, 2020

	M.Tech. Thesis Investigation into disentanglement of polymer chains in a glassy amorphous polymer through molecular dynamics simulations Indian Institute of Technology, Kanpur, India Advisor: Dr. Sumit Basu	Jul 15, 2015 - Jul 15, 2016
SCHOLASTIC ACHIEVEMENTS	Selected for the Early Postdoctoral Mobility Fellowship (2021-2022) awarded by the Swiss National Science Foundation. Selected for the Humboldt Postdoctoral Research Fellowship(2021-2022). Received the best PhD thesis award by EDME (Mechanics) doctoral program, EPFL.	
ACADEMIC PROJECTS	Kinetic Monte Carlo simulation of screw dislocation mobility in BCC metals Updated Lagrangian Finite Element Formulation Effect of Initial Stresses on the Wave Propagation in Arteries Static Equilibrium of a Red Blood Cell Wave Propagation in an Initially Stressed Elastic Solids Minimum Energy Path of a Reaction Using Nudge Elastic Band Method	Feb - Jun 2019 Aug - Nov 2014 Aug - Nov 2014 Aug - Nov 2014 Aug - Nov 2014 Jan - Apr 2014
RELEVANT COURSES	- Non-Linear Vibration - Fracture Mechanics - Topics in Topology - Wave Propagation in Elastic Solid - Finite Element Method - Theory of Elasticity - Linear Algebra and Ordinary Diff Eqns - Real Analysis and Calculus - Fourier Analysis and Boundary Value Problems	- Rheology and Structure of Complex Fluids - Molecular Modelling in Chemistry - Non-Linear Finite Element Method - Mechanics of Biological Membrane - Advanced Mechanics of Solid - Vibration and Control - Complex Analysis and Partial Diff Eqns - Nature and Properties of Materials - Computational Multiscale Modeling of Solid
TECHNICAL SKILLS	Programming Languages - Python, C, C++, FORTRAN, Matlab Software - LAMMPS, ParaDis, Ovito, Abaqus, Gaussian	
TEACHING EXPERIENCES	Teaching Assistant, EPFL - Solid Mechanics - Introduction to Structural Mechanics Teaching Assistant, IIT Kanpur - Basic Electrical Engineering - Engineering Graphics and Design	Spring Semesters 2018, 2019, 2020 Spring Semester 2017 Fall Semesters 2016 Spring Semester 2015
POSITIONS OF RESPONSIBILITY	Academic Mentor , Counseling Service Team'12, IIT Kanpur Account Secretary , Hall Executive Committee, Hall 3, IIT Kanpur	Aug 2012 - Apr 2013 Aug 2012 - Apr 2013
REFERENCES	William Curtin Professor Institute of Mechanical Engineering EPFL, Switzerland Wei Cai Professor Department of Mechanical Engineering Stanford University, USA Zhaoxuan Wu Assistance Professor Department of Materials Science and Engineering City University of Hong Kong, China	