Curriculum vitae

Manish L. Vasoya

Material Science & Engineering
Texas A&M University
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Email : manishvasoya36@gmail.com
Birth Date : 03/06/1985.
Nationality : Indian.
Marital status : Married.

Education

Nov 2014 **Université Pierre et Marie Curie (UPMC), Paris, France.**
PhD in Mechanics, mentioning with *distinction.*
Thesis title : Study on tensile failure of highly heterogeneous brittle materials.
Advisors : Véronique Lazarus, Laurent Ponson and Jean-Baptiste Leblond.

July 2010 **Indian Institute of Technology (IIT), Delhi, India.**
Master of Technology (M.Tech.) in Engineering Mechanics: *8.41/10.*
Thesis title: Aspects of topology optimization of metal-ceramic composites.
Advisor: Romana Piat (Karlsruhe Institute of Technology (KIT), Germany).

Sept 2007 **Institute of Technology, Nirma University, Ahmedabad, India.**
Bachelor of Technology (B.Tech.) in Mechanical Engineering: *7.44/10.*

Research Experiences

Research Interests: Solid mechanics, Fracture mechanics of heterogeneous materials, Homogenization, Topology optimization.

Oct 2017 - Pres. **Texas A&M University, College Station, USA.**
TEES postdoc fellow in the group of Alan Needleman at Department of Material Science and Engineering
Computational mechanics framework for amorphous materials.

Jan 2015 - Dec 2016 **Weizmann Institute of Science, Rehovot, Israel.**
Post-doctoral fellow in the group of Eran Bouchbinder at Dept. of Chemical Physics.
Non-linear mechanics of amorphous materials.
I have worked for developing a failure model based on amorphous plasticity for understanding the notch toughness dependency on loading rate, age/history of internal microstructure and notch geometry.

Nov 2011 - Nov 2014. **UPMC, Paris, France.**
Institut Jean Le Rond d'Alembert, Paris and Laboratoire FAST, Orsay.
Ph.D. dissertation: *Study on brittle crack propagation in highly heterogeneous materials.*
The main focus was on studying effects due to large crack front deformations that might be induced while the crack front is interacting with an obstacle. The higher ordered theory were developed to get accounted of large front deformations.

AUG 2010 - FEB 2011	**IIT Delhi, India.** Project scientist at Dept. of Applied Mechanics. *Homogenization of composites.* I worked on homogenization of elastic properties for doing the mechanical characterization of carbon/carbon composites.
SEPT 2009 - MAY 2010	**KIT, Karlsruhe, Germany.** **Master dissertation**: *Aspects of topology optimization of metal-ceramic composites.* I worked in modeling a minimum compliance problem based on topology optimization and finite element method. I used different homogenization approaches in calculating the homogemized elastic properties at each iterative step. I studied micro-structural optimization of metal-ceramic composites with two design variables characterizing the microstructure of composites. composites.

Industrial Experiences

MARCH 2011 - OCT. 2011	**Cummins Research and Technology India Limited (CRTI), Pune, India.** Engineer in the group structure analysis. I worked on stress analysis using ANSYS for validating the design of different fuel system components.
AUGUST 2007 - JULY. 2008	**Mahindra and Mahindra Automotive Sector, Nashik, India.** Graduate Engineer Trainee in the manufacturing sector. I worked on the quality assessment for different components and manufacturing processes of the automotive vehicle production.

Awards

FELLOWSHIPS/ SCHOLARSHIPS	• **IUTAM travel grant** for attending IUTAM Symposium on Micromechanics of defects in solids, 9-13 June, 2014 Seville, Spain. • **University research fellowship** for PhD thesis at UPMC Paris, 2011-2014. • **DAAD/IIT scholarship** for doing master thesis at Institute of Engineering Mechanics, Karlsruhe Institute of Technology (KIT), Germany, 2009-2010. • **Undergraduate scholarship** Nirma University, Ahmedabad, 2003-2007. • **GATE Exam** with score of 97/100.
TECHNICAL COMPETITION	• Member of winning team Nirma University in **DD-MIT Robocon'06, India**.

List of publications

In International Refereed Journals

1. **M. Vasoya**, C.H. Rycroft, E. Bouchbinder, Notch fracture toughness of glasses: Dependence on rate, age, and geometry, *Physical Review Applied*, 6, 024008 (2016).

2. **M. Vasoya**, V. Lazarus, L. Ponson, Bridging micro to macroscale fracture properties in highly heterogeneous brittle solids: weak pinning versus fingering, *Journal of the Mechanics and Physics of Solids*, 95, 755-773 (2016).

3. **M. Vasoya**, A.B. Unni, J-B. Leblond, V. Lazarus, L. Ponson, Finite size and geometrical non-linear effects during crack pinning by heterogeneities: An analytical and experimental study. *Journal of the Mechanics and Physics of Solids*, 89, 211-230 (2016).

4. **M Vasoya**, J-B Leblond, L. Ponson, A geometrically non- linear analysis of coplanar crack propagation in some hetero- geneous medium. *International Journal of Solids and Structures*, 50, 371-78 (2013).

5. R Piat, Y. Sinchuk, **M. Vasoya**, O. Sigmund, Minimal compliance design for metal-ceramic composites with lamellar. *Acta Materialia*, 59, 4835-4846 (2011).

Peer reviewed conference proceedings

1. **M. Vasoya**, V. Lazarus, L. Ponson, Crack front fingering during planar crack propagation in highly heterogeneous toughness field. *Procedia Materials Science*, 3, 2142-2147 (2014).

2. **M. Vasoya**, V. Lazarus, L. Ponson, Propagation of tensile planar cracks in highly heterogeneous media: A numerical study. *Proceeding international conference of fracture* (ICF), Beijing (2013).

3. R. Piat, Y. Sinchuk, **M. Vasoya**, Application of the semy-analytical micromechanical methods for optimization of the elastic response of metal-ceramic composites. *PAMM-Proceedings in applied mathematics and mechanics*, 10, 721-722 (2010).

Book chapters

1. Y. Sinchuk, R. Piat, **M. Vasoya**, Elastic Properties of Metal-Ceramic Composites: Micromechanical Estimation and Microstructure. In Ed: Krenkel W., Lamon J.: High Temperature Ceramic Materials and Composites, AVISO Verlagsgesellschaft mbH, Berlin,Germany, 228-233 (2010).

Papers under preparation

1. **M. Vasoya**, V. Lazarus, L. Ponson, Crack front fingering in failure of heterogeneous brittle solids.

Invited Talks, Conferences and Workshops

- Summer school on Mechanics and Physics of Fracture: Multi-scale Modeling of the Failure Behaviour of Solids, CISM-Udine, Italy, 2016.
- Invited group seminar, Bouchbinder group, Weizmann Institute of Science, Israel, 2014.
- Invited seminar, Chair of Applied Mechanics, University of Erlangen-Nuremberg, Germany, 2014.
- Oral presentation, 20^{th} European Conference on Fracture : Fracture at all scales, Trondheim, Norway, 2014.
- Poster presentation, IUTAM symposium on micromechanics of defects in solids, Seville, Spain, 2014.
- Oral presentation, Journée des doctorants, Laboratoire FAST, Orsay, France, 2013.
- Oral presentation, 13^{th} International Conference on Fracture (ICF), Beijing, China, 2013.
- Poster presentation, Winter School-Materials Deformation: Fluctuations, Scaling, Predictability. Les Houches, France, 2013.
- Summer School-Asymptotic Methods in Mechanics, Quiberon, France, 2012.
- Oral presentation, Journée des doctorants, Institut Jean Le Rond d'Alembert, UPMC, Paris, France, 2012.

Skills

COMPUTATIONAL LANGUAGES	C, C++, MATLAB, MATHEMATICA, ABAQUS, ANSYS.
OPERATING SYSTEMS	Mac, Linux, Windows.