

Curriculum Vitae

K.S.N Satish Idury



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Presently working as Project Officer in Indo-Australian Project on Advanced manufacturing of High Entropy alloys at IIT Madras from 01 March 2018.

Educational qualification details:

Ph. D (July 2014- February 2018)

Research topic: - **Thermodynamic modeling of Bulk Metallic Glasses, Cluster energetics and indentation studies of $Zr_{67}Cu_{33}$ Metallic Glass.** The objective of the thesis is to understand how short range ordered atomic clusters in rapidly solidified metallic materials influence macroscopic thermodynamic and mechanical properties.

Supervisors: Dr. Jatin Bhatt, Visvesvaraya National Institute of Technology, Nagpur and
Prof. B.S. Murty, Indian Institute of Technology Madras, Chennai

Institution: Visvesvaraya National Institute of Technology, Nagpur

Master of Technology (July 2012- June 2014) Specialization: **Materials Engineering**

Project title: Thermodynamic basis for composition design of High Entropy Metallic Glasses

Supervisors: Dr. Jatin Bhatt and Prof. B.S. Murty

Institution: Visvesvaraya National Institute of Technology, Nagpur

C.G.P.A: 9.08 out of 10

Bachelor of Engineering (2007-2012)

Specialization: Industrial Engineering

Project title: Implementation of lean techniques for boat repairs

Institution: Indian Institution of Industrial Engineering

% of Marks: 62

Advanced diploma in Marine Engineering and Naval Architecture (Aug 2002- Apr 2004)

Institution: Indian Navy

% of Marks: 69

Diploma in Mechanical Engineering (76% of marks) (1997 - 2000)

Research Interests:

Deformation behaviour of Metallic glasses and metallic glass matrix composites

Atomic scale structure mechanical properties in Materials

Details of Journal Publications (in chronological order)

1. R. Unnikrishnan, **K.S.N. Satish Idury**, T.P. Ismail, A. Bhadauria, S.K. Shekhawat, R.K. Khatirkar, S.G. Sapate, "Effect of heat input on the microstructure, residual stresses and corrosion resistance of 304L austenitic stainless steel weldments", **Materials Characterization**, vol. 93 (2014) 10-23. Publisher: **Elsevier**

2. **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, "Thermodynamic Modeling and Composition design for the formation of Zr-Ti-Cu-Ni-Al High Entropy Bulk Metallic Glass" **Intermetallics**, vol. 65 (2015) 42-50 Publisher: **Elsevier**

3. S.Vincent, **K.S.N. Satish Idury**, A. Gokhale, B.S. Murty and Jatin Bhatt, "Intermediate cluster transformation energetics in Zr-Cu-Ni-Al glass and their role on solidification behaviour" **Transactions of Indian Institute of Metals** vol. 68 (6) 2015 1107-1112 Publisher: **Springer**

4. C.Chattopadhyay, **K.S.N. Satish Idury**, K. Mondal, Jatin Bhatt, B.S. Murty, "Critical evaluation of Glass forming ability criteria" **Material Science and Technology** vol. 32:4 (2016) 380-400 Publisher: **Taylor and Francis**

5. **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, "Identifying non equi atomic high entropy bulk metallic glass formers through thermodynamic approach: A theoretical perspective", **Journal of Non Crystalline Solids**, vol. 450 (2016) 164-173 Publisher: **Elsevier**

6. **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, "Interpreting room temperature deformation of $Zr_{67}Cu_{33}$ metallic glass through Voronoi cluster dynamics", **Journal of Non Crystalline Solids**, vol. 454 (2016) 59-69 Publisher: **Elsevier**

7. **K.S.N. Satish Idury**, A. Gokhale, K.R. Ravi, J. Jain, B.S. Murty and Jatin Bhatt, “Serrations during nanoindentation creep of $Zr_{67}Cu_{33}$ metallic glass”, Material Science Engineering A (**under communication**) Publisher: Elsevier

8. **K.S.N. Satish Idury**, A.Srivastav, K.R. Ravi, B.S. Murty and J. Bhatt, “Probing the non-equilibrium solidification of rapidly quenched $Zr_{67}Cu_{33}$ amorphous ribbon through nano clusters: An HRTEM investigation, (**under communication**) Journal of Alloys and Compounds: Elsevier

Publications in peer reviewed Conference proceedings

1. **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, “Designing the composition with high Glass Forming Ability in Cu-Ti-Zr-Pd system by Thermodynamic Modeling”, **Proc. of International conference on Emerging Materials and Processes**, CSIR-IMMT Bhubaneswar , ISBN 978-81-928552-1-9, pp. 228-231 Feb 26 - 28, 2014

2. **K.S.N. Satish Idury** and Jatin Bhatt, “Designing of High Entropy Metallic glass composites in Zr-Al-Co-Nb quaternary system through thermodynamic modeling”, **Proc. Of 6th International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM) 29-31 December 2014, Indian Institute of Technology Kharagpur, Kharagpur, India , ISBN: 978-93-80813-30-1, 2014**

3. **K.S.N Satish Idury** and Jatin Bhatt, “High Entropy Metallic glass composites in Mg-Cu-Zn-Y system aimed at aerospace applications- a Thermodynamic perspective of alloy design” **Proc. of 18th National Seminar on Aerospace Structures**” Dec 2014, VNIT Nagpur, Article published in special issue of **Journal of Aerospace science and Technologies published by Aeronautical Society of India**

Awards/Recognition

- **Best poster presentation award** from CSIR Institute of Materials and Minerals Technology, Bhubaneswar, India for the poster titled “ Predicting High entropy metallic glass formation in Cu-Ti-Zr-Pd system through thermodynamic modeling”, during “**International Conference on Emerging Materials and Processes (ICEMP 2014)**, 26-28 March 2014
- **Best Oral presentation award** from Indian Institute of Technology Bombay, Mumbai - India for the talk titled “Designing high entropy bulk metallic glass compositions in Ti-Zr-Be-Cr system through thermodynamic modeling” during **6th National Symposium for Material Research Scholars, 12-14 May 2014**
- **Best Oral presentation award** from Indian Institute of Technology Kanpur for the talk titled “ On high entropy bulk metallic glass formation in Zr-Ti-Cu-Ni-Al system based on binary eutectic cluster model and CALPHAD”, during **70th Annual Technical Meeting of Indian Institute of Metals 11-14 November 2016**
- Recognized reviewer for **Journal of Alloys and Compounds**, Elsevier
- **Nine year Armed forces Service medal from Indian Navy**

Paper presentations at peer reviewed International Conferences in India/abroad

- 1) **K.S.N Satish Idury** and R.L. Narayan, “Serration statistics of the room temperature nanoindentation creep in Zr-Cu Metallic glass”, Nanoyantrika 2017: Nanomechanical testing workshop and Hysitron user meeting (<https://www.hysitron.com/about-us/news-events/nanoyantrika-2017>), Trivandrum, India
- 2) **K.S.N Satish Idury**, P. Rastogi, R.L. Narayan, B.S. Murty, J. Bhatt and S.A.S. Asif, Room temperature dynamic indentation of Zr-Cu Metallic Glass, **Nanoyantrika 2017**, Trivandrum
- 3) K.S.N Satish Idury, A. Srivastav, K.R. Ravi, B.S. Murty and **Jatin Bhatt**, “On Probing the non-equilibrium solidification of rapidly quenched $Zr_{67}Cu_{33}$ amorphous ribbon through nano clusters: An HRTEM investigation”, **24th International Symposium on Metastable Amorphous and Nanostructured Materials ISMANAM 2017, Donostia, San Sebastian, Spain 18-23 June 2017**
- 4) **K.S.N Satish Idury**, B.S. Murty and **Jatin Bhatt**, “On optimizing non equi atomic high entropy bulk metallic glass compositions: A thermodynamic modeling study”, **2nd International Workshop on High Entropy Materials IWHEM 2017, School of Engineering Sciences and Technology, University of Hyderabad, 11-12 March 2017**
- 5) **K.S.N. Satish Idury**, Aditya Gokhale, B.S. Murty and Jatin Bhatt, “Room temperature indentation creep: A measure of thermodynamic irreversibility of Zr-Cu metallic glass structure”, **7th International Conference on Plasticity and Failure in disordered Materials (FRACMEET2017) Institute of Mathematical Sciences, Chennai, January 04-07 2017**
- 6) **K.S.N. Satish Idury**, Aditya Gokhale, B.S. Murty and Jatin Bhatt,” Evaluating room temperature indentation Creep and Visco elastic parameters of $Zr_{67}Cu_{33}$ metallic glass through nanoindentation”, **7th International Symposium for Research Scholars (ISRS 2016), Indian Institute of Technology Madras, December 21-23 2016, Chennai, India**
- 7) **K.S.N. Satish Idury**, K. Guruvidyathri, B.S. Murty and Jatin Bhatt, “On high entropy bulk metallic glass formation in Zr-Ti-Cu-Ni-Al system based on binary eutectic cluster model and CALPHAD”, **54th National Metallurgists Day and 70th Annual Technical Meeting (NMD ATM 2016)- Indian Institute of Technology Kanpur, November 11-14 2016**
- 8) **K.S.N Satish Idury**, Shashank Sharma, B.S. Murty and Jatin Bhatt, “Indentation response on different substrates for $Zr_{67}Cu_{33}$ metallic glass”, **Fourth International Conference on Advances in Materials and Materials Processing (ICAMMP- IV) – Indian Institute of Technology Kharagpur November 05-07 2016**
- 9) **K.S.N Satish Idury**, B.S. Murty and Jatin Bhatt, “An atomic cluster model to understand localized deformation behaviour in metallic glass”, **International Conference on Metals and Materials Research- ICMR 2016, Indian Institute of Science, Bangalore, Jun 20-22 2016**
- 10) **K.S.N Satish Idury**, B.S. Murty and Jatin Bhatt, “Understanding room temperature diffusion in Cu-Zr binary glass through Voronoi Cluster Mechanics”, **6th International Conference in Solidification Science and Processing – DMRL Hyderabad Nov 25 -27 2015**

- 11) **K.S.N Satish Idury**, B.S. Murty and Jatin Bhatt, “Interpreting Beta relaxation through icosahedral Voronoi Cluster energetics in Cu-Zr binary glass”, **53rd National Metallurgists day & 69th Annual Technical meeting (NMD ATM 2013), Coimbatore, November 2013, India**
- 12) **K.S.N Satish Idury** and Jatin Bhatt, “Understanding heterogeneous room temperature deformation of Cu-Zr based metallic glasses through icosahedral cluster energetics” **NANOYANTRIKA, Nano mechanical testing workshop**, Trivandrum , September 20-22 2015
- 13) **K.S.N Satish Idury**, B.S. Murty and Jatin Bhatt, “Designing High entropy metallic glass composition from invariant reactions predicted through CALPHAD methods” **1st National Workshop on High Entropy Alloys, I.I.T Madras, Chennai, March 26-28 2015**
- 14) **K.S.N Satish Idury** and Jatin Bhatt, “Designing high entropy metallic glass composite in Zr-Al-Co-Nb quaternary system through thermodynamic modeling, **6th International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2014), IIT Kharagpur, Dec 2014, Kharagpur, India**
- 15) **K.S.N Satish Idury** and Jatin Bhatt, “ High Entropy Metallic glass formation in Mg-Cu-Zn-Y system aimed at aerospace applications: Thermodynamic perspective of alloy design, **18th National Seminar on Aerospace Structures (NASAS 2014), VNIT Nagpur, Dec 2014, Nagpur, India**
- 16) **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, “Thermodynamic basis for atomic cluster deformation in Cu-Zr system: A perspective”, **6th International Symposium for Research Scholars (ISRS 2014), IIT Madras, Dec 2014, Chennai, India**
- 17) **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, “Designing High entropy bulk metallic glass composition in Zr-Ti-Fe-Cu-Al system through thermodynamic modeling”, **52nd National Metallurgists day & 68th Annual Technical meeting (NMD ATM 2014), College of Engineering Pune, Nov 2014, Pune, India**
- 18) **K.S.N Satish Idury** and Jatin Bhatt, “Designing High entropy bulk metallic glass composition in Ti-Zr-Be-Cr system through thermodynamic modeling”, **6th National Material Research Scholar Symposium (MR 2014), IIT Bombay, May 2014, Mumbai, India**
- 19) **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, “Designing High entropy bulk metallic glass composition in Ti-Zr-Cu-Pd system through thermodynamic modeling”, **International Conference on Emerging Materials and Processes (ICEMP 2014), CSIR IMMT Bhubaneswar, March 2014, Bhubaneswar, India**
- 20) **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, “Thermodynamic modeling for composition design of High entropy bulk metallic glass formation in Zr-Ti-Cu-Ni-Al system through thermodynamic modeling”, **International Conference on Functional Materials (ICFM 2014), IIT Kharagpur, February 2014, Kharagpur, India**
- 21) **K.S.N. Satish Idury**, B.S. Murty and Jatin Bhatt, “Thermodynamic modeling for the formation of high entropy bulk metallic glasses”, **51st National Metallurgists day & 67th Annual Technical meeting (NMD ATM 2013), IIT(BHU) Varanasi, November 2013, Varanasi, India**

Research Fellowships:

Ministry of Human Resources Development Ph. D research fellowship from July 2014-till date

Ministry of Human Resources Development GATE scholarship from July 2012- June 2014

Membership in Professional Societies:

Graduate member in Indian Institution of Industrial Engineering, Mumbai. Membership No: 32266

Administration skills:

Worked as Junior Engineer in Mechanical Engineering stream of Indian Navy from Aug 2002 to July 2012. Responsible for hull survey, Technical trouble shooting of on board mechanical equipment, refit and repair coordination, Material procurement and corrosion monitoring of Eastern fleet ships based at Eastern Naval Command, Visakhapatnam, India.

Personal details:

Date of Birth : 17 March 1982
Marital status : Single
Nationality : Indian
Languages : English, Hindi, Telugu

Referees:**1) Dr. Rajesh Khatirkar**

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