Annexure - I

मौलाना आज़ाद राष्ट्रीय प्रौद्योगिकी संस्थान,भोपाल

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY
BHOPAL, 462003
(An Institute Of National Importance)

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7. **Sender's Name & email** ...Dr. Abhilash Gunti.....
   gunti.abhilash@gmail.com.
8. **HOD/Section I/c Name** ..Dr. Sanjay Srivastava..... 31/08/2024
9. **Director/Dean/Registrar Approval**

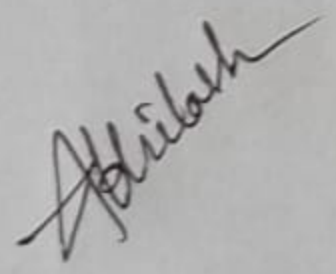
   .....
   .....

Abhilash Gunti
Assistant Professor
Materials and Metallurgical Engineering Department

Contact Details	
Email Id	gunti.abhilash@gmail.com
Phone No.	9160693232
Google Scholar	https://scholar.google.com/citations?user=fuG6hfEAAAAJ&hl=en&oi=ao
Scopus Author ID	
Linked In	linkedin.com/in/abhilash-gunti-6b360544
ORCID	https://orcid.org/0000-0001-8483-8545
Vidwan	

Subjects Taught	
U.G	Heat treatment and Phase transformations
	Transport Phenomena
	Iron and Steel Making
	Non-Destructive testing
	Materials science and engineering
	Materials selection and Design
	Advanced Materials and Processes
P.G	Materials Processing and Microstructure Evolution

Teaching Experience				
Organization	Start Date	End Date	Designation	Nature of Work



NIT Warangal	July 2014	May 2015	Ad-hoc Faculty	
NIT Warangal	Jan 2023	July 2023	Ad-hoc Faculty	
NIT Hamirpur	Sept 2023	Dec 2023	Ad-hoc Faculty	
MANIT Bhopal	Dec 2023	Till now		

Ph.D. Supervised/Ongoing

Name of the Student	Topic	Year of Award	Co-Supervisor (if any)

Sponsored Research Projects (Completed/Ongoing)

Title	Sponsoring Agency	Duration	Amount	Co-PI (if any)

Major Consultancy Projects

Title	Sponsoring Agency	Duration	Amount	Co-Investigator (if any)

Publication

Authors	Title	Journal	Vol. No. Page No.	Year	SCI/ Scopus	Impact Factor
Gunti, A., Maity, T., & Das, J.	Size effect in ultrafine Ti-Fe-(Sn) lamellar composites during micro- and nanoindentation.	Journal of Materials Engineering and Performance	1-9	2024		2.3
Gunti, A., & Das, J.	Effect of testing conditions on the nanomechanical behaviour of surface and inner core of as-cast Zr-base bulk metallic glassy plates	Materials Science and Engineering A	845 143206 (1-15).	2022		6.4
Gunti, A., & Das, J.	Effect of cold rolling on the serrated flow behaviour of $Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10}Be_{22.5}$ bulk metallic glass during	Journal of Materials Research	37(4), 976–989.	2022		2.9

	nanoindentation.					
Gunti, A., & Das, J.	Size effect and anisotropy in cold rolled Zr-base bulk metallic glasses during nanoindentation.	Journal of Non-Crystalline Solids	593 121767 (1-13).	2022		3.5
Gunti, A., Jana, P. P., Lee, M. H., & Das, J.	Effect of cold rolling on the evolution of shear bands and nanoindentation hardness in $Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10}Be_{22.5}$ bulk metallic glass.	Nanomaterials	11(7) 1670 (1-18).	2022		5.3
Jana, P. P., Gunti, A., & Das, J.	Improvement of intrinsic plasticity and strength of $Zr_{55}Cu_{30}Ni_5Al_{10}$ metallic glass by tuning the glass transition temperature.	Materials Science and Engineering A	762 138102 (1-7).	2022		6.4

Patents				
Title	Year	Agency	Co-Investigator(if any)	Published/Granted

Citations			
	h-index	i-10 index	Total Citations

Detailed Bio-data

Forwarded
Sanjay
31/08/2024

Abhishek

Abhilash Gunti
PhD
Metallurgical and Materials Engineering
Indian Institute of Technology Kharagpur
Email: gunti.abhilash@gmail.com

H.No 11-167
Vivekananda Nagar, Huzurabad
Telangana 505468
Mob: +91 9932543280
DOB: 13/08/1989

Examination	Institute	Year
PhD in Metallurgical and Materials Engineering	IIT Kharagpur	2022
M. Tech. in Process Engineering (Metallurgical Engineering and Materials Science)	IIT Bombay	2013
B.Tech. in Metallurgical and Materials Engineering	NIT Warangal	2010
Intermediate/+2	Alphores Junior College, Karimnagar	2006
Matriculation	VishwaPragathi Vidyalayam, Huzurabad	2004

RESEARCH INTERESTS

- Nano-micro mechanics, Mechanical behavior of materials, Alloy Design, Structure Property Correlation, Phase Transformations, Materials Characterization, Advanced Materials, Hydrogen Embrittlement, Additive Manufacturing, modeling and simulations in the above-mentioned fields.

PUBLICATIONS IN REFERRED JOURNALS

- Gunti, A., Maity, T., & Das, J. (2024). Size effect in ultrafine Ti-Fe-(Sn) lamellar composites during micro- and nanoindentation. Journal of Materials Engineering and Performance, 1-9.
- Gunti, A., & Das, J. (2022). Effect of cold rolling on the serrated flow behaviour of $Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10}Be_{22.5}$ bulk metallic glass during nanoindentation. Journal of Materials Research, 37(4), 976–989.
- Gunti, A., & Das, J. (2022). Effect of testing conditions on the nanomechanical behaviour of surface and inner core of as-cast Zr-base bulk metallic glassy plates, Materials Science and Engineering A, 845 143206 (1-15)
- Gunti, A., & Das, J. (2022). Size effect and anisotropy in cold rolled Zr-base bulk metallic glasses during nanoindentation. Journal of Non-Crystalline Solids, 593 121767 (1-13).
- Gunti, A., Jana, P. P., Lee, M. H., & Das, J. (2021). Effect of cold rolling on the evolution of shear bands and nanoindentation hardness in $Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni_{10}Be_{22.5}$ bulk metallic glass. Nanomaterials, 11(7) 1670.
- Jana, P. P., Gunti, A., & Das, J. (2019). Improvement of intrinsic plasticity and strength of $Zr_{55}Cu_{30}Ni_5Al_{10}$ metallic glass by tuning the glass transition temperature. Materials Science and Engineering A, 762 138102 (1-7).

CONFERENCE PROCEEDINGS

- Gunti, A., Das, J., Indentation size effect and related mechanisms in Vitreloy-1 Poster, 26th International Symposium on Metastable, Amorphous and Nanostructured Materials (ISMANAM), 08-12 July 2019, Raintree, Annasalai, Chennai, IIT Madras, India (Poster)

WORK EXPERIENCE

- Working as a faculty in **NIT Hamirpur (Sept 2023-present)**
- Worked as a faculty in **NIT Warangal (Jan 2023 - July 2023)**
- Taught Non-Destructive testing, Materials science and Engineering and Corrosion Engineering lab
- Worked as a faculty in **NIT Warangal (2014-2015)**
- Taught Phase Transformations and Heat Treatment and handling Phase Transformations & Heat Treatment and Characterization techniques labs. Taught Transport Phenomena and handled Materials Processing and Microstructure Evolution lab
- Worked as a lecturer in Rajiv Gandhi Institute for Steel Technology (2014)
- Taught Physical Metallurgy, Heat Treatment subjects and handled Physical Metallurgy and Mechanical Metallurgy Lab

Abhilash

KEY ACADEMIC PROJECTS

Development of Nitride Coatings on TZM alloy by Cathodic Arc Deposition Technique CAD (PVD), Synthesis and Characterization of Titanium Aluminide alloy (BARC) *May - July 2009*

- Developed AlN_2, TiN_2 and AlN_2- TiN_2 composite coatings over TZM alloy substrate by CAD
- AlN_2-TiN_2 coating **increased 87.40% hardness** of the TZM sheet when compared to plain TZM sheet
- Annealing Ti-Al alloy at 800^{0}C for 9hrs **enhanced its hardness, density 80 and 26%** respectively

Microwave Dielectric properties of low temperature sintered Zinc Titanate Ceramics

[Bachelor's Dissertation]

- Low Temperature Co fired Ceramics (LTCC) are used in novel multilayer communication modules
- V_2O_5-B_2O_3 doped zinc titanate ceramics were prepared and lowered the sintering temperature
- Better value of microwave dielectric properties of **ε_r=18.45** and **Qxf=14,276** were observed, which is a promising candidate in field of multilayer devices requiring low sintering temperature (<900 °C)

Mechanical Properties of Intercritical Annealed and Intercritical Rolled Dual Phase Steels

[Master's Dissertation]

- Effect of soaking time in intercritical region on microstructural evolution and mechanical properties
- Analyzed the effect of intercritical annealing and rolling at different temperatures on microstructural evolution and mechanical properties
- Studied the effect of rolling reduction in intercritical region on microstructural evolution and mechanical properties

Nano Micro-Mechanical Studies of As-Cast and Cold Rolled Zr-Based Bulk Metallic Glasses

[PhD Dissertation]

- Explored the variation of the mechanical behavior at the surface and inner core of the Zr-base BMG plates with different fragility parameter under different testing conditions, to corelate the activation volume with the STZ size, and number of atoms in STZs to understand the nano-/micro-mechanics of deformation
- Investigated the effect of different extent of cold rolling strains on the hardness and Young's modulus as well as the anisotropic properties on rolling-width (RW), normal-rolling (NR), normal-width (NW) planes at different loads using instrumented indentation. Established a correlation between evolution of the shear bands with cold rolling strain on NR plane
- Investigated the effect of loading rate on the serration behavior using instrumented indentation at numerous loading rates in between of 1.66 mN/s and 16.66 mN/s on NR, RW and NW planes of as-cast and differently cold rolled samples. Examined the effect cold rolling strain on the evolution of plasticity and change in deformation behavior BMGs by analyzing the serration behavior in terms of pop-in depth, pop-in distribution, deformation acceleration factor of as-cast and all cold rolled specimens
- Evaluated the effect of cold rolling on hardness and indentation size effect (ISE) of as-cast and cold rolled Zr-based BMGs using instrumented nanoindentation on NR, RW and NW planes. Explored the possible reasons behind the size effect in BMGs and length scale of ISE using the existing models. Scanning electron microscope studies were performed on the indentation impressions of as-cast and all cold rolled samples to examine any change in the deformation behavior

COURSE PROJECTS AND SEMINARS

Grain Boundary Sliding during Superplasticity

- Extensive literature survey to understand the grain boundary sliding in superplastic materials

Computational methods for bulk metal forming

- Studied A general anisotropic yield criterion using bounds and a transformation weighting tensor

Diffusion of Titanium and its alloys

- Compared major mechanisms and proposed models to understand phenomena

Towards a cleaner greener and safer Indian steel industry

Analyzed various steelmaking processes and proposed more environmentally friendly mechanism

ACADEMIC ACHIEVEMENTS AND AWARDS

- **All India 84th Rank in GATE (Graduate Aptitude Test in Engineering)** *2011*
- Highest percentage (**97%**) in Sanskrit for **two consecutive** years in Intermediate *2004-2006*
- Topped with aggregate (93.83%) in physics, chemistry and mathematics in Intermediate *2004-2006*
- Secured the **highest aggregate percentage (96%)** in mathematics and science in school *2004*

INDUSTRIAL EXPOSURE

Visakhapatnam Steel Plant (RINL) *Nov 07 – Dec 07*

- Extensively analyzed the processing of various units of plant like BF, SP, CO and SMS
- Submitted a detailed report along with suggestion for enhancing the efficiency of processes

Bhilai Steel Plant (SAIL) *May 08 – June 08*

- Studied steel-making via BOF, VAD/Ladle Furnace/RH-Degasser and continuous casting route Provided some key inputs on materials handling and its procurement to BF units

TEACHING ASSISTANTSHIP

- Assisted professor in conducting **Electronic Materials** class for 120 Undergraduate students
- One of the Member in Handling of the **Mechanical Testing** Lab of **120** Students and designed **new experiments** for the lab curriculum and successfully conducted them
- TA for Materials characterization subject and lab, Advanced materials and processes
- TA for Diffraction techniques in materials engineering subject

POSITIONS OF RESPONSIBILITY

Core team member of Publicity Technozion, a National Level Technical Fest of NITW *2009-2010*

- Led a team of **20 members** and done fest publicity in over 250 engineering colleges all over India
- **Increased** over **1000 Registrations** over last year and played a key role in the success of fest

Event Organizer, Technozion, a National Level Technical Fest of NITW *2008*

- Organized the Quiz contest at the institute
- Led the **team of 8** members for formulating rules and regulations for the event

Disciplinary Committee, Technozion, a National level Technical Fest of NITW *2008*

- Worked in a **team of 25** members during the fest
- **Controlled** around **6000 members** without any disciplinary issues during the fest

EXTRA CURRICULAR ACTIVITIES

- Secured **3rd position** in mixed competition which consist of **cricket, badminton and basketball** sports among 32 teams of the institute *2012*
- Awarded **Silver medal** in kabaddi tournament in NITW *2010*
- Secured **1st position** in short movie making competition organized by Photography club, NIT Warangal

RECOMMENDERS DETAILS

Prof. Jayanta Das
Department of Metallurgical and Materials Engineering
Indian Institute of Technology Kharagpur
West Bengal
India, PIN-721302
Tel: +91-3222-283284
Fax: +91-3222-282280
e-mail: j.das@metal.iitkgp.ernet.in