

Dr Deepak Kumar
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Research Interests

Oxide Dispersion Strengthened (ODS) Steels, Mechanical working of metals, Sinter Forging, Mechanical Alloying, Particulate consolidation.

Teaching Interests

Foundry Technology, Manufacturing Processes, Metal forming, Machining Science, Material Science and Engineering, Powder metallurgy, Fluid Machinery.

Academic Profile

Degree	Specialization	Institution/University/ Board	Year	% of marks
PhD	Forging, ODS steel, High temperature structural materials	IIT Roorkee	2012-17	NA
M.Tech	Mechanical Engineering (Industrial and Production)	Zakir Husain College of Engg. & Tech, Aligarh Muslim University, Aligarh	2009-11	77.40 (Rank)
B.Tech	Mechanical Engineering	GLAITS, Uttar Pradesh Technical University, Lucknow	2005-09	76.24

Research Profile

Position	Project title	Sponsored Agency	Working Place	Duration
Post Doctoral Research Associate	Generation of creep data for alloy 617M forge (of 800mm diameter) of AISC turbine rotor (AUS-1185-MMD)	IGCAR, Kalpakam	IIT Roorkee	18-04-18 to 25-06-19
Research Fellow	Development of Low Density Steels (DRD-1104-MMD)	DRDO, New Delhi	IIT Roorkee	21-08-17 to 17-04-18

Teaching Profile

Position	Name of the Institution	Duties	Pay and Pay scale	Duration
Assistant Professor	GLA University, Mathura	Teaching & Lab	6000 GP, 15600-39100	09-01-12 to 13-08-12

Research Work:

National Mission project

A consortium of three Government Entities, namely BHEL, IGCAR and NTPC INDIA have proposed a R&D project for development of AUSC (Advanced ultra supercritical) Technology for Thermal Power Plants of future, envisaging reduced coal consumption as well as Carbon-Di-Oxide (CO₂) emission. The project has been proposed as a national mission. Advanced materials need to be developed for superheater as well as reheater boiler tubing, rotor and casing for the AUSC plants of about 720⁰C steam temperature. It is necessary to characterise the indigenous candidate materials for their mechanical properties. In this regard, I did the creep test for alloy 617M forge (of 800mm diameter) of AUSC turbine rotor.

Ph. D Thesis Title

“Development of 18%Cr oxide dispersion strengthened (ODS) steel containing yttria by powder forging”

M. Tech Dissertation Title

“Effect of natural fillers on the mechanical properties of polystyrene”

Publications

Research paper in the refereed journal:

- 1. Deepak Kumar, Ujjwal Prakash, Vikram. V. Dabhade, K. Laha, T. Sakthivel “Mechanical alloying and powder forging of 18%Cr oxide dispersion strengthened (ODS) steel produced using elemental powders”, in Journal of Materials and Engineering Performance 28 (1) (2019) 242-253, ISSN: 1059-9495.**
- 2. Deepak Kumar, Ujjwal Prakash, Vikram. V. Dabhade, K. Laha, T. Sakthivel “High yttria ferritic ODS steels through powder forging” in Journal of Nuclear Materials 488 (2017) 75-82, ISSN: 0022-3115.**
- 3. Deepak Kumar, Ujjwal Prakash, Vikram. V. Dabhade, K. Laha, T. Sakthivel “Development of Oxide Dispersion Strengthened (ODS) ferritic steel through powder forging” in Journal of Materials and Engineering Performance 26 (4) (2017) 1817-1824, ISSN: 1059-9495.**
- 4. Deepak Kumar, A.A. Khan “Vibration transmissibility to human operator head during tractor driving in vertical direction” in International Journal of Advances Engineering Research, Vol. No. 2, Issue No. VI, December, 2011, ISSN: 2231-5152.**

5. **Deepak Kumar, M.A. Siddiqui** “**Effect of Indian stalk fillers on tensile property of GPPS**” in International Journal of Applied Engineering Research, Vol. No. 6, Number 19, 2011, ISSN: 0973-4562.
6. **Deepak Kumar, M.A. Siddiqui, S.C. Srivastava** “**Effect of Indian lignocellulosic on impact property of GPPS**” in International Journal of Advances Engineering Research, 2011, Vol. No. 2, Issue No. V, November, ISSN: 2231-5152.

Conference Publication

1. **Deepak Kumar, Ujjwal Prakash, Vikram. V. Dabhade, K. Laha, T. Sakthivel** “**Influence of yttria on Oxide Dispersion Strengthened (ODS) ferritic steel**” in Materials Today: Proceedings 5 (2018) 3909-3913 ISSN: 2214-7853.

Presentation

International Conference

1. **Deepak Kumar, Ujjwal Prakash, Vikram. V. Dabhade, K. Laha** “**Isotropic mechanical properties of high yttria ferritic ODS steels**” presented at International Conference on Advances in Materials & Processing: Challenges & Opportunities held at IIT Roorkee, from 30 Nov-2 Dec, 2017.
2. **Deepak Kumar, Ujjwal Prakash, Vikram. V. Dabhade, K. Laha, T. Sakthivel** “**Influence of yttria on Oxide Dispersion Strengthened (ODS) ferritic steel**” presented at International conference materials processing and characterization (7th ICMPC-2017) organized by Department of Mechanical Engineering of Gokaraju Rangaraju society at Hyderabad, March 17-19, 2017.
3. **Deepak Kumar, Ujjwal Prakash, Vikram. V. Dabhade, K. Laha, T. Sakthivel** “**High temperature tensile property of 18%Cr ferritic ODS steel with different yttria content**” presented at International Conference on Powder Metallurgy and Particulate materials (PM16), organized by PMAI at Pune, February 18-20, 2016.
4. **Deepak Kumar, U. Prakash, Vikram V. Dabhade, K. Laha** “**Mechanical property of 18%Cr ferritic ODS steel with different yttria content**” presented at International conference on Creep, Fatigue and Creep-Fatigue Interaction (CF-7), organized by IGCAR at Kalpakkam, January 19 -22, 2016.

National Conference

1. **Deepak Kumar, U. Prakash, Vikram V. Dabhade, K. Laha** “**Mechanical property of ferritic ODS steel prepared through P/M route**” presented at NMD ATM 2015, National conference organized by IIM at Coimbatore, November 13 -16, 2015.
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Technical Skills and Expertise

1. Experience of setup of creep lab (Creep testing m/c-12 Nos) for project.
 2. Installation, working and repair of Zoz (GmbH) Simoloyer (CM01-2lm) Horizontal attritor.
 3. Expertise in Mechanical Alloying process in high energy ball mills.
 4. Expertise in handling explosive gases like H₂ and other inert gases during heating or sintering of powders as well as metallic samples.
 5. Expertise in powder forging process for ODS and other Iron based materials.
 6. Expertise in a microstructural study of metallic materials produced by powder metallurgy route.
 7. Experience in operating various testing equipments like creep testing m/c, high temperature tensile testing m/c, room temperature tensile testing m/c, impact m/c and Vickers hardness m/c.
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Awards & Achievements

Aug 2012	Scholarship for PhD 2012-2017	MHRD, Gov. of India
Dec 2011	Topper of the M.Tech batch (2009-2011)	ZHCET, AMU Aligarh
July 2007	Cash prize for position in B.Tech Second year	GLAITM, Mathura

Membership of Professional Societies

1. Life member of IIM (Indian Institute of Metals).
 2. Life member of ISME (Indian Society of Mechanical Engineers).
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