Curriculum Vitae

Ratnakar Singh
Post-Doctoral Fellow | Department of Materials Engineering
Indian Institute of Science, Bangalore **|** Karnataka, 560012 **|** India
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Teaching Interests

Material science **|** Strength of Materials**|** Mechanical Behaviour of Materials**|** Materials Characterization

Research Interests

- Powder metallurgy
- Microstructure characterization (XRD, SEM, EBSD, and TEM)
- Mechanical testing (at room temperature and high temperature)
- Creep behavior of materials

Education	Institute
2023 | Ph.D.	Department of Metallurgical and Materials Engineering, IIT Roorkee, India
2014 | M.Tech.	Department of Metallurgical Engineering, IIT BHU, Varanasi, India
2011 | B.Tech.	Department of Mechanical Engineering, IMS Engineering College, Ghaziabad, India

PhD Thesis Title

Effect of composition on microstructure and mechanical properties of ODS steels developed through hot powder forging route. Guide's Name: Prof. Ujjwal Prakash, Indian Institute of Technology Roorkee, Uttarakhand, India. Year of Award: 2023

M.Tech Thesis Title

Microstructural characterization and mechanical behavior of medium carbon steel used for rack-pinion assembly in mining industry.

Guide's Name: Prof. Kausik Chattopadhyay & Prof. Vakil Singh, Indian Institute of Technology BHU, Varanasi, Uttar Pradesh, India.

Research experience

- **Senior Research Associate (Department of Metallurgical and Materials Engineering, IIT Roorkee)**
  Worked on ISRO sponsored project titled "Development of cast components in high entropy alloys"
  (Purpose of this project was to develop dual phase high entropy alloys to achieve high strength and ductility)
- Worked on the project titled "Generation of Creep Data for Alloy 617 Forge (of 800mm diameter) of AUSC Turbine Rotor" Purpose of this project was to generate creep data of Alloy 617 Forge, which are being developed for Advanced ultra-super critical power plant (AUSC). The creep samples were prepared from near the surface and core of the 800 mm diameter rod.

Research Skills

- Hands on experience in Rigaku X-ray diffractometer (XRD)
- Hands on experience in mechanical alloying equipment (CM-01 horizontal attritor mill)
- Hands on experience in Metal forming equipment such as Rolling mill and Forging press
- Hands on experience in Wire-cut electro discharge machining (Wire EDM)
- Hands on experience in creep testing machine (Star testing systems)
- Hands on experience in Vickers hardness tester and familiar with electron microscopy equipment (SEM &TEM)

Teaching Experience

Aug 2014 – Dec 2016 Assistant Professor, Department of Mechanical Engineering
JECRC University, Jaipur, Rajasthan, India

Administrative Positions at JECRC University

- Time Table Coordinator
- Departmental Examination Cell Coordinator
- Class In-charge (UG)
- Lab In-charge (UG)

Professional Recognition/Award/Fellowship Received

- Received International Travel Grant from the Department of Science and Technology (DST), Government of India to attend the Nuclear Materials Conference (NuMAT 2022) held at Ghent, Belgium
- Ministry of Human Resource Development, Govt. of India national fellowship for Ph.D. program, 2017 – 2022
- Ministry of Human Resource Development, Govt. of India national fellowship for M.Tech. program 2012-2014.
- Secured GATE Score 475 in GATE 2012 among 0.12 million Mechanical Engineering students across the country.

Academic achievements &co-curricular activities

- Student Bhawan representative from 2020-2022 at IIT Roorkee, India
- Student Volunteer at AMPCO 2017 International conference, IIT Roorkee, India
- Student Volunteer at NMD-ATM 2013 International conference, IIT-BHU, Varanasi, India.
- The coordinator of MECH-FAIR held on April 10,2010 at IMSEC, Ghaziabad, India.

Workshop/training

- Attended a workshop on "thermal power plant familiarization" organized by National Power Training Institute, New Delhi.

Professional Membership

- Life Member, The Institution of Engineers (India)

Reviewer

- Materials characterization (Elsevier) (Impact Factor: 4.7 Q1)
- Journal of Materials Engineering and Performance (Springer) (Impact Factor: 2.1 Q2)
- Materials today: Proceedings (Elsevier) (CiteScore: 3.2)

Personal details

Father's Name	: Mr. Ramesh Bahadur Singh
Mother's name	: Mrs. Sona Devi
Date of Birth	: 12th Nov 1989
Category	: General
Sex	: Male
Nationality	: Indian
Linguistic Proficiency	: English, Hindi

Peer Reviewed Publications

1. **R. Singh**, U. Prakash, P/M 18Cr ODS Steels produced by mechanical alloying and hot powder forging, Powder Technol., 2023, https://doi.org/10.1016/j.powtec.2023.118967 (**IF=5.2 Q1**)
2. **R. Singh,** U. Prakash, D. Kumar, K. Laha, Development of creep resistance high yttria 18Cr ferritic ODS steel through hot powder forging route, Journal of Nuclear Material, 584 154566 (2023), https://doi.org/10.1016/j.jnucmat.2023.154566 (**IF=3.2 Q1**)
3. **R. Singh**, U. Prakash, D. Kumar, K. Laha, Nano oxide particles in 18Cr oxide dispersion strengthened (ODS) steels with high yttria contents, Mater. Charact. 189 111936 (2022). https://doi.org/10.1016/j.matchar.2022.111936. (**IF=4.7 Q1**)
4. Kumar, D., **Singh, R**., Prakash, U. et al. Reducing Anisotropy in High Yttria Ferritic Oxide Dispersion Strengthened Steels by Powder Forging. J. of Materi Eng and Perform 31, 994–1002 (2022). https://doi.org/10.1007/s11665-021-06257-3. (**IF=2.1 Q2**)

5. **R. Singh**, U. Prakash, D. Kumar, K. Laha, Microstructure and Mechanical Properties of Forged High Yttria 18Cr-ODS Steels, J. Mater. Eng. Perform. 29 6263–6276 (2020). https://doi.org/10.1007/s11665-020-05106-z. (**IF=2.1 Q2**)
6. **R. Singh**, U. Prakash, D. Kumar, K. Laha, Mechanical properties of forged-18Cr oxide dispersion strengthened (ODS) steel, Mater. Today Proc. 44 (2020) 4102–4106. https://doi.org/10.1016/j.matpr.2020.10.450
7. S. Hamid, **R. Singh**, U. Prakash, "A Wilshire approach to evaluate creep activation energy for alloy 617 M" (Under Review in Materials Science and Technology)

Conferences (International)

1. **R. Singh** and U. Prakash "Development of ODS steels for advanced nuclear reactors through hot powder forging route" presented at The International conference on Metallurgical Engineering and Centenary Celebration (METCENT 2023), IIT-BHU, India.
2. **R. Singh**, U. Prakash, D. Kumar, K. Laha, "Development of Ferritic ODS Steels Through Novel Hot Powder Forging Route" presented at The Nuclear Materials Conference 2022, Ghent, Belgium
3. **R. Singh**, U. Prakash, Development of 18Cr oxide dispersion strengthened (ODS) steels through hot powder forging, presented at 3rd International conference on Advances in Materials & Processing: Challenges & Opportunities in the Department of Metallurgical and Materials Engineering, IIT Roorkee, India.
4. **R. Singh**, U. Prakash, V. Singh, K. Chattopadhyay, Mechanical and Tribological behavior of Medium Carbon Steel used for Rack -Pinion Assembly in Mining Industry, Indian Institute of Metals NMD-ATM 2017, BITS Pilani Goa.

Reference

1. **Prof. Ujjwal Prakash**
   Professor
   Department of Metallurgical and Materials Engineering
   Indian Institute of Technology Roorkee, (IITR) Roorkee, India
   E-mail: **ujjwal.prakash@mt.iitr.ac.in**

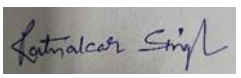
2. **Prof. Praveen Kumar**
   Professor
   Department of Materials Engineering
   Indian Institute of Science, Bangalore, India
   E-mail: **praveenk@iisc.ac.in**

3. **Prof. Vikram Jayaram**
   Honorary Professor
   Department of Materials Engineering
   Indian Institute of Science, Bangalore, India
   E-mail: **gjayaram@iisc.ac.in**

4. **Dr. Kausik Chattopadhyay**
   Associate Professor
   Department of Metallurgical Engineering
   Indian Institute of Technology, BHU (IIT-BHU) Varanasi, India
   E-mail**:** **kausik.met@iitbhu.ac.in**

Declaration

I hereby declare that the above information is correct up to my knowledge and I bear the responsibility for the correctness of the above- mentioned particulars.



Place: Roorkee, INDIA **(Ratnakar singh)**