Manmath Kumar Dash, PhD

Assistant Professor (Grade-I), Department of Materials and Metallurgy Engineering, Maulana Azad National Institute of Technology, Bhopal, India – 462003.

Professional summary:

● Accomplished materials researcher with 15 years of diverse experience in interdisciplinary metallurgical science, dedicated to innovating practical structural materials for advanced applications in next-generation power plants and aerospace domains.

● Dynamic team contributor fostering robust global networks through successful domestic and international collaborations, resulting in 35+ high-impact scientific publications and presentations at 20+ prestigious national/international conferences.

● Forward-thinking and results-driven professional adept at spearheading R&D initiatives, engaging clients, employing critical thinking to navigate challenges, and staying attuned to evolving trends; adeptly communicates to facilitate the realization of strategic objectives.

Education:

● Integrated Ph.D. in Advanced Physical Metallurgy (Engineering), Homi-bhabha National Institute undertaking by Department of Atomic Energy (DAE), Govt. of India.

Ph.D. Project: "Study of microstructure and microtexture during thermo-mechanical processing in advanced steels using experimental and computational methods." 12/2019

● B.Tech. in Metallurgy and Materials Engineering, Biju Patnaik University of Technology, India

Professional Experience:

- Maulana Azad National Institute of Technology (MANIT), Bhopal, India
  Assistant Professor (Grade-I) 2024 to till date.
- Saarloha Advanced Materials Pvt. Ltd. (Kalyani Group Company), Pune, India
  Deputy General Manager (R&D) 2023 to 2024.
- School of Metallurgy and Materials, University of Birmingham, UK (QS Ranking 95)
  Academic Researcher 2021 to 2023
- Indira Gandhi Centre for Atomic Research, Department of Atomic Energy, Govt. of India
  Senior Scientist 2009 to 2021
- RINL, Vizag Steel Plant, Govt. of India undertaking, Visakhapatnam, India
  E-1 Grade, Metallurgical Engineer 2008 – 2009
- Jindal Steel & Power Ltd., Raigarh, India
  Metallurgical Engineer 2007 – 2008
- SMC Power Generation Ltd., Jharsuguda, India
  Graduate Engineer Trainee 2006 – 2007

Technical skills:

Background – Nuclear and high-temperature materials, alloy design and development, irradiation damage, failure analysis, two/three-dimensional microstructure characterisation, site-specific scientific analysis using state- of-the-art focus ion beam (FIB), crystallographic texture measurements (EBSD), in-situ nano/micromechanics, computational material modelling.

Advanced working knowledge.

- Microscopy techniques – SEM-FIB-EBSD **&** Analytical techniques – XRD, XPS, micro-CT
- Micro/nano-mechanical characterisation - Zwick/Roell instrumented hardness, Hysitron-TriboIndenter and Alemnis system (in-situ micropillar compression test)

Academic, Research & Industrial work experience:

1. Academic activities:

I am actively involved in academic activities and supervising undergraduate/postgraduate engineering students in metallurgy and materials engineering. Besides, I have rich experience in setting up, equipping, and maintaining laboratories for the metallurgical research lab and administrative work as well.

Subject Taught:

Selection and Design of Materials
Physical Metallurgy of Advanced Alloy Steel
Phase Transformation and Heat Treatment
Transport Phenomena

Lead Academic Event Organizer

❒ **Workshop**

National Workshop on "AI/ML in Computational Material Science", September 2nd to 6th 2024, at the Department of Materials and Metallurgical Engineering, MANIT Bhopal.

❒ **National Conference**

National Conference on "Advances in Manufacturing Technology (NCAMT- 2024)", October 18th to 19th 2024, at the Department of Materials and Metallurgical Engineering, MANIT Bhopal.

❒ **International Conference**

3rd International Conference on "Advances in Materials and Manufacturing Technology (ICAMMT- 2024)", December 17th to 20th 2024, at the Department of Materials and Metallurgical Engineering, MANIT Bhopal.

2. University of Birmingham, UK

In-situ nano/micromechanics and advanced material characterisation:

- Focusing on the characterisation and development of high-performance ferritic materials for power generation applications.
- Applying electron microscopy to study the microstructure and chemistry of ferritic steels and nickel base alloys, and then using advanced in-situ micro-mechanical testing equipment to study their mechanical performance.
- Engaging with researchers from various university in UK and internationally for high-resolution EBSD characterisation and mechanism-based understanding of plasticity at the nano to micron scale of structural materials.
- Supervising under/post-graduate students on various basic and applied research on high temperature structural materials development projects, assisting in experimental works, and providing training on analytical and simulation techniques.

AMCASH (funded by European Regional Development Fund):

- Offering technical consultancy to West Midland SMEs (over 20 so far) on materials engineering using electron microscopy and mechanical testing to overcome material-based issues and challenges.
- Performed failure analysis, identified the associated microstructural features, and recommended better-processing routes to avoid failure of bulk metallic components.

Other significant collaboration:

- Atomic weapon establishment (AWE, UK): Micropillar compression testing of shock loaded tantalum single crystals.
- Academic collaboration (Prof. Jeoung Han Kim, Hanbat National University, South Korea): Effect of irradiation on thermophysical and transport property of advanced structural material.
- Industrial collaboration (BMNMTD Ltd. Beijing, China): Design and development of advanced ultra-high strength (AUHS) multiphase steel for the automobile industry.

3. Department of Atomic Energy, Indira Gandhi Centre for Atomic Research, India

Broad research areas are microstructural engineering, advanced materials processing, texture and grain boundary analysis, structure properties correlation, crystal plasticity, powder metallurgy.

- Strategic oxide dispersion strengthened ferritic steel development for structural materials applications with enhanced high temperature creep properties for next generation nuclear fission and fusion reactors. Currently, the developed steel is under testing for deployment of structural core application in next-generation nuclear reactor.
- Developed indigenous 304HCu stainless steel for advanced ultra-super-critical tubing/piping application.
- Developed 9Cr-1Mo ferritic/martensitic steel for nuclear reactors core structural material application with reduced ductile-to-brittle transition temperature (-30°C).

Special experience:

Radio-metallurgical laboratory and Hot-cell operation: Metallography, microstructure analysis and mechanical property evaluation of irradiated carbide/oxide fuel and studied fuel-cladding interaction.

Other significant collaboration:

- Défense metallurgical research lab (DMRL, Govt. of India): Microstructure and mechanical properties of Ni-Based Superalloy EP741NP for aerospace applications.
- Academic collaboration (Indian Institute of Technology, Madras): Deformation behaviour of Al0. 7CoCrFeNi high entropy alloy.
- Industrial collaboration (Tata Steel, India): Three-dimensional microstructure and interface characterisation of ferritic steel and role of crystallographic texture on material plasticity.

4. Industrial experience:

Process metallurgy: Iron/steel making, continuous casting, and quality assessment.

- E-1 grade (Engineer) in RINL, Vizag Steel Plant., India (Govt. Of India undertaking), from 09/2008 to 09/2009.
  Steel melting shop: Steel making using basic oxygen furnace (LD converter).
- Metallurgical Engineer in Jindal Steel & Power Limited., India, from 07/2007 to 08/2008.
  Liaising with marketing department, customer facing, and quality assurance steel product.
- Graduate engineering trainee (Metallurgical Engineer) in SMC Power Generation, India from 06/2006 to 07/2007.
  Direct iron and steel making using rotary-kiln and induction melting furnace.

Other contributions & associations:

- Guest reviewer: Metallurgical and Materials Transactions A, Journal of Materials Engineering and Performance, Philosophical Magazine Letters, Transactions of the Indian Institute of Metals
- Membership of professional bodies: Indian Institute of Metals, Association for Iron and Steel Technology, Materials Research Society of India, Electron Microscope Society of India.

Software skills:

- Thermo-Calc, DICTRA and PRISMA, JMatPro.
- Material dynamic modelling (Gleeble simulator),
- Crystal plasticity modelling (VPSC5 Code),
- Microtexture data analyses (TSL-OIMTM, HKL/AZtec/AZtecCrystal and Mtex),
- Amira™ software for 3D microstructure data visualisation,

Sponsored research and consultancy (Under EUROPEAN REGIONAL DEVELOPMENT FUND as principal investigator):

1. Sensors and Composites Ltd., Microstructural and microchemical analysis of metal (aluminium) matrix composites prepared using nickel-coated carbon fibres.
2. Griff Chains Ltd., Comparison study of microstructural features of stamped steel (British Steel-B39) bar with old and new heat-treated conditions.
3. DONAA Ltd., Characterisation of defects (micro-cracks, porosity, etc…) of metals prepared using direct laser deposition (DLD) and powder bed fabrication (PBF) additive manufacturing operations.
4. Four Winds Engineering Ltd., Assessment of the yield strength & ductility data generated from tensile testing steel bar with old and new heat-treated conditions.
5. Somers Forge Ltd., Characterisation of microstructure and defects in a forged component.
6. Handling Concepts Ltd., Investigating materials to be used in a mechanical lifting arrangement to move heavy parts in to and out from an 1100°C furnace,
7. ACHU Ltd., Infrared spectroscopy (IR), energy-dispersive X-ray spectroscopy (EDS), differential scanning calorimetry (DSC), consultancy.
8. Eccles Ltd., Roughness profile measurement of construction materials for draining systems.
9. Indentec Hardness Testing Machines Ltd., Indentec manufactured hardness testing calibration blocks.
10. Fetu Ltd., Literature review of “medium/high-temperature” materials suitable for use within the rotor and pressurised sections of the rotary engine.
11. Folkes Forgings Ltd., Identification of route cause for lower impact property of C-Mn steel forged shaft by performing metallurgical analysis.
12. Webster & Horsfall Ltd., Investigation of the processing route effect on cast ingot billet of advanced dual phase austenitic steel.
13. Latch & Batchelor Ltd., Microstructure and texture analysis of 304 stainless steel wire drawing process.
14. Fibretech Ltd., Study of mechanical properties and corrosion behaviour of metal fibres and reinforced concrete
15. Weldfast (UK) Ltd., Microstructural/Microchemical characterization of similar/dissimilar weldments samples
16. Wrekin Sheet Metal Ltd., Characterisation of powder coating layer using electron microscopy (morphological/chemical analysis to evaluate of coating integrity).
17. AceOn Ltd., MicroCT X-ray analysis of some novel precious metal additive manufacture builds, to determine levels of porosity and build defect.
18. Auctus Management Ltd., Scanning electron microscopy (SEM) of small sections of rail weld for grain size, elemental mapping (EDS) and failure analysis.
19. Henry Venables Products Ltd., Review the scientific literature and metallurgical mechanical property databases, to assess suitable replacement steel grade materials that offer improved mechanical properties.
20. Caltherm Ltd., Materials characterisation of insulating ceramic fibre material.

21. I Holland Ltd., SEM analysis of punch tips / shafts.
22. H Goodwin Castings Ltd., SEM analysis to determine the oxide layer structure/thickness, distribution of phases and elemental segregation.

Publication Details:

1. Journal

1. Manmath Kumar Dash*, Longfangdi Shi, Yu-Lung Chiu, Study of Serrated Boundary Micromechanics during Micropillar Compression in Nickel-Base Superalloy, Metallurgy and Materials Transaction A, (2024), Accepted.
   Impact Factor - 2.566
2. Manmath Kumar Dash, Yu-Lung Chiu, Ian P. Jones, J. C. F. Millett and G. Whiteman, Quasi-static compression of shock loaded, single crystal tantalum micropillars, Materials Science and Engineering A 881, (2023) 145415.
   Impact Factor - 5.234
3. R. N. Hajra, Manmath Kumar Dash, Woong Chua, A. N. Singhc , Kyung-Wan Namc and Jeoung Han Kim, High-temperature phase stability, $\gamma \rightarrow \delta$ transformation of ferritic/martensitic steel studied by differential scanning calorimetry and electron backscatter diffraction, Journal of Thermal Analysis and Calorimetry, 148 (9), (2023), pp. 3357-3371.
   Impact Factor – 4.755
4. R John, Manmath Kumar Dash, BS Murty and D Fabijanic, Effect of temperature and strain rate on the deformation behaviour and microstructure of Al0. 7CoCrFeNi high entropy alloy, Materials Science and Engineering A 856, (2022) 143933.
   Impact Factor - 5.234
5. TS Kumar, Manmath Kumar Dash and A Nagesha, Deformation and damage assessment in type 316 LN stainless steel weld joint under isothermal and thermomechanical cyclic loading, Materials Science and Engineering: A 849, (2022) 143494.
   Impact Factor - 5.234
6. Manmath Kumar Dash*, Evaluation of Boundary Interface Character as a Function of Annealing Temperature in 304HCu Stainless Steel, Metallurgical and Materials Transactions A 52 (4), (2021) 1180-1184.
   Impact Factor - 2.566
7. S. Julie, Manmath Kumar Dash, Nitin P. Wasekar, C. David and M. Kamruddin, Effect of annealing and irradiation on the evolution of texture and grain boundary interface in electrodeposited nanocrystalline nickel of varying grain sizes, Surface & Coatings Technology, 426 (2021) 1-17.
   Impact Factor – 4.158
8. Aritra Sarkar, Manmath Kumar Dash and A Nagesha, Mechanism of HCF-creep interaction in a type 316LN stainless steel, Materials Science and Engineering A, 825 (2021) 141841 1-9.
   Impact Factor - 5.234
9. S. Behera, Manmath Kumar Dash, N. K. Kumar, R. Mitra and G. Appa Rao, Microstructure and High-Temperature Tensile Behavior of Ni-Based Superalloy EP741NP for Aerospace Applications, Journal of Materials Engineering and Performance (2021) 1-11.
   Impact Factor – 1.819
10. Y. Kumar, Manmath Kumar Dash, A. Moitra, G. Sasikala and S. K. Albert, Experimental investigation of creep crack growth behavior in the heat affected zone of boron added modified 9Cr–1Mo steel weld, Materials Science and Engineering A 814, 141180 (2021).
    Impact Factor-5.234

11. T. S. Kumar, A. Nagesha, K. Mariappan and Manmath Kumar Dash, Deformation and failure behaviour of 316 LN austenitic stainless steel weld joint under thermomechanical low cycle fatigue in as-welded and thermally aged conditions, International Journal of Fatigue 106269 (2021).
    Impact Factor – 5.186
12. Manmath Kumar Dash*, S Saroja, R Mythili and A Dasgupta, Influence of Texture on Deformation Mechanism of Hot Extruded Oxide Dispersion Strengthened 18Cr Ferritic Steel, Journal of Materials Engineering and Performance 29 (10), (2020) 6881-6889.
    Impact Factor – 1.819
13. Manmath Kumar Dash*, H. P. Tripathy, S. Saroja and R. Mythili, Evaluation of deformation and recrystallization behaviour in oxide dispersion strengthened 18Cr ferritic steel, International Journal of Pressure Vessels and Piping 185, 104130 (2020) 1-11.
    Impact Factor – 2.028
14. Manmath Kumar Dash*, R. Mythili, R. John, S. Saroja and A. Dasgupta, Study of crystallographic texture evolution during high-temperature deformation of 18Cr-ODS ferritic steel based on plasticity assessment, Microscopy and Microanalysis 25(6) (2019) 1401-1406.
    Impact Factor – 3.414
15. Manmath Kumar Dash*, S. Saroja, R. John, R. Mythili and A. Dasgupta, EBSD study on processing domain parameters of oxide dispersion strengthened 18Cr ferritic steel, Journal of Materials Engineering and Performance 28 (2019) 263–272.
    Impact Factor – 1.819
16. T Sakthivel, G Sasikala and Manmath Kumar Dash, P S Rao, Creep deformation and rupture behaviour of P92 steel weld joint fabricated by NG-TIG welding process, Journal of Materials Engineering and Performance 28(7) (2019) 4364-4378.
    Impact Factor – 1.819
17. Manmath Kumar Dash*, R. Mythili, Rahul Ravi, T. Sakthivel, Arup Dasgupta, S. Saroja and S. R. Bakshi, Microstructure and mechanical properties of oxide dispersion strengthened 18Cr-ferritic steel consolidated by spark plasma sintering, Materials Science & Engineering A 736 (2018) 137–147.
    Impact Factor-5.234
18. Aritra Sarkar, Manmath Kumar Dash, A. Nagesha, Arup Dasgupta, R Sandhya and M Okazaki, EBSD based studies on various modes of cyclic deformation at 923 K in a type 316LN stainless steel, Materials Science & Engineering A 723 (2018) 229–237.
    Impact Factor-5.234
19. Manmath Kumar Dash*, R. Mythili, A. Dasgupta and S. Saroja, Study of Σ3 type CSL boundaries and its interactions in 304HCu grade austenitic stainless steel by electron backscatter diffraction technique, Metallurgical and Materials Transactions A 49 (2018), 2843-2853.
    Impact Factor - 2.566
20. Paulson Varghese, E. Vetrivendan, Manmath Kumar Dash, S. Ningshen, M. Kamaraj and U. Kamachi Mudali, Weld overlay coating of Inconel 617M on type 316L stainless steel by cold metal transfer process, Surface & Coatings Technology 357 (2018) 1004-1013.
    Impact Factor – 4.158
21. Manmath Kumar Dash*, T. Karthikeyan, R. Mythili, V.D. Vijayanand and S. Saroja, Effect of long-term thermal exposures on microstructure and impression creep in 304HCu Grade austenitic stainless steel. Metallurgical and Materials Transactions A 48 (2017) 4883-4894.
    Impact Factor-2.566
22. T. Karthikeyan, Manmath Kumar Dash, S. Saroja and M. Vijayalaksmi Effect of prior-austenite grain refinement on microstructure, mechanical properties and thermal embrittlement of 9Cr-1Mo-0.1C steel, Journal of Nuclear Material 494 (2017) 260-277.
    Impact Factor – 2.936

23. Manmath Kumar Dash, T. Karthikeyan and S. Saroja, Five-parameter grain boundary determination in annealed ferrite structure using electron backscatter diffraction and serial sectioning technique, Springer Trans IIM 70 (1) (2016) 133-143.
    Impact Factor – 1.499
24. T. Karthikeyan, Manmath Kumar Dash, S. Saroja and M. Vijayalakshmi, Estimation of martensite feature size in a low-carbon alloy steel by microtexture analysis of boundaries, Micron 68 (2015) 77–90.
    Impact Factor – 1.527
25. T. Karthikeyan, Manmath Kumar Dash, S. Saroja and M. Vijayalakshmi, Evaluation of misindexing of EBSD patterns in a ferritic steel, Journal of Microscopy 249 (2013) 26–35.
    Impact Factor – 1.758
26. T. Karthikeyan, Manmath Kumar Dash, S. Saroja and M. Vijayalakshmi, Evaluation of grain boundary in 9Cr-1Mo Steel after thermal and thermomechanical treatments, Metallurgical and Materials Transactions A 44 (4) (2013) 1673-1685.
    Impact Factor-2.566
27. Manmath Kumar Dash*, T. Karthikeyan, S. Saroja and M. Vijayalakshmi, Restitution of prior-austenite grain orientation by microtexture analysis of tempered martensite structure in 9Cr-1Mo ferritic steel, Materials Science Forum 702-703 (2012) 880-883.
    Impact Factor – 0.48
28. Y Kumar, Manmath Kumar Dash and A Moitra, Crystallographic slip transfer during creep crack growth in weldments of Fe-Cr-Ni-Mo (N) type steel, AIP Conference Proceedings 2265 (1), 030671 (2020).
    Impact Factor – 0.42
29. T Sreepriya, R Mythili, and Manmath Kumar Dash, Effect of microstructural changes on nanomechanical properties in P9 Ferritic/ Martensitic steel, AIP Conference Proceedings 2265 (1), 030016 (2020).
    Impact Factor – 0.42
30. Manmath Kumar Dash*, R. Mythili, A. Dasgupta and S. Saroja, Evaluation of interface boundaries in oxide dispersion strengthened 18Cr ferritic steel, American Institute of Physics (AIP) Conference Proceedings 2115(1) 030579 (2019).
    Impact Factor – 0.42
31. Manmath Kumar Dash*, R. Mythili, A. Dasgupta and S. Saroja, Optimization of consolidation parameters of 18Cr-ODS ferritic steel through microstructural and microtexture characterization, American Institute of Physics (AIP) Conference Proceedings 1942(1):140063 (2018).
    Impact factor – 0.42
32. Manmath Kumar Dash*, T. Karthikeyan and S. Saroja, Plasticity assessment based on Schmid factor in deformed 9Cr-1Mo steel, Advanced Materials Proceedings 2(5) (2017).
    Impact factor – 0.42
33. Manmath Kumar Dash*, T. Karthikeyan, A. Dasgupta and S. Saroja, Texture evolution during cold rolling and subsequent annealing in 18%-Cr ODS steel, Electron Microscopy and Allied Techniques ISBN 978 81 933428 1 7 (2017) 6-9.
    Impact factor - NA

2. Technical Reports on National Level

1. Under National Mission Programme on Adv-USC Technology: Project Completion Report under Pre-Project R&D for Development of Advanced Ultra Super Critical Boiler Materials, 30th April 2013.
2. Consolidation characteristics of 18Cr-ODS Ferritic Steel by Spark Plasma Sintering, IGC Annual Report, IGCAR, Kalpakkam (2017).

3. Overcoming texture issues in 18Cr ODS Ferritic Steel through modification of processing route, IGC News Letters, Department of Atomic Energy, India (2018).
4. Deformation and Recrystallization Behavior in Oxide Dispersion Strengthened 18Cr Ferritic Steel, IGC Annual Report, IGCAR, Kalpakkam (2018).
5. Controlling Texture in 18Cr ODS Steel through a Combination of Thermo-Mechanical Processing Steps, IGC Annual Report, IGCAR, Kalpakkam (2019).

3. Conference Presentation

1. Role of grain boundary on the deformation of micropillars, Manmath Kumar Dash*, Longfangdi Shi, Zhaoxuan Wu, Yu-Lung Chiu, Nanomechanical Testing in Materials Research and Development VIII An ECI Conference Series, 2-7th October 2022, Le Méridien Lav Split, Split, Croatia.
2. Stress field analysis near a grain boundary of a Ni-base superalloy during the micropillar compression, Manmath Kumar Dash*, Longfangdi Shi, Zhaoxuan Wu, Yu-Lung Chiu, Modern Practice in Stress and Vibration Analysis (MPSVA 2022), 12-14th July 2022, St Anne's College, Oxford.
3. Study of characteristic morphology of martensitic sub-structure boundary in 9Cr-1Mo-0.1C steel using EBSD microtexture data, Manmath Kumar Dash*, R Mythili and Arup Dasgupta, 12th Asia-Pacific Microscopy Conference (APMC-2020).
4. Microtexture characterization of similar weldments of 304HCu Austenitic Stainless Steel and Alloy 617M, Manmath Kumar Dash*, National Conference on Advanced Ultra Super Critical Technology 2019 (AUSC 2019), Hyderabad.
5. Influence of Thermal Aging Treatment on Microstructure and Nano-Mechanical Properties of 304HCu Austenitic Stainless Steel, Manmath Kumar Dash*, National Conference on Advanced Ultra Super Critical Technology 2019 (AUSC 2019), Hyderabad.
6. Consolidation characteristics of 18Cr ODS ferritic steel by spark plasma sintering, Manmath Kumar Dash*, R. Mythili, Rahul Ravi, T. Sakthivel, Arup Dasgupta, S. Saroja, Srinivasa Rao Bakshi, International conference on electron microscopy, EMSI-2018, Bhubaneswar.
7. Study of kinetics of secondary phase precipitation in 18Cr ferritic steel using JMatPro@ simulation, Manmath Kumar Dash*, R. Mythili, Arup Dasgupta, S. Saroja, RSM-MSENM-2018, Kalpakkam.
8. Microstructural evolution in Spark Plasma Sintered 9Cr - ZrO2 dispersion strengthened steel with prolonged high temperature exposure, Raghavendra K. G., Arup Dasgupta, Manmath Kumar Dash, Karthiselva N. S., Jayasankar V and Srinivasa Rao Bakshi, International conference on electron microscopy, EMSI-2018, Bhubaneswar.
9. EBSD Microtexture Analysis of Tempered Martensite Microstructure of Steel to Predict Prior-Austenite, T. Karthikeyan, Manmath Kumar Dash*, S. Saroja and M. Vijayalakshmi, International conference on electron microscopy, EMSI-2015, Mumbai.
10. SEM/EBSD Characterization and Serial Sectioning Study of Grain Boundaries in a 9Cr-1Mo Steel, Manmath Kumar Dash*, T. Karthikeyan and S. Saroja, International conference on electron microscopy, EMSI-2014, Delhi.
11. Development of 304HCu Stainless Steel for the Indian Advanced Ultra Super-Critical Thermal Power Plant Programme, A.K. Bhaduri, T. Jayakumar, K. Laha, V. Ganesan, M. Nandagopal, Saroja Saibaba, S. Raju, P. Parameswaran, Manmath Kumar Dash, Dipti Samantaray, Utpal Borah, H.C. Dey, G. Srinivasan, S.K. Albert, G. Sasikala, M. Nani Babu, S. Venugopal, A. Moitra, Theme Meeting on 'Stainless Steels for Power Sector', 20-21 October 2013, IGCAR, Kalpakkam.
12. Sub-structure Boundary Analysis of Martensite Microstructure in 9Cr-1Mo Steel, Manmath Kumar Dash*, T. Karthikeyan, S. Saroja and M. Vijayalakshmi, Thematic Workshop on "Physics

of phase transitions", October 24-25, 2013 at UGC-DAE Consortium for Scientific Research, Indore.

13. Evaluation of pseudo-symmetry EBSD patterns in a bcc alloy, T. Karthikeyan, Manmath Kumar Dash*, S. Saroja and M. Vijayalakshmi, International conference on Electron Microscopy, EMSI-2012, Bangalore.
14. Crystallographic characterization of tempered martensite produced in slower kinetics of displacive transformation in 9Cr-1Mo ferritic steel. Manmath Kumar Dash*, T. Karthikeyan, S. Saroja and M. Vijayalakshmi, STEM-2010 IGCAR, Kalpakkam, India.
15. Study of microstructure and grain boundary distribution in displacive and diffusional transformation of 9cr-1Mo steel. Manmath Kumar Dash*, T. Karthikeyan, S. Saroja and M. Vijayalakshmi, NMD-ATM-2010 IIM, Bangalore, India.
16. Study of grain structure evolution in thermally aged improved D9 alloy by SEM-EDS-EBSD. M. Radhika, J. Prem Kumar, Manmath Kumar Dash*, T. Karthikeyan, P.Parameswaran, S. Saroja, M. Vijayalakshmi, T. Johnson, STEM-2010, IGCAR, Kalpakkam, India.

Google Scholar:
https://scholar.google.co.in/citations?hl=en&user=0mTD52sAAAAJ&view_op=list_works&sortby=pubdate
Research Gate:
https://www.researchgate.net/profile/Manmath-Dash
LinkedIn:
https://www.linkedin.com/in/dr-manmath-kumar-dash-14a60125/?originalSubdomain=uk
Web-profile:
https://www.manit.ac.in/content/dr-manmath-kumar-dash