Faculty Profile: For University Website

DEPARTMENT OF METALLURGICAL & MATERIALS ENGINEERING

Personal Information	Dr. Sumit Kumar Department of Metallurgical & Materials Engineering Mobile: 8979308005 Email Id: kumar.nitr@gmail.com Orcid id: 0000-0001-6703-5361 Research gateID: https://www.researchgate.net/profile/Sumit_Kumar186 Publons ID: ABD-9711-2020 (Web of Science Researcher ID) GoogleScholar: https://scholar.google.co.in/citations?user=a24zAxEAAAAJ&hl=en	
Educational Qualification:	• Ph. D. (2021), Indian Institute of Technology, Roorkee, U.K, India • M. Tech. (2014), Indian Institute of Technology, Roorkee, U.K, India • B. Tech (2009), National Institute of Technology, Rourkela, Orissa, India	
Courses Taught:	• Materials science and Engineering • Materials characterization • Thermodynamics of Materials • Iron and Steel Making Technology • Materials Processing • Physical Metallurgy and Heat treatment • Materials for strategic Applications	
Additional role/ responsibility:	1. Faculty advisor (2022, NIT Jamshedpur), 2. Member of Institute Research Committee (2017-18, IIT Roorkee). 3. Student coordinator at the international conference, AMPCO 2017, IIT Roorkee	
Awards & Honours	"Certificate of Appreciation" international conference on "Advance in materials and processing: Challenges and opportunity. AMPCO 2017, IIT Roorkee	
Research Area:	Hot deformation; Thermomechanical processing; Microstructural characterization, Physical metallurgy; Phase transformation; ANN modelling and simulation.	

Brief introduction:	Dr. Sumit kumar having teaching as well as industrial experience which make him sound for teaching and Research. He gained the experience on properties development of metallic materials by conventional heat treatment process and surface hardening process. During his research, he is not only familiar with conventional methods to develop mechanical and microstructural properties of metallic materials but also learned and introduce modeling and simulation in his work to determine desirable processing parameters for the manufacturing as industrial use. Dr. S. Kumar has gained good expertise to operate some of the sophisticated instruments like Thermomechanical simulator (Gleeble3800) and FE-SEM (FEI Quanta 200 FEG) with EBSD attachment, Slurry pot tester, Profilometer, and Pin on disk. It is noteworthy that he has efficiently converted his research enthusiasm into top-peered publications and participated in international conferences and workshop. In addition to these, Dr. Sumit Kumar also trained the next generation of engineering students and research scholars.
Articles Published/ Submitted:	Total Publications (7) 1. Hafeez Shekh, Sumit Kumar, S.K. Nath, Hot Deformation Behavior of Medium Carbon Low Alloy Steel Using Arrhenius and ANN Modeling Methods, Springer Proceedings in Physics book series (SPPHY) 293, pp. 97–103, year 2023. 2. Sumit Kumar, A. Karmakar, S.K. Nath, Construction of hot deformation processing maps for 9Cr- 1Mo steel through conventional and ANN approach, Materials Today Communications, Volume 26, pp.101903. year 2021. doi:10.1016/j.mtcomm 3. Sumit Kumar, A. Karmakar, S.K. Nath, Comparative Assessment on the Hot Deformation Behaviour of 9Cr–1Mo Steel with 1Cr–1Mo Steel, Metals and Materials International, volume 27, pp. 3875-3890, Issue 2021. doi:10.1007/s12540-020-00826- 2. 4. S. Manjunath Yadav, Sumit Kumar, V. Pancholi, S.K. Nath, Effect of thermal cycling on microstructure and hardness of carbon steel, IOP Conf. Ser. Mater. Sci. Eng. 1145 (2021) 012081. doi:10.1088/1757-899x/1145/1/012081. 5. Sumit Kumar, S.K. Nath, Critical condition parameters and kinetics of dynamic recrystallization for hot deformed 1 wt%Cr-1 wt%Mo rotor steel, Materials Research Express, Volume 7, Issue 2020. doi:10.1088/2053-1591/ab731b.

	6. D. Kumar, S. Kumar, S.K. Nath, A.N.N. Modeling, Materials Performance and Characterization Study on Hot Deformation Behavior of High Carbon Low Alloy Steel by Constitutive and ANN Modeling and Development of Processing Maps, volume 9, year 2020. doi:10.1520/MPC20190036. 7. Sumit Kumar, G.P. Chaudhari, S.K. Nath, Critical Conditions for Dynamic Recrystallization of Hot Deformed 1 wt% Chromium - 1 wt% Molybdenum Rotor Steel, Materials Performance Characterization, Volume 8, year 2019. doi:10.1520/mpc20190022. **Submitted (1)** 1. Sumit Kumar, J. Singh, S.K. Nath, Induction surface hardened 45C8 carbon and EN47 spring steels for the wear resistant applications, (submitted to Journal of Tribology) TRIB-23-1444.
Seminar/ Workshop/ Conference Participation:	**International Conference/Workshop** • International conference on "Advance in materials and processing: Challenges and opportunity, AMPCO, 2017, MMED, IIT Roorkee. • 7th Gleeble User Workshop "GUWI 2018", MMED, IIT Roorkee. • International conference on "Advance in materials and processing: Challenges and opportunity, AMPCO, 2022, MMED, IIT Roorkee.
Any other information:	**Instruments Experienced to operate** • Thermomechanical simulator (GLEEBLE 3800) (Operational and Maintenance) • FE-SEM (FEIQuanta 200 FEG) • TSLOIM Analysis 7 • Leica DMI5000 optical microscope, • Profilometer, Slurry pot tester, Pin on disk, • Analysis Thermocalc software
Updated as on	09th April 2024