Dr. Nand Kishor Kumar (Ph.D. IIT Kharagpur)

Assistant Professor

Room No. MC 24, Metallurgical Engineering, BIT Sindri–828123

Citizenship: Indian ▪ **Date of birth:** 8th Jan1986

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Education

Degree	Institute	Passing Year
Ph.D. in Metallurgical and Materials Engineering	IIT Kharagpur	2020
M. Tech. in Metallurgical and Materials Engineering	IIT Kharagpur	2013
B. Tech. in Metallurgical Engineering	BIT Sindri, Dhanbad	2010

Ph. D. Thesis work :- *23rd December 2013 to 23rd December 2019*

Title of Thesis: - **Effect of Zr and Fe addition on oxidation behavior of arc-melted or spark plasma sintered Mo-Si-B alloys in dry or moist air**

Organization: - Metallurgical and Materials Engineering, Indian Institute of Technology Kharagpur–721302 (W. B.), India

M. Tech. Thesis work :-

Title of Thesis: - **Evolution of homogeneity in nanostructured α-brass upon cryorolling**

Organization: - Metallurgical and Materials Engineering, Indian Institute of Technology Kharagpur–721302 (W. B.), India

B. Tech. Thesis work :-

Title of Thesis: - **Beneficiation of coal at Patherdih Coal Washery**

Organization: - Metallurgical Engineering, Birsa Institute of Technology Sindri–828123, (Jharkhand), India

Research Experience:- *31st October 2013 to 25th September 2016*

Organization: - **Indian Institute of Technology Kharagpur**–721302 (W. B.), India

Designation: - Senior Research Fellow (SRF), Sponsored Project of DRDO, Ministry of Defence, Government of India

Area of Research: - Oxidation and Creep of Molybdenum Silicides

Department: - Metallurgical and Materials Engineering

Teaching Experience:- *9th July 2013 to 29th October 2013*

Organization: - **Maulana Azad National Institute of Technology Bhopal**–462051 (M. P.), India

Designation: - Assistant Professor (on contract)

Area of Teaching: - Extractive Metallurgy

Department: - Materials Science and Metallurgical Engineering

Industrial Experience :- *15th June 2010 to 19th July 2011*

Organization: - **Usha Martin Limited, Jamshedpur**–832108, Jharkhand, India

Designation: - Graduate Engineer Trainee (GET)

Area of Work: - Operation: Tapping, Charging, Control Room, PCM, PCI, RMHS

Department: - Mini Blast Furnace (MBF)

Fellowship/Assistantship:

- **Teaching Assistantship** during Ph.D. at IIT Kharagpur, Government of India, 2018–2019
- **MHRD Scholarship** during Ph.D. at IIT Kharagpur, Government of India, 2016–2018

- **SRF** during Ph.D. at IIT Kharagpur, Sponsored Project of DRDO, Ministry of Defence, Government of India, 2013–2016

MHRD Scholarship during M. Tech. at IIT Kharagpur, Government of India, 2011–2013

Publications: Journals

1. S. Behera, M.K. Dash, **N.K. Kumar,** R. Mitra, G. Appa Rao, Microstructure and High Temperature Tensile Behaviour of Ni-Base Superalloy EP741NP for Aerospace applications" *J. Materials Engineering and Performance* 30 (2021) 5834–5844.
2. **N.K. Kumar**, J. Das, R. Mitra, Effect of moist air and minor Zr addition on oxidation behavior of arc–melted multiphase Mo–Si–B alloys in the temperature range of 1000 °C–1300 °C, *Oxidation of Metals* 93 (2020) 483–513.
3. **N.K. Kumar**, R. Mitra, J. Das, Effect of moist environment on the oxidation behavior of $Mo_{76-x}Si_{14}B_{10}Fe_x$ (x = 0, 0.5, 1 at.%) ultrafine composites in the range of 700–800 °C, *Corrosion Science* 155 (2019) 86–96.
4. **N.K. Kumar**, R. Mitra, J. Das, Effect of Fe addition and moist environment on the high temperature oxidation behaviour of $Mo_{76-x}Si_{14}B_{10}Fe_x$ (x = 0, 0.5, 1 at.%) composites, *Intermetallics* 111 (2019) 106498.
5. **N.K. Kumar**, J. Das, R. Mitra, Effect of Zr addition on microstructure, hardness and oxidation behavior of arc-melted and spark plasma sintered multiphase Mo–Si–B alloys, *Met. Mat. Trans. A* 50 (2019) 2041–2060.
6. R. Gupta, S. Srivastava, S.K. Panthi, **N.K. Kumar**, Multidirectional Forging of High-Leaded Tin Bronze: Evaluation of Corrosion Behavior in Aqueous NaCl Solution, *Metallogr. Microstruct. Anal.* 7 (2018) 11–25.
7. **N.K. Kumar**, B. Roy, R. Mitra, J. Das, Improvement of oxidation resistance of arc-melted $Mo_{76}Si_{14}B_{10}$ by microstructure control upon minor Fe addition, *Intermetallics* 88 (2017) 28–30.
8. J. Das, B. Roy, **N.K. Kumar**, R. Mitra, High temperature oxidation response of Al/Ce doped Mo–Si–B composites, *Intermetallics* 83 (2017) 101–109.
9. R. Gupta, S. Srivastava, S.K. Panthi, **N.K. Kumar**, Multidirectional Forging of High-Leaded Tin Bronze: Effect on Wear Performance, *Metallogr. Microstruct. Anal.* 6 (2017) 577–590.
10. R. Gupta, S. Srivastava, **N.K. Kumar**, S.K. Panthi, High leaded tin bronze processing during multi-directional forging: Effect on microstructure and mechanical properties, *Mat. Sci. Eng. A* 654 (2016) 282–291.
11. **N.K. Kumar**, B. Roy, J. Das, Effect of twin spacing, dislocation density and crystallite size on the strength of nanostructured α–brass. *J. Alloys Comp*. 618 (2015) 139–145.
12. B. Roy, **N.K. Kumar**, P.M.G. Nambissan, J. Das, Evolution and interaction of twins, dislocations and staking faults in rolled α-brass during nanostructuring at sub-zero temperature, *AIP Advances* 4, 067101 (2014) 1–8.

Conferences

1. **N.K. Kumar**, J. Das, R. Mitra, Effect of Zr addition on the oxidation behavior of spark plasma sintered multiphase Mo–Si–B alloy in the range of 700–1300 °C in dry and moist air, *IUMRS ICYRAM 2016*, 11–15 December 2016, IISc Bangalore, India.
2. **N.K. Kumar**, B. Roy, J. Das, R. Mitra, Effect of Fe on the oxidation behaviour of multiphase $Mo_{76}Si_{14}B_{10}$ alloy in the temperature range of 700–800 °C in dry and moist air, *NMD ATM 2016*, 11–14 November 2016, IIT Kanpur, India.
3. **N.K. Kumar**, J. Das, R. Mitra, Effect of Zr addition on the oxidation behaviour of spark plasma sintered multiphase Mo–Si–B alloy at 700–800 °C, *ICAMMP 2016*, 5–7 November 2016, IIT Kharagpur, India.
4. B. Kumari, **N.K. Kumar**, R. Mitra, Effect of Fe addition on the initial stage of oxidation behaviour of multiphase Mo–Si–B alloy at 1150 °C, *ICAMMP 2016*, 5–7 November 2016, IIT Kharagpur, India.
5. R. Mitra, **N.K. Kumar**, J. Das, Effect of Zr Addition on oxidation behavior of Mo–Si–B alloys in dry and moist environments, *Materials Science & Technology 2016*, 23–27 October 2016, Salt Lake City, UT, USA.
6. **N.K. Kumar**, B. Roy, J. Das, R. Mitra. Effect of Fe addition on the oxidation behaviour of multiphase $Mo_{76}Si_{14}B_{10}$ alloy at 1300 °C in dry and moist air, *CORCON 2016*, 18–21 September 2016, The Leela ambience convention hotel, Delhi India.

7. **N.K. Kumar**, J. Das, R. Mitra, Oxidation behaviour of Mo–Si–B and Mo–Si–B–Zr alloys in the temperature range of 700–800 °C in dry and moist air, *RSD 2016*, 27th February 2016, IIT Kharagpur, India.
8. **N.K. Kumar**, J. Das, R. Mitra, Microstructure and creep behaviour upon oxidation of spark plasma sintered multiphase Mo–Si–B and Mo–Si–B–Zr composites, *CORCON 2015*, 19–21 November 2015, Chennai Trade Center, Chennai, India.
9. **N.K. Kumar**, J. Das, R. Mitra, Effect of Zr addition on the microstructure, hardness and oxidation behaviour of arc–melted multiphase Mo–Si–B composites, *NMD ATM 2015*, 13–16 November 2015, PSG College of Technology, Coimbatore, India.
10. B. Roy, **N.K. Kumar**, P.M.G. Nambissan, J. Das, Evolution and interaction of defects in nanostructured α–brass processed through cryorolling, *NMD ATM 2014*, 12–15 November 2014, College of Engineering, Pune, India.
11. B. Roy, **N.K. Kumar**, J. Das, Evolution of homogeneity in nanostructured α–brass upon cryorolling, *NMD ATM 2013*, 12–15 November 2013, IIT (BHU), Varanasi, India.