

Curriculum Vitae

PERSONAL DETAILS

Name Barna Roy

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Engineering, NIT Durgapur

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WORK EXPERIENCE

Assistant Professor Department of Metallurgy & Materials Engineering, **National**
(Aug 22-till now) **Institute of Technology Durgapur, Durgapur, India-713209**

**IOE-IISC Post-
Doctoral Fellow** Department of Materials Engineering, **Indian Institute of**
(Oct 20- July 22) **Science, Bangalore, India – 560012**

**Guest Assistant
professor** Department of Metallurgy & Materials Engineering, **Indian**
(Sep 18- Dec 19) **Institute of Engineering Science and Technology, Shibpur,**
Howrah, India-711103

EDUCATION

PhD Department of Metallurgical and Materials Engineering, **Indian**
(Jul 2012 – July 2018) **Institute of Technology, Kharagpur, India-721302**

M.Tech. Department of Metallurgical and Materials Engineering, **Indian**
(Jul 2010 – Apr 2012) **Institute of Technology, Kharagpur, India-721302**

B.E. Department of Metallurgical and Materials Engineering, **Indian**
(July 2006 – Jun 2010) **Institute of Engineering Science and Technology, Shibpur, India-**
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RESEARCH INTEREST

Bulk nanostructured metals/alloys; Microstructure-mechanical property relationships in microcrystalline and nanocrystalline metals/alloys; Deformation behavior of metals/alloys; Material characterization; High temperature oxidation resistance materials. Thermal stabilizations

TECHNOLOGY TRANSFER/PUBLICATIONS/PRESENTATIONS

Technology Transfer- 1

1. F Hijazi, **B Roy**, N K Eswaramoorthy D Srinivasan, P Kumar, V Jayaram, Electro polishing of Ti6Al4V Alloy for Polarized Light Microscopy and Electron Back Scattered Diffraction, SOP Number: PWRDC #004_2022, August 2022.

Journal- 14

List of Journals (<https://scholar.google.co.in/citations?user=AX8UPBoAAAAJ&hl=en>)

1. K Sikdar, A Mahata, **B Roy***, D Roy, Thermokinetic stabilisation of nanocrystalline Cu by ternary approach, *Philosophical Magazine* (2022) 1-16 (**Impact Factor 1.95**) doi.org/10.1080/14786435.2022.2122618
2. K Sikdar, **B Roy***, A Mahata, D Roy, Enhanced thermal stability of nanocrystalline Cu-Al alloy by nanotwin and nanoprecipitate, *Journal of Alloys and Compounds* 922 (2022) 166273 (**Impact Factor-6.4**) doi.org/10.1016/j.jallcom.2022.166273
3. F Hijazi, D Srinivasan, **B Roy**, P Kumar, V Jayaram, Micro-texture regions in rolled Ti-6Al-4V under polarized light. *Scripta Materialia*. 213 (2022) 114588 (**Impact Factor-6.3**), doi.org/10.1016/j.scriptamat.2022.114588.
4. K. Sikdar, A. Mahata, **B. Roy***, D. Roy, Hybrid thermal stabilization of Zr doped nanocrystalline Cu. *Materials & Design*. 164 (2019) 107564. (**Impact Factor-9.4**), doi.org/10.1016/j.matdes.2018.107564.
5. **B.Roy**, J.Das, Strengthening face centered cubic crystals by annealing induced nano-twins. *Scientific Reports*. 7:17512 (2017) 1-8. (**Impact Factor-4.4**), doi.org/10.1038/s41598-017-17848-3, doi.org/10.1038/s41598-017-17848-3.
6. N. K. Kumar, **B. Roy**, J. Das, R. Mitra, Improvement of oxidation resistance of arc-melted Mo76Si14B10 by microstructure control upon minor Fe addition. *Intermetallics*. 88 (2017) 28-30. (**Impact Factor-4.1**) , doi.org/10.1016/j.intermet.2017.05.004
7. 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. (**Impact Factor-4.1**), doi.org/10.1016/j.intermet.2016.12.013
8. **B. Roy**, T. Maity, J. Das, Tuning of nanostructure by the control of twin density, dislocation density, crystallite size, and stacking fault energy in $\text{Cu}_{100-x}\text{Zn}_x$ ($0 \leq x \leq 30$ wt%). *Materials Science and Engineering A*. 672 (2016) 203-215. (**Impact Factor-6.0**), doi.org/10.1016/j.msea.2016.07.016
9. **B. Roy**, R. Kumar, J. Das, Effect of cryorolling on the microstructure and tensile properties of bulk nano-austenitic stainless steel. *Materials Science and Engineering A*. 631 (2015) 341-347. (**Impact Factor-6.0**), doi.org/10.1016/j.msea.2015.02.050

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10. T. Maity, **B. Roy**, J. Das, Mechanism of lamellae deformation and phase rearrangement in ultrafine β -Ti/FeTi eutectic composites. **Acta Materialia**. 97 (2015) 170-179. (**Impact Factor-9.2**) , doi.org/10.1016/j.actamat.2015.07.007
11. N. K. Kumar, **B. Roy**, J. Das, Effect of twin spacing, dislocation density and crystallite size on the strength of nanostructured α -brass. **Journal of Alloys & Compounds**. 618 (2015) 139–145. (**Impact Factor-6.4**) , doi.org/10.1016/j.jallcom.2014.08.131
12. **B. Roy**, N. K. Kumar, P. M. G.Nambissan, J. Das, Evolution and interaction of twins, dislocations and stacking faults in rolled α -brass during nanostructuring at sub-zero temperature. **AIP Advances**. 4 (2014) 067101. (**Impact Factor-1.7**), doi.org/10.1063/1.4881376
13. **B. Roy**, Khushboo, J. Das, R. Mitra, S.K. Roy, Effect of oxygen partial pressure on the cyclic oxidation behavior of $\text{Mo}_{76}\text{Si}_{14}\text{B}_{10}$. **Metallurgical & Materials Transactions A**. 44A (2013) 2910-2913. (**Impact Factor-2.6**), doi.org/10.1007/s11661-013-1756-1
14. **B. Roy**, J. Das, R. Mitra, Transient stage oxidation behavior of $\text{Mo}_{76}\text{Si}_{14}\text{B}_{10}$ alloy at 1150 °C. **Corrosion Science**. 68 (2013) 231-237. (**Impact Factor-7.7**), doi.org/10.1016/j.corsci.2012.11.021

Conference Proceedings /Talks/Poster – 12

List of Conferences

1. **B. Roy**, J. Das, R. Mitra, Mechanism of oxidation in Mo-Si-B based alloys at 1150 °C, CORCON, International Corrosion Conference & Expo, 2012, 26-29 September 2012, Goa, India (Oral-presentation).
2. **B. Roy**, J. Das, R. Mitra, Oxidation behavior of Mo-Si-B based alloy at 1150 °C, 50th National Metallurgist Day (NMD) Conference and 66th Annual Technical Meeting (ATM), 2012, 16-19 November 2012, Jamshedpur, India (Poster-presentation).
3. **B. Roy**, N. K. Kumar, J. Das, “Evolution of homogeneity in nanostructured α -brass upon cryorolling”, 51th National Metallurgist Day (NMD) Conference and 67th Annual Technical Meeting (ATM), 2013, 12-15 November 2013, IIT BHU, Varanasi, India (Oral-presentation).
4. **B. Roy**, J. Das, “Evolution of nanostructured α -brass upon cryorolling”, Research Scholar Day, 2014, 24th March 2014, IIT Kharagpur, India (Poster and oral-presentation).
5. **B. Roy**, N.K. Kumar, P.M.G. Nambissan, J. Das, “Evolution and interaction of defects in nanostructured α -brass processed through cryorolling”, 52th National Metallurgist Day (NMD) Conference and 68th Annual Technical Meeting (ATM), 2014, 12-15 November 2014, College of Engineering Pune, Pune, India (Oral-presentation).
6. **B. Roy**, N.K. Kumar, P.M.G. Nambissan, J. Das, “Evolution and interaction of defects in nanostructured α -brass processed through cryorolling”, Research Scholar Day, 2015, 21st March 2015, IIT Kharagpur, India (Oral-presentation).

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7. **B. Roy**, R.Kumar, J. Das, “Effect of cryorolling on the microstructure and tensile properties of bulk nano-austenitic stainless steel”, Research Scholar Day, 2016, 21st March 2016, IIT Kharagpur, India (Oral-presentation).
8. N. K. Kumar, **B. Roy**, J. Das, R. Mitra, “Effect of Fe on the oxidation behaviour of multiphase $\text{Mo}_{76}\text{Si}_{14}\text{B}_{10}$ alloy at 1300 °C in dry and moist air” CORCON, International Corrosion Conference & Expo, 2016, 18-21th September 2016, Delhi, India (Oral-presentation).
9. **B. Roy**, J. Das, “Evolution and interaction of structural defects during nanostructuring in $\text{Cu}_{100-x}\text{Zn}_x$ ($0 \leq x \leq 30$) alloys rolled at cryogenic temperature.” iCAMMP-IV, International Conference On Advances In Materials & Materials Processing, 2016, 5-7 November 2016, IIT Kharagpur, Kharagpur, India. (Oral-presentation).
10. **B. Roy**, J. Das, “Effect of stacking fault energy on the evolution of structural defects and their interaction during nanostructuring in $\text{Cu}_{100-x}\text{Zn}_x$ ($0 \leq x \leq 30$ wt.%) alloys. ” 54th National Metallurgist Day (NMD) Conference and 70th Annual Technical Meeting (ATM), 2016, 11-14 November 2016, IIT Kanpur, Kanpur, India. (Poster-presentation).
11. N. K. Kumar, **B. Roy**, J. Das, R. Mitra, “Effect of Fe on the oxidation behaviour of multiphase $\text{Mo}_{76}\text{Si}_{14}\text{B}_{10}$ alloy at 900 °C in dry and moist air” 54th National Metallurgist Day (NMD) Conference and 70th Annual Technical Meeting (ATM), 2014, 11-14 November 2016, IIT Kanpur, Kanpur, India. (Oral-presentation).
12. **B. Roy**, A. K. Rout, F. Hijazi, V. Venkatesh, V. Jayaram, P. Kumar, D. Srinivasan, Polarization Light Microscopy for Characterizing Micro-Texture in Unidirectionally Rolled Ti64 Plate – Structure Property Correlations, 59th NMD and 75th ATM, 13th Nov 2021 : International Conference Virtual (Oral)

AWARDS & HONORS

- 1st prize for Poster Presentation in National Metallurgist Day, Nov. 16-19, 2012, Jamshedpur.
- 1st prize for Oral Presentation in Research Scholar Day, March 24, 2014, IIT Kharagpur.
- 1st prize for Oral Presentation in Research Scholar Day, March 21, 2015, IIT Kharagpur.

PEER REVIEW

- Transactions of the Indian Institute of Metals