Curriculum Vitae

Dr. Debdas Roy

Professor

Materials and Metallurgical Engineering Department
National Institute of Advanced Manufacturing Technology (Formerly NIFFT)
Hatia, Ranchi-834003
Jharkhand, India, Mobile: +91-7765963021. +91-9470358294
Email: droy2k6@gmail.com. debdasroy@niamt.ac.in
h-index- 17, **i10-index**- 29
https://scholar.google.co.in/citations?user=EHXLiHUAAAAJ&hl=en
Website: https://debdasroy.wordpress.com

Research Experience

- **Postdoctoral Research Fellow (Indo-US Research program) August 2011 to August 2012**
  Material Science & Engineering Department North Carolina State University, Raleigh, USA
- **Visiting Postdoctoral Fellow- May 2009 to July 2009 (on leave from NIFFT)**
  Mechanical and Manufacturing Engineering Departmen University of Manitoba, Winnipeg, Manitoba, Canada R3T2N2
- **Research Associate, (April-2007 to July2007)**
  Polish Academy of Sciences, Institute of High Pressure Physics (UNIPRESS), Sokolowska 29/37, Warsaw 01-142, Poland

Education

- **PhD in Engineering, Indian Institute of Technology, Kharagpur, (Materials and Metallugical Engineering) -2008**

Thesis: Synthesis and characterization of nano ceramic/intermetallic dispersed Al – rich amorphous/nanocrystalline matrix composite.

Short Term Course

1. MHRD/AICTE Sponsored summer school course on "Nanoelectronics; Science, Nanotechnology, Engineering and Applications" –07th July to 19th July 2008. Organized by Material Science Center, IIT, Kharagpur, Kharagpur-721302.

2. NRC-M Summer School on Mechanical Property Characterization – 14th June to 2nd July-2010 Organized by UGC Networking Resource Centre for Materials
Department of Materials Engineering Indian Institute of Science
Bangalore 560 012

3. NRC-M Summer work shop on Principle and Techniques of X-Ray Diffraction– 10th June to 21st June-2013 Organized by UGC Networking Resource Centre for Materials
Department of Materials Engineering Indian Institute of Science
Bangalore 560 012

4. AICTE Sponsored Course on Nanostructured Carbon: Fuel Cell Application. -30th September 2013 to 4th October 2013. Organised by Advanced Nanoengineering Materials Laboratory, Department of Electrical and Materials Science Programme, Indian Institute of Technology, Kanpur, India.

Research Area / Interest

Nano structure Material, Nano Material, Biomaterial (Synthesis, Consolidation, and Characterization), Alloy design, Solidification

Professional experience

- **Professor (May 2022 to till date)**

Metallurgical and Materials Engineering Department
National Institute of Foundry and Forge Technology
Hatia, Ranchi-834003 India
Nature of Work: *Teaching and Research*

- **Associate Professor (May 2019 to May 2022)**

Metallurgical and Materials Engineering Department
National Institute of Foundry and Forge Technology
Hatia, Ranchi-834003 India
Nature of Work: *Teaching and Research*

- **Assistant Professor (March 2008 to May 2019)**

Metallurgical and Materials Engineering Department
National Institute of Foundry and Forge Technology

Hatia, Ranchi-834003 India
Nature of Work: *Teaching and Research*

- **Metallurgical Engineer,**

Titagarh Industries Ltd (Steel Foundry Division)
Titagarh, North 24Pgs, W.B, India.
Nature of Work: *Heat treatment of different Alloy steel (Plan Carbon Steel, Mn-Steel, Armour Steel), Microstructure analysis, Mechanical Testing.*

Distinctions and Award

- **1st Prize Best paper presentation**. 3rd International Conference on Innovative Research in Science, Technology, Agriculture, Environment, Business Management and Humanities (**STAEBM-2023)**, 13th -14th May-2023, NIT, Srinagar, Jammu and Kashmir-190006
- **INAE Summer research fellowship 2019**
- **INAE Summer research fellowship 2014**
- **Best paper award- 2012 IIM, Ranchi Chapter.**
- ♦**Indo-US Research Fellowship award 2011**
- ♦**2010 Young Metallurgist of the year"** Award instituted by Ministry of Steel, Govt of India
- ♦**Selected Associate 2009 Indian Academy of Sciences, Bangalore**
- ♦**"IEI Young Engineers Award-2008" in the field of Metallurgical and Materials Engineering by the Institution of Engineers (India), Kolkata**
- ♦**1st Prize, Poster presentation, NMD-ATM-2008, Deihi, India**
- **1st Prize, Metallography contest, NMD-ATM-2006, Jamshedpur, India**
- ♦**3rd Prize, Oral Presentation, NMD-ATM-2009, Kolkata**

Patent (Indian) Granted

1. Patent: Indian: Patent No: 390367, **Title:** A Bone Implant System **Application No:** 2464/DEL/2013, **Application Date:** 20/08/2013, **Date of Grant:** 25/02/2022

2. Patent: Indian: Patent No: 409157-001, **Title:** Silica Coated Melting Oven For Production of Metal Artifacts **Application Date:** 29/02/2024, **Date of Issue:** 26/04/2024

3. Patent: Indian: Patent No: 411989-001, **Title:** Carbon Coated Face Mask. **Application Date:** 29/03/2024, **Date of Issue:** 16/05/2024

4. **Patent:** Indian: Patent No. 496959, **Title:** A Process to Produce Ductile Iron (DI) Pipes with Superior Machinability and Mechanical Properties. **Application Date:** 06/12/2016, Date of Grant: 10/01/2024

Patent (Indian) Filed

1. **Patent:** Indian: Patent Application Number. 202431017158, **Title:** A Powder Extrusion Machine. **Application Date:** 10/03/2024.

Book and Book Chapter publication

1. Title: **Fabrication of Bulk Components from Mechanically Alloyed Powders**
   Authors: **Dr. Debdas Roy**
   Book: "**Powder Metallurgy and Additive Manufacturing: Fundamentals and Advancements"**
   Publisher: **ASM International (2024)**

2. Title: **Processing and Characterization of Materials**
   Authors (Eds): Dr.Snehanshu Pal, **Dr. Debdas Roy,** Dr. Sudip Kumar Sinha
   Publisher: **Springer (2021)**

3. Chapter: **Consolidation of Mechanically Alloyed Products /Powders**
   Book: "**Handbook of Mechanical Nanostructuring**"-
   Authors: **Dr. Debdas Roy,**
   Publisher: **Wiley-VCH, Edition (2015)**

Short term/Refresher Course Organized

1. **AICTE Training and Learning (ATAL**) Academy Sponsored Faculty development Programm (FDP) on "Advanced Remanufacturing Technology" from 12/12/2022 to 23/12/2022
2. One week Refreshers Course on "**Materials Characterization and Quality Control**" 2012
3. One week Short term Course on " **Metallurgy and Heat Treatment" 2010**

Seminar and Work shop Organized

1, one day Workshop organized on "**Advance Materials Technology**" March 2013

2. National Conference on "**Emerging Technologies in Foundry and Forge** (**NCETFF-2016**)" Ranchi-November, 2016

3. International Conference on "**Advances in Materials and Manufacturing"** (**ICAMM-17**) January 19th -21, 2017 (Joint Secretaries)

4. International Conference on **'Translational Research: Metals and Materials (TRMM 2023)**' 19th -21st November 2023 (Conveynor)

Project (Ongoing)

1. "Development of bulk Nanocrystalline Cu-Nb-Zr alloys using laser assisted manufacturing for structural members of landing gears in Aerospace applications"Funding agency**: AICTE,** File Number. 8-124/ FDC/ RPS/POLICY-I /2O21-22**(Amount Rs/-15.66 Lakh) PI**

2. "Development of a advancing material for electrical engineering, based on copper powder alloys with nanocrystalline dispersed tungsten inclusions" Funding Agency: **India-Belarus: DST/INT/BLR/P-44/2023 (Amount: 14.80 Lakh) PI**
3. "Establishment of Technology Business Incubator in Advanced and Inclusive Manufacturing" Funding Agency DST- iTBI/TPN-94412 (**Amount:389.47 Lakh) PI**

Project (completed)

1. Processing of novel metallic thermal interface materials using Liquid phase sintering followed by accumulative roll-bonding which will have significant contribution in the area of Materials Engineering (Jointly with Dr Praveen Kumar, Materials Engineering Department, IISc, Bangalore) **(Funding agency- NRCM-UGC) CO-PI**
2. **"**Development of Al3BC reinforcednovel in-situ Al-based metal matrix compositesvia warm-extrusion for commercial-scale production**"**Funding agency: **DST-SERB** File Number: CRG/2020/005600 **(Amount Rs/-28 Lakh) PI-**

Consultancy Project

Sl. No.	Organization	Title of Project	Amount of grant	Period	Co-investigator (If any)
1	TATA STEEL, JAMSHEDPUR	Effect of Boron addition on DI Pipe	10,00,000/-	1yr	

Student Guidance

Doctor of Philosophy (PhD)

Sl. No	Name of Students	Title of Thesis	Award (Year)
1	Mr. Subhabrata Chakraborty	Synthesis and Characterization of Cu-Cr-W,Cu-Nb-W and Cu-Nb-Zr Nano-Crystalline Alloys (Jointly guided with Prof Amitava BasuMallick,IIEST,Sibpur)	30/12/2021
2	Ms. Nidhi Khobragade	Synthesis and Characterization of Cu based Composite(Jointly guided with Prof B.Kumar,NIFFT)	26/08/2019
3	Banshidhar Mallik	Synthesis and Characterization of Al-based nano-composite	01/03/2019
4	Ms.Anumeha Mishra	Development of Nano-ceramic dispersed Hydroxyapatite based Nano-composite for structural application(Jointly guided with Prof S.B.Kumar,NIFFT)	14/05/2018
5	Mr. Somraj Chakravarty	Studies on Cu-based Nanocrystalline Alloys	05/05/2018
6	Mr. Suresh Kumar	Development of ZnCdS thin films using Chemical bath deposition(Jointly guided with Prof S.K.Sharma, IIT-ISM, Dhanbad)	23/03/2018
7	Mr. Sangram Hembrom	Studies on Mechanical Properties of Aluminium based nano composite(Jointly guided with Prof B.N.Roy,BIT,Sindri)	15/09/2017

M.Tech and B.Tech

Student	Completed	ongoing
MTech	**29**	**01**
BTech	**72**	**00**

Research Publication in Peer Reviewed international Journal:

2024

65.**Debdas Roy**, Tapas Pal, Samalla Ajay, Aditya Prakash, Siuli Dutta, Tapabrata Maity "Improving strain hardening behavior in nano-intermetallic reinforced aluminum in-situ composites through an optimized twostep thermal processing method; sintering and uniaxial forging"**Journal of Alloy and Compounds 982(2024)173688**

64. Sonika, Tapas Pal, **Debdas Roy**, Tapabrata Maity,"Aging assisted grain boundary engineering and its impact on the deformation behavior in precipitation hardenable multicomponent Mg-10Sn-3Al-1Si alloy"**Journal of Materials Engineering and Performance (Accepted)**

2023

63. Nitin Kumar,Tapabrata Maity, Kanwer Singh Arora, Nikhil Shajan, S. Hembrom, **Debdas Ro**y "Study of laser welding process parameter on the microstructure and mechanical properties of dissimilar joining of dual-phase DP780 and cold-rolled CR340 steel" **Materials Performance and Characterization, Volume 12, Issue 1 (**2023)

62. Nidhi Khobragade , Tapabrata Maity , Anna Swiderska- ´ Sroda ´ , Gierlotka Stanislaw , Witold Łojkowski , Pokula Narendra Babu , Snehanshu Pal , **Debdas Roy** 'Dislocation entangled mechanisms in cu-graphene nanocomposite fabricated by high-pressure sintering" **Materials Characterization** Volume 195, (2023), 112524

61. Koushik Sikdar, Avik Mahata, Barna Roy, Debdas Roy "Thermokinetic stabilization of nanocrystalline Cu by ternary approach**" Philosophical Magazine Vol. 103, (2023) Page 27-42**

2022

60. Rahul Samanta, Arindam Biswas, Apurba Das, Varsha Mitra, Arijit Sinha, Debdas Roy, Gurudas Mandal, Atul Bandyopadhyay "**An Ancient Traditional Indian Archaeometallurgical Artefact: "Dokra" Journal of the Institution of Engineers (India): Series D (2022)**

59. K.Sikdar , B. Roy, A. Mahata , **D. Roy** "Enhanced thermal stability of nanocrystalline Cu-Al alloy by nanotwin and nanoprecipitate"**Journal of Alloy and Compounds Volume 922, 20 November 2022, 166273**

58. S.K. Pradhan, Snehashish Tripathy , Rajan Singh , Premkumar Murugaiyana, **Debdas Roy**, Manoj M. Humanea, Sandip Ghosh Chowdhury, "On the grain boundary character evolution in non equiatomic high entropy alloy during hot rolling induced dynamic recrystallization"**Journal of Alloy and Compounds Volume 922, 20 November 2022, 166126**

57. Siddharth, Kanwer Singh Arora, Tapabrata Maity, **Debdas Roy***"* Fatigue life assessment of dissimilar thickness resistance spot welded C-Mn steel using Weibull distribution" **Welding International** Volume 36, 4 (2022) Pages 193-207

2021

56. Sonika, A P Murugesan, **Debdas Roy**, Palash Poddar, "Effect of Aging on Hardness and Tensile Properties of Advanced Mg-Sn Based Alloys"**Journal of Metallurgy and Materials Science** Vol. 63, No. 1-2, (2021) 61-73

55. **Debdas Roy**, Snehanshu Pal, Chandra Sekhar Tiwary, Ashish Kumar Gupta, Pokula Narendra Babu, Rahul Mitra "Stable nanocrystalline structure attainment and Strength enhancement of Cu base alloy using bi-modal distributed tungsten dispersoids**" Philosophical Magazine 102 (2021) (3)189-209**

54. **D.Roy**, S.Chakraborty, A. K. Gupta', A. Basu Mallick, R O Scattergood**,** Carl C. Koch "Synergistic effect of Nb and Zr additions on the structure-property relationships of nanocrystalline Cu processed by mechanical alloying and hot pressing"**Journal of Alloy and Compounds 854 (2021), 157174**

2020

53. D. Roy, A. K. Gupta, Md. S. Alam, S. Srikanth, B. K. Jha "Enhancement of Properties of Micro-alloyed Low Carbon Ni-added Steel by Thermo-Mechanical Treatment" **Journal of Materials Engineering and Performance 29(12), 7952-7963 (ISSN- 1059-9495, Impact Factor- 1.652)**

52. **D.Roy**, S.Chakraborty, A. K. Gupta', A. BasuMallick, R O Scattergood**,** Carl C. Koch "Synergistic effect of Nb and Zr additions on the structure-property relationships of nanocrystalline Cu processed by mechanical alloying and hot pressing" **Journal of Alloy and Compounds** 854(2021) 157174**(ISSN- 0925-8388, Impact Factor- 4.65)**

51. S Chakraborty, R.Bagla, K.Sikdar, **Debdas Roy**, A Basumallick "Structure Property Relationship in a Bulk Cu-Cr-W Composite Synthesized by High-energy Ball Milling and Spark Plasma Sintering" **Materials Chemistry and Physics 256 (2020) 123708 (ISSN- 0254-0584, Impact Factor- 3.4)**

50. S Chakraborty, A K Gupta, **Debdas Roy**, A Basumallick, "Nanomechanical properties of mechanically alloyed and spark plasma sintered W-nanoparticulate dispersed Cu-Nb alloys" **Materials Letters** 274 (2020) 128004**(ISSN- 0167-577X, Impact Factor- 3.2)**

49. **D. Roy** , S. Chakraborty , A.K. Gupta , A. Basu Mallick , Carl C. Koch "Synergistic effect of Nb and Zr addition in thermal stabilization of nano-crystalline Cu synthesized

by ball milling"**Materials Letters** 271 (2020) 127780**(ISSN- 0167-577X, Impact Factor- 3.2)**

48. A.Gupta, B.Mallik, **D.Roy** "Structure property correlation of in-situ reinforced Al based metal matrix composite via Stir Casting" **Materials Performance and Characterization** Vol. 9 No. 1 (2020) **(ISSN- 2379-1365, Impact Factor- 0.67)**

2019

47. S. Chakraborty, A. Gupta, **D. Roy**, A. Basumallick,"Studies on Nano-Metal Dispersed Cu-Cr Matrix Composite"**Materials Letters** 257 (2019) 126739**(ISSN- 0167-577X, Impact Factor- 3.2)**

46. K.Sikdar,A.Mahata, Somraj Chakravarty, Mark A. Atwater, **D.Roy**, Carl C.Koch "Effect of B on the thermal stabilization of cryomilled nanocrystalline Cu-Al alloy" **Materialia** 5 (2019) 100253**(ISSN- 2589-1529, Impact Factor- 0.784)**

45. B.Mallik, K.Sikdar, **D.Roy** "Tribology performance of in situ reinforced Al-based Metal Matrix Composite processed by Spark Plasma Sintering" **Materials Performance and Characterization** vol 8 No.1 2019**(ISSN- 2379-1365, Impact Factor- 0.67)**

44. Nidhu Khobragade, Koushik Sikdar, Binod Kumar, Supriya Bera, **Debdas Roy** "Mechanical and Electrical properties of copper-graphene nanocomposite fabricated by high pressure torsion" **Journal of Alloys and Compounds** 776 (2019) 123-132**(ISSN-0925-8388, Impact Factor- 4.65)**

43. K.Sikdar,A.Mahata, B.Roy, **D.Roy** "Hybrid thermal stabilization of Zr doped nanocrystalline Cu" **Materials and Design** 164 (2019) 107564**(ISSN- 0264-1275, Impact Factor- 6.28)**

2018

42. Nidhi Khobragade, Koushik Sikdar, Binod Kumar**,Debdas Roy**"Effect of Annealing on Microstructure, Grain Growth and Hardness of Nanocrystalline Cu-Zr Alloy Prepared by Cryogenic Ball Milling"**Journal Materials Science and Research**, Vol 7, No 3 2018 **(ISSN- 1927-0593, Impact Factor- 5.94)**

41. B. Mallik, K. Sikdar**, D.Roy** "Synthesis and Characterization of Aluminium Base in situ Metal Matrix Composites by Spark Plasma Sintering" **Journal Materials Science and Research,** Vol 7, No 1 2018 2018 **(ISSN- 1927-0593, Impact Factor- 5.94)**

40. S.Kumar , S. Rajpal , S. K. Sharma , **D.Roy** , S. R. Kumar "Influence of Annealing On Structural and Optical Properties of CdS Thin Films Developed by Chemical Route" **Journal of Ovonic Research** Vol. 14, No. 3, May – June 2018, p. 185 – 191 2018 **(ISSN- 1584-9953, Impact Factor- 0.687)**

2017

39. Koushik Sikdar, Somraj Chakravarty, **Debdas Roy**, Ronald O. Scattergood, Carl C. Koch, "Synthesis and characterization of an *in situ* consolidated nanocrystalline $Cu_{88}Al_{11.5}Y_{0.5}$ alloy" **Journal of Alloy and Compounds, 717 (2017) 219- 225 (ISSN- 0925-8388, Impact Factor- 4.65)**

38. SomrajChakravarty,KoushikSikdar,**DebdasRoy**, Carl.C.Koch " Grain Size Stabilization and Strengthening of Cryomilled Nanostructured Cu-12at. % Al alloy"**Journal of Alloy and Compounds,**Volume 716, Pages 197-203**(ISSN- 0925-8388, Impact Factor- 4.65)**

37.Somraj Chakravarty, Koushik Sikdar, **DebdasRoy** "Stabilization of nanocrystalline Cu by Al addition" **Materials Characterization** 128(2017)189-194 **(ISSN- 1044-5803, Impact Factor- 3.56)**

36. S. Kumar, S. Rajpal, S. K. Sharma, **D. Roy**, S. R. Kumar " Effect of Zn Concentration on the Structural, Morphological and Optical Properties of ternary ZnCdS Nanocrystalline thin films" **Digest Journal of Nanomaterials and Biostructures Vol. 12, No. 2, April – June 2017, p. 339 – 347 (ISSN- 1044-5803, Impact Factor- 3.56)**

35. Subhajit Mitra , **Debdas Roy** , Santanu Banerjee , Tanmay Bhattacharyya , P. P. Chattopadhyay "Effect of Boron on the Manufacturing Process andFinal Properties of Ductile Iron Pipes (DI Pipes)" **Ironmaking and Steelmaking: Processes, Products and Applications** (Accepted 2017) **(ISSN- 0301-9233, Impact Factor- 1.35)**

34. Anumeha Mishra, Nidhi Khobragade, Koushik Sikdar, Subhabrata Chakraborty, Sashi Bhusan Kumar, **Debdas Roy.** "Study of Mechanical and Tribological Properties of Nano -Mica Dispersed Hydroxyapatite based Composites for Biomedical Applications" **Advances in Materials Science and Engineering Volume 2017, Article ID 9814624, 9 pages (ISSN- 1687-8434, Impact Factor- 1.27)**

33. S. Kumar, S. Rajpal , S. K. Sharma, **D. Roy**, S. R. Kumar," Effect of Annealing on the Surface And Optical Properties of ZnCdS Nanocrystalline thin Films" **Chalcogenide Letters** Vol. 14, No. 1, January 2017, p. 17 – 23**(ISSN- 1584-8663, Impact Factor- 0.779)**

32. Subhranshu Chatterjee, Jaya Sarkar, Amitava Basu Mallick, **Debdas Roy**, Pritam Deb "Effect of anodizing Medium on The Morphology and Photoluminescent Property of Porous Alumina Film" **GSTF Journal of Engineering Technology** (JET) Vol.4 No.2, March 2017

31. Nidhi Khobragade, Binod Kumar, Supriya Bera, **Debdas Roy**, "Studies on graphene reinforced Cu base composites prepared by two step thermal processing method"**Materials Today proceedings ,**Volume 4, Issue 8 2017, Pages 8045-8051 **(ISSN- 2214-7853, Impact Factor- 0.57)**

2016

30. S. Hembrom,B. N. Roy, N. Khobragade , **D. Roy** "Studies on Amorphous Alloy Dispersed Aluminium Matrix Composite Prepared by High Pressure Torsion" Journal of Materials Science Research; Vol. 5, No. 1; 2016 **(ISSN- 1927-0593, Impact Factor- 5.94)**

29. Suresh Kumar, S.K Sharma, Shashikant Rajpal, S.R.Kumar, Srikant Sahu, D.**Roy, "**Synthesis and Characterization of Nonaqueous Deposited Nanocrystalline Cds Film" International journal of Advanced Engineering Research and Science Vol-3, Issue-7, July- 2016**(ISSN- 2349-6495, Impact Factor- 3.55)**

28. A.Mishra, S. B. Kumar **D. Roy "**Development of Nano-TiO2 by Mechanical Milling" International Journal of Scientific & Engineering Research, Volume 4, Issue 8, August-2016, p 67-69 **(ISSN- 2229-5518, Impact Factor- 3.8)**

2015

27. S.Kumar, S.R.Kumar, S.K.Sharma, **D.Roy "**Structure Composition and Optical properties of Non aqueous Deposited ZnCdS Nanocrystalline Film" Materials Today:Proceedings. 2(2015) 4563-4568 **(ISSN- 2214-7853, Impact Factor- 0.57)**

26. A.Mishra, M.Gond,S.B.Kumar, **D.Roy** "Synthesis and characterization of Hydroxyapatite based Nanocomposites for structural applications" International Journal of Scientific & Engineering Research, Volume 6, Issue 8, August-2015 **(ISSN- 2229-5518, Impact Factor- 3.8)**

2014

25. D.Roy, B.V.Mahesh, M.A.Atwater, Ethan Chan, M Saber, A Zaddach, R.O.Scattergood, and CCKoch, " Grain size stability and hardness in CuAlZr and CuAlY alloys Material Science Engineering A. (598, 2014, p. 217-223) **(ISSN- 0921-5093, Impact Factor- 4.65)**

24. *S. R. Kumar, Suresh Kumar, Shrikant Sahu,* ***D. Roy****, and S. K. Sharma* "**Effect of Zn on the Nanofilm of CdS Deposited by Chemical Bath Method in Non-**

Aqueous Medium " Adv. Sci. Lett. 20, 686-688 (2014) **(ISSN- 19366612, Impact Factor- 0.2)**

2013

23. Debdas Roy, Mark A. Atwater, Khaled Youssef, John Christopher Ledford, Ronald O. Scattergood, Carl C. Koch "Studies on Thermal stability, Mechanical and Electrical Properties of Nano crystalline $Cu_{99.5}Zr_{0.5}$ Alloy" **Journal of alloys and compounds. 558(2013) 44-49(ISSN- 0925-8388, Impact Factor- 4.65)**

2012

22. Mark A. Atwater, **Debdas Roy**, Kristopher Darling, Brady Butler, Ronald O. Scattergood,Carl C. Koch "The grain size stability of nanocrystalline copper mechanically alloyed with tungsten" **Material Science and Engineering A 558(2012) 226-233 (ISSN- 0921-5093, Impact Factor- 4.65)**

21. **D. Roy**, R. Mitra, O.A.Ojo,S.S.Singh,D Kolesnikov, W. Lojkowski, , R.O. Scattergood, C.C. Koch , I. Manna "Evaluation of mechanical properties of partially amorphous and nanocrystalline $Al_{50}Ti_{40}Si_{10}$composites prepared by mechanical alloying and hot isostatic pressing" **Material science and Engineering A 555(2012) 21-27 (ISSN- 0921-5093, Impact Factor- 4.65)**

20. **D. Roy**,O. A.Ojo, H. Raghuvanshi, A. Basu "Fretting wear behavior of nano-intermetallic precipitates $Al_{65}Cu_{20}Ti_{15}$ amorphous matrix composite prepared by pulse plasma sintering of the ball milled powder" **Journal of Material Science and Engineering 1 (2012) 1-5**

19. S Ganguly, O. A. Ojo, P.P.Chattopadhyay **D. Roy "**Nano-intermetallic dispersed in-situ Al-based amorphous matrix composite design by artificial neural network analysis" **Journal of Materials Science Research. 1(2012)50**

2011

18. **D.Roy**, A. Sinha, P.P.Chattopadhyay, I. Manna, "Nanoindentation behavior of bulk metastable $Al_{65}Cu_{20}Ti_{15}$ alloy prepared by consolidation of the ball milled powder" **Materials Science & Engineering A** Volume 528, (2011) 8047-8050**(ISSN- 0921-5093, Impact Factor- 4.65)**

17**. D. Roy,** H. Raghuvansi, "Study on crystallization kinetics of $Al_{65}Cu_{20}Ti_{15}$ amorphous alloy"**J. Non-Crystalline Solid 357 (2011) 1701-1704 (ISSN- 0022-3093, Impact Factor- 2.92)**

16. D. Roy, R. Mitra, O.A Ojo, W. Lojkowski,, I. Manna**, "**Microstructural evolution and mechanical properties of nano intermetallics (in-situ) dispersed amorphous matrix $Al_{65}Cu_{20}Ti_{15}$composite synthesize by mechanical alloying and Hot Isostatic

Pressing" **Metallurgical and Materials Transaction A 42A (2011) 2498-2508 (ISSN-1073-5623, Impact Factor- 2.05)**

15.. **D.Roy**, A. Sinha, P.P.Chattopadhyay, I. Manna, "Nanoindentation behavior of bulk metastable $Al_{65}Cu_{20}Ti_{15}$ alloy prepared by consolidation of the ball milled powder" **Material Science Engineering A 528 (2011) 8047-8050 (ISSN- 0921-5093, Impact Factor- 4.65)**

2010

14.D. Roy, P. Deb, A. Basumallick, B. Basu, "Studies on optical property of Fe_2O_3 nano-particles synthesized by mechanical milling" **J Opt 39 (2), 102–109 (ISSN- 2040-8978, Impact Factor- 2.37)**

2009

13. D. Roy, S. S. Singh, B. Basu, W. Lojkowski,R. Mitra, I. Manna *" Study on wear behavior of nano intermetallic reinforced Al-Ti-Si amorphous/nanocrystalline matrix in-situ composite"* **Wear 266 (2009)1113-1118 (ISSN- 0043-1648, Impact Factor- 4.1)**

12. S.S. Singh**, D. Roy,** R. Mitra, R.V.Subba Rao, R. K. Dayal, B. Raj, I. Manna "Investigation of laser surface melted and sintered Al-Ti-Si composite" **Materials Science & Engineering A 501 (2009)** 242-247**, (ISSN- 0921-5093, Impact Factor-4.65)**

11. **D. Roy,** S.S Singh, R. Mitra, M. Rosinski, A. Michalski W. Lojkowski, H-J Fecht, I. Manna "Synthesis and Characterization of precipitation hardened Amorphous – Nanocrystalline Matrix Composite by Mechanical Alloying and Pulse Plasma Sintering of $Al_{65}Cu_{20}Ti_{15}$" **Philosopical Magazine 89 (2009)1051-1061 (ISSN- 1478-6435, Impact Factor- 1.778)**

2008

10.D. Roy, T. Chudoba,Z. Witczak, W. Lojkowski, Hans-Jörg Fecht,R. Mitra, I. Manna *"Mechanical property of nano-TiO_2 dispersed $Al_{65}Cu_{20}Ti_{15}$ amorphous/nanocrystalline matrix bulk composite prepared by mechanical alloying and high pressure sintering* **Solid state Phenomena vol.140(2008) 161-166 (ISSN- 1662-9779, Impact Factor- 0.4)**

9. **D.Roy**, D.Chakravarty, R.Mitra, I. Manna *"Effect of Sintering on Microstructure and Mechanical Properties of Nano-TiO_2 Dispersed $Al_{65}Cu_{20}Ti_{15}$ Amorphous/Nanocrystalline*

Matrix Composite" **J. Alloys and Compounds** ***460(2008) 320-325*** **(ISSN- 0925-8388, Impact Factor- 4.65)**

8. **D. Roy**, T. Chudoba,Z. Witczak, W. Lojkowski, Hans-Jörg Fecht,R. Mitra, I. Manna *"Structure and mechanical properties of Al65Cu20Ti15-based amorphous/nanocrystalline alloys prepared by high-pressure sintering"* **Materials Science & Engineering A 497(2008) 93-100, (ISSN- 0921-5093, Impact Factor- 4.65)**

7.**D. Roy**, R. Fedyk, Z. Witczak,, W. Lojkowski,R. Mitra, I. Manna *"**Synthesis and characterization of in-situ nanocrystalline intermetallic phase reinforced AlTiSiamorphous matrix composite".*** **Philosophical Magazine 88 (2008) 3031-3041 (ISSN- 1478-6435, Impact Factor- 1.778)**

2007

6. Debdas Roy, "*In vitro reactivity of Na_2O-MgO-SiO_2 glass*". **Journal of Physics and Chemistry of Solids 68 (2007) 2321-2325. (ISSN- 0022-3697, Impact Factor- 3.44)**

5. Debdas Roy, Sumit Ghosh, Amitava Basu Mallick, Bikramjit Basu; Preparation of Ti-aluminide reinforced in-situ aluminium matrix composites by reactive hot pressing; **J. Alloys and Compounds 436 (2007) 107-111 (ISSN- 0925-8388, Impact Factor- 4.65)**

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3. D.Roy, S.Ghosh, A. Basumallick, B.Basu, "*Preparation of Fe-aluminide reinforced in situ metal matrix composite by reactive hotpressing*", **Mater.Sci.Engg A 415 (2006)202-206. (ISSN- 0921-5093, Impact Factor- 4.65)**

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Professional Affiliations

- **Life Member of Indian Institute of Metals (IIM), Kolkata**
- **Associate Member Indian Academy of Sciences (IASc), Bangalore**
- **Fellow of Institute of Engineers India (IEI) 2022, Kolkata**

List of Paper presented in conferences

1. A Srivastava, **Debdas Roy**, V.S.R Murthy, "*In vitro Reactivity of Selected Bio-Ceramic Glasses*" Proceedings of the NMD-2003, Kolkata, India

2. **D. Roy**, R. Fedyk, W. Lojkowski, R. Mitra, I. Manna, *"SYNTHESIS AND CHARACTERIZATION OF NANO-TiO_2 DISPERSED $Al_{50}Ti_{40}Si_{10}$ AMORPHOUS MATRIX COMPOSITE"*.**8th International Conference on Nanostructured Materials NANO-2006, August 20-25, 2006, IISC, Bangalore India**

3. **D. Roy,** R. Mitra, I. Manna, D. Chakraborty, T. N. Rao, G. Sundararajan, *"SYNTHESIS AND CHARACTERIZATION OF NANO-TITANIA DISPERSED AMORPHOUS/NANOCRYSTALLINE Al-Cu-Ti MATRIX COMPOSITE"* **NMD-2006, Jamshedpur, India**

4. **D.Roy**, R. Mitra, I. Manna**,** D. Chakraborty, T. N. Rao, G. Sundararajan, "*Microstructure and mechanical properties of nano-TiO_2 dispersed $Al_{65}Cu_{20}Ti_{15}$ amorphous/nanocrystalline matrix composite*" **Proceedings of International Workshop on Nanoceramics and Nano composites, (Convener, Dr. B. Basu) September 8-9, 2007, IIT, Kanpur, India**

5**.** Indranil Manna, **Debdas Roy**, Rahul Mitra, Witold Lojkowski, Hans-Jorg Fecht,"*Nano-intermetallic/ceramic dispersedAl-based amorphous/nanocrystalline Matrix composites synthesized by mechanical alloying"* **E-MRS Fall Meeting -2007, September 17-20,Warsaw, Poland**

6 **D. Roy**, T. Chudoba, Z. Witczak, W. Lojkowski, R. Mitra, I. Manna *"Microstructure and mechanical properties of Al-based amorphous /nanocrystalline alloys and nano-composites*" **NMD-2007, Mumbai**

7. **Debdas Roy**, Rahul Mitra, Indranil Manna, Zbigniew Witczak, Witold Lojkowski, *"Microstructure and mechanical properties of nano-intermetallic reinforced amorphous/nanocrystalline matrix in-situ composite"* **International Conference on**

Metals and Alloy; *Past, Present and Future*, METALLO 2007, (Convener, Dr R. Balasubramaniam) December 7-8, 2007, IIT, Kanpur, India

8. **Debdas Roy**, Rahul Mitra and Indranil Manna **"***Structural analysis of nano-TiO_2 dispersed $Al_{65}Cu_{20}Ti_{15}$ amorphous / nanocrystalline matrix composite prepared by spark plasma sintering"* **International and INCCOM-06 Conference on Future Trends in Composite Materials and Processing. (Convener, Dr. K. Kar) December 12-14, 2007, IIT, Kanpur, India**

9. K. Borah, **D. Roy,** P. Deb, A. Basumallick, B. Basu, *"Photoluminescence of Fe_2O_3 nanoparticles processed by high energy mechanical milling"* **CONTEMPORARY OPTICS AND OPTOELECTRONICS, Proceedings of the XXXIII Optical Society of India (OSI) Symposium 2007, December 18-20, 2007, Tezpur, India.**

10. J. Sarkar, G. G. Khan, A. Basumallick, **D. Roy**, P. Deb*, "Photoluminescence of the porous anodic alumina film"* **CONTEMPORARY OPTICS AND OPTOELECTRONICS, Proceedings of the XXXIII Optical Society of India (OSI) Symposium 2007, December 18-20, 2007, Tezpur, India.**

11. D. Roy, T. Chudoba, Z. Witczak, W. Lojkowski, R. Mitra, I. Manna **"**Nano-intermetallic dispersed Al-based amorphous/ nanocrystalline matrix in-situ composites synthesized by mechanical alloying" **International Conference on ADVANCES IN MANUFACTURING TECHNOLOGY (ICAMT 2008) for YOUNG ENGINEERS, February 6-8, 2008, Chennai, INDIA**.

12. Debdas Roy, Witold Lojkowski, Rahul Mitra, Indranil Manna**. "**Microstructural and Mechanical Properties of $Al_{65}Cu_{20}Ti_{15}$ Composite made by Mechanical Alloying with subsequent higher pressure Sintering" **VI International Conference on Mechanochemistry and Mechanical Alloying (INCOME 2008), December 1-4, 2008. Jamshedpur, India.**

13. **D. Roy, O.A.Ojo, W. Lojkowski, R. Mitra, I. Manna. "**MICROSTRUCTURAL AND MECHANICAL PROPERTIES OF $Al_{65}Cu_{20}Ti_{15}$ COMPOSITE MADE BY MECHANICAL ALLOYING AND HOT ISOSTATIC PRESSING" **International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2009) December 9-11, 2009 IIT Guwahati**

14. A. Mishra, S.B. Kumar, **D.Roy,** Effect of Sintering on processing of Nano -TiO2 dispersed Hydroxyapatite nano composite. **NMD-ATM-13th to 15th Nov, 2013 at BHU, Varanasi**
15. S. Chakravarty, **D. Roy**, C.C. Koch, Effect on Thermal Stability and Hardness of Cu-Al nanocrystalline alloys by Y and Zr addition,**NMD-ATM-13th to 15th Nov, 2013 at BHU, Varanasi**
16. S. Ghosh, R. Ghoshal, P. Talukdar, S.K Sen, P.P. Sarkar and **D. Roy**Study on forgebility of micro-alloyed low carbon Ni-steel, **NMD-ATM-13th to 15th Nov, 2013 at BHU, Varanasi**

17. K. Pandey, **D. Roy** and P. Kumar , Synthesis and characterization of Cu-graphene composites , **NMD-ATM-13th to 15th Nov, 2013 at BHU, Varanasi**
18. S. Hembrom, B. Mardi, B.N.Rai, **D.Roy,** Studies on amorphous alloy dispersed aluminum matrix composite prepared by high pressure torsion.**NMD-ATM-13th to 15th Nov, 2013 at BHU, Varanasi**
19. **D.Roy,** S.Chakraborty, A.Basu Mallik " Synthesis and characterization of nano metal dispersed Cu base nano-composite" 4th International Conference on advanced Nanomaterials and Nanotechnology,(ICANN-2015) 8-11 December 2015.
20. **D.Roy**, "Synthesis and Characterization of in-situ reinforced Al-based Metal Matrix Composite processed by spark Plasma Sintering" 6th Global conference PCM-2019, at Bangkok, Thailand 8th to 11th July 2019

21. Rahul Samanta, Arghya Majumder, Apurba Das, Arijit Sinha, **Debdas Roy**, Gurudas Mandal, "Assessing an Ancient Traditional Lost Wax Processing of Cu-Zn/Cu-Sn Alloy: Dhokra Art" 1st International conference on Future of Engineering (ICFE-2022). 22-23rd September 2022.

22. Nidhi Khobragade, Dr. Tapabrata Maity, **Dr. Debdas Roy,**"Dislocation entangled mechanisms in Cu-Graphene nanocomposites by high-pressure sintering" on **8th International Conference on NanoSPD8 – 26th Feb to 3rd March 2023, IISc, Bangalore**

23. Sonika, T.Maity, **D.Roy** " Effect of Ageing on microstructure and Mechanical properties of Mg-10%Sn alloys"3rdInternational Conference on Innovative Research in Sciences,Technology,Agriculture,Environment,Business Management and Humanities **(STAEBM-2023) 13th -14th May,2023, NIT, Srinagar**

Journal (Reviewer)

1. Metallurgical and Materials Transaction A
2. Material Science and Engineering A
3. Material Science and Engineering B
4. Bulletin of Material Science
5. Journal of Alloys and Compound
6. Thin Solid Flim

Administrative Responsibilities (Past)

- M.Tech (Tabulator) (2009-2011)
- Member CWNC (2010-2011)
- Member Library committee (2010-2011)
- Hostel Warden (2010-2011)
- Member ILC (2013-june 2017)
- Chairman Security Management Committee (2013-2015)
- Member tender Committee
- Member Staff Pre-selection Committee
- Associate Dean (ADC) (2017-2019)
- Chairman Security Management Committee (2017-2019)
- Head of the Department (MME) (2019-2021)
- Chairman Hostel Management Committee (HMC) (2019-2021)
- Chairman Guest house Management Committee (2019-2021)

Administrative Responsibilities (Current)

- ✓ Chairman Innovation and Entrepreneur Development Cell (2021
- ✓ Chairman Academic Approval & Affiliation Facilitation Cell
- ✓ Coordinator Center Instrumental Facility (CIF) (2021-
- ✓ Treasurer NIFFT Alumni Association (2019-
- ✓ Programme Officer National Service Scheme (NSS)
- ✓ Institute NEP Coordinator
- ✓ Institute Nodal officer AISHE
- ✓ Member Purchase Committee (2021

Administrative Responsibilities (External))

- ❖ Member Board of Studies (BOS), Department of Metallurgical and Materials Engineering, Central University of Jharkhand, Ranchi
- ❖ Member Internal Quality Assurance Cell, Asansol Polytechnic (Govt. of W.B)
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