Curriculum Vitae

Dr. KRISHANU BISWAS
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Dr. Krishanu Biswas has made significant contribution towards understanding of the several important scientific and technological aspects of metallurgy and materials engineering. The research work performed by him ranging from development of hard low friction wear-resistant quasicrystalline coating for coating application , understanding the solidification behaviour of complex concentrated alloys, novel processing of ceramic composites, understanding the alloying behaviour at nanoscale, development of bulk alloy catalysis for hydrogen energy has clearly demonstrated versatile nature of research activities undertaken by him, which is unique for a young researcher in the field of metallurgy and materials engineering. His recent research activities involve research on sintering of nanomaterials, nanocrystalline high entropy alloys (HEAs), ionic nanoparticles, graphene etc. He has received a number of awards, fellowships and professional reorganization. He has published over **63** papers in international repute peer reviewed journals and delivered **16** invited talks in different national and international conferences. He has completed 6 projects and currently 5 other projects are under progress. He could garner total funding to the tune of INR 3,50,000,00 in a span of 6 years. The projects include small projects from Indian Space Research Organization (ISRO) and Indian National Science Academy (INSA) to bigger projects from Department of Science and Technology (DST), Department of Bio- technology (DBT), Board of Research on Nuclear Sciences (BRNS). Currently he has **7** Phd students, **9** MTech students, **2** project staffs and several B.Tech students working on different research problems. **3** Phd students and **9** M.Tech students and large number of B.Tech students have completed their degree under his supervision.

1. Residence address:

House No. 3014
Type- III, IIT Campus
Indian Institute of Technology Kanpur
Tel: +91-512-259 8408

2. Present designation : Associate Professor

3. Name of the Institution : Indian Institute of Technology, Kanpur

4. Postal address of the Institution : Indian Institute of Technology Kanpur
Pin - 208016 – (U.P.) India.

5. Telephone, fax and email of the Institution : Tel: + 91 512- 259 6184
Fax: + 91 512-259 7505

6. Academic Qualifications (Bachelor's degree onwards, with University, year, subject, Division/CGPA

Sl. no	**Degree**	**College/University/ Institute**	**Year**	**Major Subject**	**Rank/CGPI**
1	Bachelor of Engg.	National Institute of Technology, Durgapur	July, 1997	Metallurgy	Ist (Gold medalist), 83.4%
2	Master of Engg.	Indian Institute of Science, Bangalore	January, 2001	Metallurgy	1st in the class CGPI= 7.3/8.0
3	Doctor of Philosophy	Indian Institute of Science, Bangalore	July, 2006	Metallurgy	----

7. Engineering Discipline : **Metallurgical & Materials Engineering.**

8. Field of specialization of the nominee: **Nanomaterials, Electron Microscopy, Solidification, Phase Transformation at Nanoscale, Sintering, Novel Ceramic Processing, Materials for Energy.**

9. <u>Awards/Distinctions/Fellowships (International/National level):</u>

1. DAAD Fellowship to visit RWTH, Aachen and DLR, Cologne, Germany, 2013
2. BOYSCAST fellowship by Dept of Science and Technology, Govt. of India, 2011
3. Young Engineer Award by IEI (2011)
4. Young Scientist Medal by Indian National Science Academy (INSA), 2010
5. Young Metallurgist of the Year, Ministry of Steel, Government of India, 2008
6. Research Fellowship by Japan Society for the Promotion of Sciences (JSPS), 2006
7. Recipient of The Shri Ram Arora Award for Materials Science and Engineering, by TMS, USA, 2006
8. Best student speaker in International Conference on Solidification Science and Processing (ICSSP) held at Bangalore, India, November, 2004
9. Second best poster prize in International Conference on Advances in Surface Treatment: Research and Application, held at Hyderabad, India, November, 2003.
10. Obtained Indian Institute of Metals (IIM) Student Prize for securing highest marks in Masters degree, 2001
11. Obtained Prize from Indian Institute of Metal for securing highest marks 3rd, 4th and 5th, 6th, 7th and 8th semester in Bachelor degree
12. Obtained highest marks in thesis work in Bachelor Degree of Engineering, 1997
13. Gold Medal in Bachelor Degree of Engineering, 1997

14. Positions held earlier:(in reverse chronological order):

- April, 2012 – till date : ***Associate Professor***, IIT Kanpur
- January, 2008 – March, 2012 : ***Assistant Professor***
  Department of Materials Science & Engineering, Indian Institute of Technology Kanpur
  Teaching undergraduate and post graduate students
  Carrying out research activity at IIT Kanpur
- November, 2006 – December, 2007 : JSPS (Japan Society for Promotion of Science)
  Fellow at Institute of Multidisplinary Research on Advanced Materials, Tohoku University, Sendai, Japan
- September, 2001- January, 2002 : Guest Scientists, German Aerospace Centre, Cologne and Institute for Werkstoffkunde and Werkstafftechnik, University of Clausthal, Clausthal-Zellerfeld, Germany
- July, 1997- July, 1998 : Graduate Engineer, Tata Motors (Jamshedpur)

15. Sponsored Research Projects

a.Completed Projects:

Sl. No.	Title of the Project	Funding Agencies	Total Cost (Rs)	Status
1.	Phase Transformation of Alloy Nanoparticles	Indian Institute of Technology Kanpur (IITK)	10 Lacs	Completed in 2010
2.	Development of High Strength *In-situ* Composite	Indian Space Research Organization (ISRO)	15 Lacs	Completed in 2011
3.	Phase Transformation of Multiphase Embedded Alloy Nanoparticles and Multilayered Thin Films	Department of Science and Technology (DST)	44.36 Lacs	Completed in 2012
4.	Sintering, Properties and *In vitro* Study of HA-Ti Composite	Department of Biotechnology (DBT)	56 Lacs	Completed in 2012

b.Ongoing Project:-

1.	Study of High Entropy Alloys for Enhanced Ductility: Preparation and Consolidation	Indian Space Research Organization (ISRO)	30.42 Lacs
2.	Development of Brazing Alloys and Techniques for Ti-Based Alloys	Indian Space Research Organization (ISRO)	15 Lacs
3.	Development of Nb-based High Strength Ultrafine In situ Composite For High Temperature Applications	Board of Research in Nuclear Sciences (BRNS)	57 Lacs
4.	Development of high strength in-situ nanocomposite for aerospace and defense applications	Indian National Science Academy (INSA)(As a part of INSA Young Scientist scheme)	5 Lacs
5.	'Free standing' nanoparticles during cryomilling	Department of Science and Technology (DST)	50 Lacs

16. Thesis Supervision
a.Doctoral Students (Ph.D.)

SL. No	Students	Dissertation Title	Completion	Current Position
1	Amit Siddharth Sharma	Understanding the mechanisms of spark plasma sintering	Thesis defended in July, 2013	Post Doc at IISc, Bangalore
2	P. Yousuf Khan	Phase transformation of nano-scale alloy particles and thin films	Thesis submitted (June, 2014)	---
3	Alok Kumar	Development of Hydroxyapatite-Titanium composites for orthopedic applications	Thesis defended in July, 2013	Post Doc at IISc, Bangalore
4	Sumanta Samal	Development of High Strength Ultrafine In-situ Composites	Thesis defended in April, 2014	Institute post doc at IIT Madras
5	M. Manolata Devi	Synthesis and Characterization of Alloy Nanoparticles via Chemical Routes	Expected to complete by 2016	----
6	Sutanuka Mohanty	High entropy alloys: processing and consolidation	Expected to complete by 2016	Jointly with Dr.Nilesh P.Gurao
7	Nirmal Kumar	Synthesis and Characterization of free standing nanoparticles by high energy ball milling at cryogenic temperature	Expected to complete by 2017	Preparation and consolidation of free standing metallic nanoparticles via cryomilling
8	Mandvi Saxsena	Processing and Consoliddation of ZrC and ZrO_2 Nanocrystalline Ceramic composites	Expected to complete by 2017	High temperature ceramics for space applications
9	Rahul Bhattacharya	Nanocrystalline Ionic compounds: Effect of size	Expected to complete by 2017	Nanocrystalline Halides
10	Surekha Yadav	Phase Transformation	Expected to	Phase

		of Alloy Nanoparticles	complete by 2017	Transformation of Nano alloy particles

b.Masters Students:

SL. No	Students	Dissertation Title	Completion	Currently at
1	K.Shravan Kumar	Effect of Thiourea on Pulse Electrodeposition of Nanocrystalline Copper	2010	National Metall. Lab, Jamshedpur (Phd in Monash University, Australia)
2	Barnali Mondal	Processing, Characterization and Mechanical Properties of *In –Situ* Ti-Fe-Sn Ultrafine Composites	2011	SAIL, Durgapur
3	Sharmistha Dhara	*In vitro* Biomineralization Behaviour of HA-Ti Composites Prepared by Spark Plasma Sintering	2011	Pursuing Phd in Deakin University in Australia (Previously in Tata Steel)
4	Ajit Kumar Misra	Processing, Characterization and Mechanical Behaviour of Ti-Cu-Fe-Co-Ni High Entropy Alloys	2012	Joined a IIT Coaching institute in Varanasi
5	Hridyesh Kumar (CE)	Fly Ash Based Geopolymers: Processing and Geotechnical Property Assessment	2012	Working as lecturer in Bareilly
6	Suresh Chand	Development of Brazing Filler and Technique for Ti-alloys	2013	Working as lecturer in Rajiv Gandhi Knowledge Universitty
7	Sumit Ranjan Sahu	Graphene:	2013	

		preparation and functionalization by chemical Routes		Research engineer at Research part of IIT Madras
8	Biswanath Paira	Nb-based alloys for atomic reactor applications	May, 2014	Jointly with Dr.K.Kulkarni
9	Gautam Mondal	Transport properties and solidification of Steels	May, 2014	Jointly with Prof D.Mazumdar
10	Manoj Chintapatra	Consolidation of SOFC material	May, 2014	Jointly with Dr.S.Omar
11	Gourhari Behara	Phase Separation in Alloy Nanoparticles	May, 2014	Jointly with Dr.S.Bhowmick
12	Tarak Kansabanik	Phase Separation in multicomponent high entropy alloys	May 2015	Jointly with Dr.N.P.Gurao
13	Tazuddin	Deformation bahaviour of High Entropy Alloys	May 2015	Jointly with Dr.N.P.Gurao
14	Taraknath Maity	Development of oxidation resistant Nb-alloys	May 2015	
15	Nirmal Dulai	Graphene –metal hybrids for energy applications	May 2015	
15	Rajan Biswas	Disimilar Metal Brazing of Ti and Steels	May, 2015	

c.B.Tech Projects(BTP):

Till date, 19 BTP projects have been supervised. 5 BTech students have been pursuing Phd abroad.

17. Members of professional bodies

Life Member, Indian Institute of Metals (IIM)
Member, Electron Microscopic Society of India (EMSI)
Member, Indian Ceramic Society (ICcerS)
Member, The Minerals Materials and Metals Society (TMS) USA

18. Editorial board/reviewers

Member, Editorial Board, STM Journals, Noida, India
Reviewer,
-J. Materials Science
-Materials and Metallurgical Transactions A
-Surface Science

-Surface Science Letters
-Materials Science and Engineering A and C
- CSIR Journals
-Transactions of Indian Institute of Metals (TIIM)

19. Courses taught/teaching

a. TA201N: Introduction to Manufacturing Processes (**Institute level CORE course)**
b. MSE330: Phase Equilibria in Materials (**Professional course, adjudged 'Best Instructor' twice)**
c. MSE670: Solidification Processing (**Elective course, adjudged 'Best Instructor', *Self developed course*)**
d. MSE331: Process Metallurgy Lab
e. Tutor of TA201N thrice
f. MSE301A: Phase Transformation of Materials
g.MSE305A: Manufacturing Processes

20. Members of different departmental committees

a. Member, Student Placement Committee
b. Member, Dept of Academic Review Committee
c. Member, Dept Post Graduate Committee (DPGC)
d. Convener, Dept Post Graduate Committee (DPGC)
e. Co-ordinator, Engineering Metallurgy Lab
f. Convener, Scanning Electron Microscopic Facility (SEM)
g. Member, Physical Metallurgy lab co-ordination committee
h. Member, Institute Microscopic Facility (for setting up TITAN)
i. Member, organizing committee of Golden Jubilee conference of the department

21. National Level Committee

a. National Organization Committee, Golden Jubilee conference of EMSI, Hyderabad, 2011
b. Co-Organized, a session on "Aperiodic materials" at Annual Meeting of EMSI, to be held at Kolkata in July, 2013
c. Co-organized a session on "Quasicrystals" at Annual Technical Meeting of IIM, to be held at Varanasi in November, 2013
d. Co-editing a special issue on "Quasicrystals: Indian Perspectives" in Current Science.

22. Leadership Honours

a. Treasurer, IIM Kanpur Chapter, 2009-2012
b. Vice president, IIM Kanpur Chapter, 2012- 2014
c. Co-secretary, IIM Kanpur chapter, 2014-till date

23. Institute Administration

Warden, Hostel 8 at IIT Kanpur