Curriculum Vitae

Name **Dr. Swapan Kumar Karak**
Assistant Professor
National Institute of Technology Rourkela
Department of Metallurgical and Materials Engineering
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Education

Exam / Degree	Board / University	Branch	Marks/ CGPA	Year
Ph.D	INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR	METALLURGICAL AND MATERIALS ENGINEERING	2013	
M.S. (by Research)	INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR	METALLURGICAL AND MATERIALS ENGINEERING	9.30/10	2006
B.E	B.E.COLLEGE (A DEEMED UNIVERSITY)	METALLURGY	70.20	2000
10 + 2	W. B. C. H. S. E	SCIENCE	69.70	1996
10 th	W.B.B.S.E	SCIENCE	77.33	1994

Research Areas

- Nano –metric metallic alloys: Synthesis and characterization
- Nano-oxide dispersed metallic alloys (ODS)
- Cu-brazing alloy by mechanochemical synthesis
- Phase transformation (Solid State) in engineering materials
- Composite materials
- Brazing and welding
- Cermets

Academic Areas

- Metallurgical Thermodynamics and Kinetics (3-1-0)
- Vacuum Technology in Materials Engineering (3-1-0)
- Experimental Techniques in Materials Engineering (3-1-0)
- Joining of Metals (3-1-0)

Professional Affiliations

♦ Associate Member of ***Indian Institute of Metals*** (IIM).

♦ Associate Member of ***Indian Science Congress*** (ISCA).

Professional Experience

- **Junior Research Fellow (JRF)**, in B.E.Collgege (A Deemed University) from 2000 to 2002
- **Junior Research Fellow (JRF)** in IIT Kharagpur from 2004 to 2006
- **Sr. Project Associate**, in NFTDC, Hyderabad from 2006 to 2008
- **Research Associate,** in the ***Institute of High pressure Physics (Polish Academic of Science) Warsaw, Poland*** from 15th January to 15th April, 2009 and the same time some of the research work carried out in ***Faculty of Material Science and Engineering, Warsaw University of Technology, Warsaw, Poland.***

Papers Published to International Journals

1. **S. K. Karak,** C.S.Vishnu, Z. Witczak, W. Lojkowski, J. Dutta Majumdar and I. Manna , Studies on Wear Behavior of Nano-Y_2O_3 Dispersed Ferritic Steel Developed by Mechanical Alloying and Hot Isostatic Pressing ,**Wear,270(2010) 5-11.**

2. **S. K. Karak**, Z. Witczak, W. Lojkowski, J. Dutta Majumdar and I. Manna, Development of Ultra High Strength Nano-Y_2O_3 Dispersed Ferritic Steel by Mechanical Alloying and Hot Isostatic Pressing in **Material Science Engineering A** 528 (2011)7475-7483.

3. **S.K. Karak,** J. Dutta Majumdar, W. Lojkowski , A. Michalski, L. Ciupinski, K.J. Kurzydłowski and I. Manna Microstructure and Mechanical Properties of Nano-Y_2O_3 Dispersed Ferritic Steel Synthesized by Mechanical Alloying and Consolidated by Pulse Plasma Sintering, ***Philosophical Magazine***, Vol. 92,(2012),pp.516-534.

4. **S. K. Karak**, J. Dutta Majumdar, Z. Witczak, W. Lojkowski, L. Ciupinski, K. J. Kurzydlowski, and I. Manna, (2013), Evaluation of microstructure and mechanical properties of nano-Y_2O_3 dispersed ferritic alloy synthesized by mechanical alloying and consolidated by high pressure sintering, ***Metallurgical and Materials Transaction*** A, Vol. 44A, (2013), pp. 2884–2894.

5. **S. K. Karak**, J. Dutta Majumdar, Z. Witczak, W. Lojkowski, and I. Manna, Microstructure and mechanical properties of nano-Y_2O_3 dispersed ferritic alloys synthesized by mechanical alloying and consolidated by hydrostatic extrusion, ***Materials Science and Engineering A***, Vol. 580, (2013), pp. 231–241.

6. **S.K. Karak,** J. Dutta Majumdar, and I. Manna, (2013), Isothermal and non-isothermal oxidation kinetics of nano - oxide dispersed high Cr ferritic steel prepared by mechanical alloying, ***Powder Metallurgy.*** Vol. 56, (2013), pp. 310–316.

7. Mohan Nuthalapati, **S.K. Karak,** J. Dutta Majumdar, and A. Basu, Phase Evolution and Mechanical Properties of Nano-TiO_2 Dispersed Zr-Based Alloys by Mechanical Alloying and Conventional Sintering, ***Metallurgical and Materials Transaction A*** Vol. 45, (2014), pp.3748-3754

8. **S. K. Karak,** A. Meherwal, J. Dutta Majumdar and I. Manna, Isothermal oxidation kinetics of nano – Y_2O_3 dispersed high Cr ferritic steel prepared by mechanical alloying and hot isostatic pressure sintering, ***Metallurgical and Materials Transaction*** A, (2014) (Under review).

9. **S. K. Karak** and S. Chatterjee, Evolutionary Algorithm-based Neural Network Modeling of Physical and Mechanical Properties of Nano-Y_2O_3 Dispersed Ferritic Alloys, **Powder Technology 274 (2015) 217–226.**

10. A.Patra, **S.K.Karak**, S.Pal,Synthesis and Characterization of $W_{80}Ni_{10}Mo_{10}$ alloy produced by mechanical alloying, IOP Conf. Series: Materials Science and Engineering 75 (2015) 012032

11. P. Sahani , **S.K. Karak** , B. Mishra , D. Chakravarty and D. Chaira, comparative study on SiC-B4C-Si cermet prepared by pressureless sintering and spark plasma sintering methods, **Metallurgical and Materials Transaction A** (**2015**) (Under review)

12. M. Nuthalapati, **S. K. Karak**, D. Chakravarty and A. Basu, High density nano Y_2O_3 dispersed Zr alloysdeveloped by Mechanical Alloying and Spark Plasma Sintering, **Metallurgical and Materials Transaction A** (**2015**) (Under review).

13. A.Patra , Md. Meraj , S. Pal , N.j Yedla and **S. K. Karak**, Experimental and atomistic simulation based study of W based alloys synthesized by mechanical alloying., **Metallurgical and Materials Transaction A**(**2015**) (Under review)

Papers presented at Conferences

1. **Effect of Nano oxide Dispersion on Mechanical properties and Oxidation behaviour of Ferritic steels Synthesized by Mechanical Alloying** *by* **S. K. Karak**, C. Sriraman and I. Manna in ***NMD-ATM-2008.***

2. **Mechanical Properties of Nano-Y_2O_3 Dispersed Ferritic Steel Developed by Mechanical Alloying and High Pressure Sintering** *by* **S. K. Karak**, T. Chudoba, Z. Witczak, W. Lojkowski, and I. Manna in ***NMD-ATM-2009.***

3. **Mechanical Properties of Nano-Y_2O_3 Dispersed Ferritic Steel Developed by Mechanical Alloying and Pulse Plasma Sintering** *by* **S. K. Karak**, T. Chudoba, Z. Witczak, W. Lojkowski, and I. Manna, ***97th Indian Science Congress*** **-2010**

4. **Mechanical Properties of Nano-Y_2O_3 Dispersed Ferritic Steel Developed by Mechanical Alloying and Hot Isostatic Pressing** *by* **S. K. Karak**, W. Lojkowski, J.Dutta Majumdar and I.Manna in ***NMD-ATM-2010.***

5. **Mechanical Properties of Nano-Y_2O_3 Dispersed Ferritic Steel Developed by Mechanical Alloying and Hot Isostatic Pressing** *by* **S. K. Karak**, W. Lojkowski, J. Dutta Majumdar and I.Manna in ***ANM-2010.***

6. **Hot Isostatic Pressing and Mechanical Property of Nano-Y_2O_3 Dispersed Ferritic Steel Developed by Mechanical Alloying** by **S. K. Karak** in **COMPOSIT II - 2011** in Society of Metallurgical Engineers (SME) and Department of Metallurgical and Materials Engineering , Indian Institute of Technology Kharagpur
7. **Development of Nano-Y_2O_3 Dispersed Ferritc Alloys for Nuclear Reactors by S.K. Karak**, J. Dutta Majumdar, W. Lojkowski and I.Manna *in* ***NMD ATM***, November 16-19, 2012, Jamshedpur, India

8. **Microstructure and mechanical property of nano-TiO2 dispersed Zr based alloys by mechanical alloying and conventional sinterin**g by Mohan Nuthalapati, **S.K. Karak** and A. Basu in NMD ATM, November 16-19, 2013, IIT BHU, India

9. **Synthesis and Charaterization of ODS Ferritic Alloys Developed by Mechanical Alloying and High Pressure Sintering by S.K. Karak**, J. Dutta Majumdar, W. Lojkowski and I.Manna, *in* ***ICEMP***, Feb 26-28, 2014, Bhubaneswar, India, Conference Proceedings, pp.157-160.

10. Effect of Si on SiC-B4C based cermet prepared by pressureless sintering and spark plasma sintering methods by P. Sahani, **S. K. Karak,** B. Mishra, D. Chakravarty, D. Chaira, International Conference On Emerging Materials And Processes-2014"(ICEMP 2014), during 26^{th} to 28^{th} February 2014 at CSIR-IMMT, Bhubaneswar, Conference Proceedings, pp.100-103.

Book Chapter

1. Debasis Chaira and **Swapan Kumar Karak**, **Handbook of Mechanical Nanostructuring**, Fabrication of Nanostructured Materials by Mechanical Milling, Chapter16, Wiley, page-379, (2015).

Sponsored Research Project:

1. **Title:** Development of zirconium based alloys by mechanical alloying
   Principal Investigator: Prof. Swapan Kumar Karak
   Sponsor: Department of Science & Technology, India and Ministry of Science & Higher Education, Poland
   Duration: Apr 2015 to Apr 2018
   Cost: 14 lakhs

2. **Title**: Characterization and numerical simulation of brazed joint - ceramic ring of HVB (High Voltage Bushing)
   Principal Investigator: Prof. Swapan Kumar Karak
   Sponsor: BRFEST
   Duration: Apr 2015 to Apr 2017
   Cost: 23 lakhs

References

1) Prof. Indranil Manna

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Kanpur-208016
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Personal web: **http://www.imanna.org**

2) Dr. J. Dutta Majumdar

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3) Prof. W. Lojkowski

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