

# Barada Kanta Mishra



## Present Address:

House No. 701, IMMT Campus  
Bhubaneswar-751013  
Phone: 0674 2567126; Fax: 0674 2567160

**Date of Birth:** 15<sup>th</sup> June, 1959

**Present Position:** Director  
CSIR-Institute of Minerals & Materials Technology

**Areas of Specialization:** Mineral processing, bio-minerals processing;  
Powders and particles; Discrete element method (DEM);  
Extractive metallurgy and waste treatment

## Academic Record:

| Degree  | Institute                                 | Year | Remarks                  |
|---|---|------|--------------------------|
| <b>B.Sc. (Engg.)</b><br>(Metallurgical Engg.) | NIT Rourkela<br>India                     | 1981 | 1 <sup>st</sup> Division |
| <b>M.S.</b><br>(Metallurgical Engg.)          | Wayne State University<br>Michigan, USA   | 1986 | 3.76/4.0                 |
| <b>Ph.D.</b><br>(Metallurgical Engg.)         | University of Utah<br>Salt Lake City, USA | 1991 |                          |

## Publications:

| Refereed<br>Journal<br>(SCI) | International<br>Conference<br>Proceedings | National<br>Conference<br>Proceedings | Patent<br>filed | Patents<br>granted | Book<br>Chapters | Book     |
|------------------------------|--|---------------------------------------|-----------------|--------------------|------------------|----------|
| <b>220</b>                   | <b>28</b>                                  | <b>25</b>                             | <b>10</b>       | <b>5</b>           | <b>12</b>        | <b>1</b> |

## Professional Experience:

- Director CSIR-IMMT Bhubaneswar Dec 2005 – Present
- Chairman, Recruitment & Assessment Board  
CSIR, New Delhi May 2015 – May- 2016
- Professor IIT Kanpur July 2001 – June 2011
- Visiting Professor, University of Utah, USA December 2003 - July 2004
- Associate Professor, IIT Kanpur May 1997 – July 2001
- Visiting Professor, Aston University, UK July 1999 - July 2000
- Assistant Professor, IIT Kanpur July 1993 - May 1997
- Post-doctoral fellow, University of Utah, USA January 1991 - June 1993
- Project Engineer, IMFA, India June 1981 - July 1984

## Awards & Honors:

- National Mineral Award 2007
- IIME Mineral Beneficiation Award 2007
- Fellow, Indian National Academy of Engineering, 2009
- VASVIK Award for Industrial research in Materials Science & Technology, 2012
- Member, Editorial Board
  - :: International Journal of Mineral Processing, Elsevier Publications
  - :: Minerals Engineering, Elsevier Publications
  - :: Transactions of the Indian Institute of Metals, Springer Publications
  - :: International Journal of Mining and Mineral Processing, International Science Press
- IIME Best Conference Paper Award 2009
- NCB Best Conference Paper Award 2013
- IIME Best Published Paper Award 2010, 2015
- Participated in the Fulbright program, May-July 2002
- Adjunct Professor, University of Utah, Salt Lake City, USA, since 01 March 2011
- AICTE-INAE Distinguished Visiting Professor, IIT Bhubaneswar
- Chairman, Organizing Committee, International Mineral Processing Congress 2012  
www.impc2012.org, New Delhi, 24-28 September, 2012  
(The conference was organized for the first time in India)
- Member of Expert Committee formed by Hon'ble Supreme Court for Macro EIA study in Goa relating to iron ore mining, November 2013-April 2015
- President, Indian Institute of Minerals Engineers (IIME) (2013-present)
- STAR Alumnus Award, NIT Rourkela, 2015
- Think Odisha Leadership Award, 2012
- Utkal Pratibha Samman, 2014

## Thesis Supervision:

|         |                             |
|---------|-----------------------------|
| M. Tech | 16 completed;               |
| Ph.D.   | 10 completed; 2 in progress |

## Commercial Software Developed:

Millsoft© for design and routine operation of tumbling mills.  
Symcyclone© for designing industrial hydrocyclone.

## Academic Experience (@IIT Kanpur)

### Courses Taught

|         |  |         |
|---------|--|---------|
| ESO 214 | Structure and Properties of Materials        | UG Core |
| MME 421 | Minerals Engineering                         | UG      |
| MME 466 | Particulate Materials                        | UG      |
| MME 320 | Units Processes in Extractive Metallurgy     | UG      |
| MME 331 | Process Metallurgy Lab I                     | UG      |
| MME 608 | Computer Application in Minerals Engineering | PG      |
| MME 638 | Process Metallurgy                           | PG      |
| MME 632 | Analysis of Particulate Systems              | PG      |

### **Courses Tutored**

|          |                                     |    |
|----------|-------------------------------------|----|
| ESO 214  | Structure & Properties of Materials | UG |
| ESC 101  | Elements of Computing               | UG |
| COMS 200 | Communication Skills                | UG |
| TA201    | Manufacturing Processes             | UG |

### **Academic Experience (@ CSIR-IMMT)**

- 2009-2013 Designed and Introduced a new PG/M.Tech program in Materials Resource Engineering (PGRPE) at CSIR-IMMT
- 2009-2012 Taught a graduate level course on Design and Simulation of Mineral Processing Systems to PGRPE students of AcSIR.
- 2009-present Started a new PGDME program in Minerals Engineering The course is intended for practicing engineers seeking skill enhancement.
- 2011-2013 Chairman of the National CSIR NET-Engineering examination. Coordinating between various experts for setting question papers.
- 2013-2015 AICTE-INAE Distinguished Visiting Professor, Delivered lectures on the Discrete Element Method and its application to particulate systems at IIT Bhubaneswar

### **Continuing Education:**

Conducted the following short-term courses:

- Modeling and Simulation of Mineral Processing Units, IIT Kanpur, April 17-21, 1995.
- Industrial Grinding Practice, TEGA Industries, Kolkata, May 29-31, 2003.
- Processing of Particulate Materials, SAMTEL Ltd., Gazhiabad, July 7-8, 2003.
- Advances in Milling and Classification, Ashanti Gold Mines, Ghana, April 2-3, 2003.
- Modern Trends in Milling Practice, KIOCL Kudremukh, December 13-15, 2004.
- Discrete Element Method for Particulate Systems, IIT Kanpur, 22-24 April, 2005.
- Industrial Milling Practices, NALCO, Damanjodi, December 3-5, 2007.
- Industrial Milling Practices and Allied Issues, HCL, Khetri, February 26-28, 2008.
- Fundamentals of Iron Ore Processing, TATA Steel, Noamundi, March 1-5, 2009.
- Advances in Comminution Circuits, KIGAM, Daejeon, South Korea, May 2-4, 2011.
- Mineral Processing Plant Practice, M/s Tega Industries, Kolkata, 4-5 July, 2013.
- Mineral Processing Plant Design, NALCO, Damanjodi, 30 July - 2 August, 2013.

### **Selected Invited Talks:**

- *Fun with granular materials*, CSIR Foundation Day Lecture at CSIR-CGCRI Kolkata, 7<sup>th</sup> December, 2016.
- *Extraction of rare earth elements*, IIT Kharagpur, 6<sup>th</sup> November 2016.
- *Toward building a resource based sustainability foundation*, Foundation Day Lecture at ISM Dhanbad, 9<sup>th</sup> December, 2015.
- *Present and future methods of iron ore processing*, International Workshop on Iron and Steel, Department of Materials Engineering, IISc Bangalore, 3-5 December, 2014.
- *Why some minerals do not float?* Public Lecture at University of Utah, Salt Lake City, USA, January 31, 2012.

### Sponsored Projects:

|              |  |       |
|--------------|--|-------|
| 2001- 2004   | Development of a diagnostic tool for tumbling mills based on vibration analysis  | DST   |
| 2005-2007    | Synthesis of artificial bone material by reaction milling  | MHRD  |
| 2007-2008    | Plant optimization and de-bottlenecking study of KIOCL's pellet plant Mangalore<br>(Co-Investigator: Dr. S. K. Biswal)   | ESSAR |
| 2007-2008    | Development of microbial process for recovery of nickel and cobalt from chromite overburden<br>(Co-Investigator: Mr. L. B. Sukla)                                      | OMC   |
| 2006-2009    | Development of a wireless sensor for tumbling mills<br>(Co-Investigator: Dr. S. K. Biswal and Mr. S. K. Mishra)  | DST   |
| 2008-2010    | Fabrication of Mg-TiC composite by self propagating high temperature synthesis (SHS) process<br>(Co-Investigator: Mr. A. K. Chaube)                                    | DST   |
| 2008-2010    | Synthesis and characterization of doped iron oxide nano-particles for selective removal of dissolved species from contaminated water (Indo-Australian project)         | DST   |
| 2009-2011    | Development of DEM based simulation model for jiggling   | SAIL  |
| 2009-2013    | Reduction of iron ore by hydrogen plasma   | MOS   |
| 2009-2013    | Fundamental electrochemical studies during electrolytic reduction of titanium dioxide to titanium<br>(Co-Investigator: Dr. B.C. Tripathy)                              | DRDO  |
| 2010-2013    | Processing and characterization for the preparation of oxide dispersion strengthened ferrite steel by high energy ball milling<br>(Co-Investigator: Mr. K. Jayasankar) | BRNS  |
| 2010-2015    | Process for direct production of pig iron from iron ore fines using thermal plasma route<br>(Co-Investigator: Dr. P.S. Mukherjee)                                      | MOS   |
| 2012-present | Processing of electronic waste<br>(Indo-Australia project)   | DST   |

**Incubated the first *start-up* company out of the MSE department of IIT Kanpur**

**Partners: Prof. Sandeep Sangal and Prof. Ashish Garg**

**Cenogen Materials (P) Ltd. (<http://www.cenogen.com>). The start-up was about development of state-of-the-art milling device to prepare nano powders of oxides and carbides.**

**Currently the company operates as *EGOMA Technologies Pvt. Ltd.***

**(<http://www.egomatech.com>)**