

# ARINDAM PAUL

Assistant Professor  
Department of Ceramic Engineering  
National Institute of Technology Rourkela  
Odisha 769 008  
email : [paula@nitrkl.ac.in](mailto:paula@nitrkl.ac.in)  
[arindpaul@gmail.com](mailto:arindpaul@gmail.com)  
Mobile: 09178782203  
Phone: 0661-246 2215



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## EDUCATION

**2010 Ph.D** (Materials Engineering), Indian Institute of Science, Bangalore

Thesis: The Processing, Consolidation and Deformation Behavior of Bulk Amorphous  $\text{Al}_2\text{O}_3$ - $\text{Y}_2\text{O}_3$  Ceramics

Advisor: Prof. Vikram Jayaram

CGPA: 6.0/8.0

**2003 M Tech** (Materials Science), Indian Institute of Technology, Kanpur

Thesis: Preparation of Nanosized Zirconia Powders and their Characterization by a Dynamic Light Scattering Instrument

Advisor: Prof. D. C. Agrawal

CPI: 8.32/10.00

**1999 B Tech** (Ceramics Technology), University of Kolkata

Project: The Effect of Addition of Chromia on the Properties of Basic Castables

76.3% (First Class with Hons.)

## RESEARCH INTEREST

Metastable ceramics and glass, Non-equilibrium processing of ceramics, Mechanical behavior, Composite materials

## PROFESSIONAL EXPERIENCE

1. Assistant Professor, Department of Ceramic Engineering, NIT Rourkela, April 2014 – continuing.
2. Sr. Executive (Technology) at Crompton Greaves Ltd. (Global R & D Center), June, 2010 - March, 2014.
3. Research Associate at Department of Materials Engineering, IISc from February, 2010 to May 2010.

## RESEARCH EXPERIENCE

### i] IISc Bangalore:

**Topic:** Deformation and structural densification in  $\text{Al}_2\text{O}_3\text{-Y}_2\text{O}_3$  glass (PhD research)

### ii] IIT Kanpur:

**Topic:** Nanoceramic preparation via microwave synthesis route (M Tech research)

### iii] NIT Rourkela:

**Topic:** (a) Development of glass microballoon-epoxy based composite syntactic foam for structural application

(b) Research on utilization of waste materials

## INDUSTRIAL EXPERIENCE

### i] Crompton Greaves Ltd. (Global R & D Center, Mumbai)

**Topic:** Development of multifunctional coating for large industrial pump application

## PUBLICATIONS

1. [Book Chapter] Ashutosh S Gandhi, **Arindam Paul**, Shailendra Singh Shekhawat, Umesh Waghmare and Vikram Jayaram, "Metastable phase selection and low temperature plasticity in chemically synthesized  $\text{ZrO}_2\text{-Al}_2\text{O}_3$  and  $\text{Y}_2\text{O}_3\text{-Al}_2\text{O}_3$ " in *Oxide Nanostructures: Growth, Microstructures and Properties*, Ed. A K Srivastava, Pan Stanford Publication, p 115-151, 2014.
2. **Arindam Paul** and Vikram Jayaram, Deformation and Structural Densification in  $\text{Al}_2\text{O}_3\text{-Y}_2\text{O}_3$  Glass, *Acta Materialia*, 59 (1), 82-92 (2011).
3. **A Paul**, S Saravanan, N Jha, J Yesuraj and J B Nemade, Evaluation and failure analysis of high-resistance collar coating of varistors, *Proc. of IEEE/10th International conference on the properties and application of dielectric materials*, 2012 (ICPADM 2012), Bangalore (DOI: 10.1109/ICPADM.2012.6318999).

## Conferences

1. **Arindam Paul** and Vikram Jayaram, "Molecular Densification and Multiple Amorphous States by Deformation of  $\text{Al}_2\text{O}_3\text{-15 mol% Y}_2\text{O}_3$  Glass", presented at 8<sup>th</sup> Pacific Rim Conference on Ceramics and Glass Technology, Vancouver, British Columbia, Canada, May 31-June 5, 2009.
2. **Arindam Paul** and Vikram Jayaram, "Plasticity in Bulk Amorphous  $\text{Al}_2\text{O}_3\text{-Y}_2\text{O}_3$ ", presented at IUMRS-International Conference on Advanced Materials (ICAM-2007), Bangalore, October 8-13, 2007.

3. **Arindam Paul** and Vikram Jayaram, “*Consolidation and High Temperature Deformation of Bulk Amorphous  $Al_2O_3$ -15 mol%  $Y_2O_3$* ”, presented at International Conference on Advances in Materials Engineering, Indian Institute of Science, Bangalore, July 4-6, 2007.
4. **Arindam Paul** and Vikram Jayaram, “*Consolidation and Deformation of Bulk Amorphous  $Al_2O_3$ -15mol%  $Y_2O_3$* ”, presented at Eighth International Conference on Nanostructured Materials (NANO 2006), Indian Institute of Science, Bangalore, August 20-25, 2006.
5. Arpana Jindal, **Arindam Paul** and D. C. Agrawal, “*Synthesis and Crystallization of Spherical Monodispersed Nanoparticles of Stabilized Zirconia by Microwave Heating and Hydrothermal Treatment*”, presented at International Conference on Recent Advances in Inorganic Materials (RAIM-2002), Indian Institute of Technology, Bombay, December 11-13, 2002.

## AWARDS AND HONOURS

- **1993** National Merit Scholarship in Secondary Examination
- **1995** National Merit scholarship in Higher Secondary Examination
- **2001** AIR (All India Rank) – 38 in GATE (Engineering Science) out of 600 examinees.
- **2001** Scholarship by Ministry of Human Resource Development (MHRD), India for M Tech
- **2003** Scholarship by Ministry of Human Resource Development (MHRD), India for PhD
- **2006** Second best prize in Metallographic contest in the 19<sup>th</sup> Annual Symposium on Metallurgical and Materials Research, IISc, Bangalore, India.
- **2009** CSIR travel grant and The Indian Institute of Metal (IIM) Swarna Jayanti Endowment Fund grant (partial) for paper presentation in Vancouver, Canada
- **2013** Crompton Greaves Superstar Team Award for successfully completing the project ‘Development of laminar flow coating for pumps’

## COURSES TAUGHT AT NIT ROURKELA

### UG level course

- Materials Science and Engineering

### PG level course

- Electron Microscopy
- Advanced Composites

## SKILLS

**Broad experimental skills:** Expertise in high temperature mechanical testing by using universal testing machine (Instron and Dartec), hot uniaxial pressing, cold isostatic press, chemical precursor synthesis of metastable oxides (spray pyrolysis, co-precipitation), nano-ceramic synthesis, ceramic powder processing, Archimedes' density measurement by wax coating technique, metallographic sample preparation, spray coating and dip coating for polymer-ceramic composite, Spray gun operation for coating ceramic/polymeric paint on mild steel or cast iron substrates

**Versatile instrumentation skills:** Wide hands-on experience in using FEG-SEM techniques including SE, BSE, EDS, X-Ray elemental mapping, X-ray line scan profile, Optical Microscopy, XRD, Dynamic light scattering instrument (Malvern), Microhardness tester (CSM Instruments), Helium gas pycnometry, thermal analysis, High/low temperature laboratory box furnace (Thermolyne), Salt Spray chamber (for corrosion studies), Dry film thickness meter, impact tester, cross-hatch adhesion tester, Taber abrasion, pull off adhesion tester (for polymeric thin film characterization), roughness measurement.

I am also familiar with the characterizations techniques like AFM, Raman scattering, nano-indentation, UV, FTIR

## ACTIVITIES

- Reviewer of *Journal of alloys and compounds*
- Selected as the **Convener** for the lecture series organized by the Sigma-Tau group in the Department of Materials Engineering, Indian Institute of Science during the period of August 2005 to July 2006.

## PERSONAL INFORMATION

- Nationality : Indian
- Date of Birth : 05.05.1976
- Marital Status : Married
- Present address : Quarter No FR 14, National Institute of Technology Rourkela, Odisha 769 008
- Permanent Address : 46, Indraloke, Road No 7, PO: Sodepur, Kolkata 700110, West Bengal

## REFERENCES

### Prof. Vikram Jayaram

Professor  
Department of Materials Engineering  
Indian Institute of Science  
Bangalore-560012, India  
E-mail: [gjayaram@materials.iisc.ernet.in](mailto:gjayaram@materials.iisc.ernet.in)  
Phone no: +91 80 22933243  
Fax no: +91 80 23601198

### Prof. Ashutosh S Gandhi

Associate Professor  
Department of Metallurgical Engineering  
and Materials Science  
Indian Institute of Technology Bombay  
Powai, Mumbai, Maharashtra 400076  
E-mail: [agandhi@iitb.ac.in](mailto:agandhi@iitb.ac.in)  
Phone no: +91 22 25767614