

Curriculum Vitae

Subhranshu Chatterjee

Personal details

- Present Address – Flat no 4C, Rishi Apartment. Jhawtala Road, P.O. – Hatiara, Near Loknath Mandir. Kolkata – 700157. West Bengal. India.
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Experience Summary

- Product Manager for XPS system of Physical Electronics (ULVAC-PHI), USA
- Product Support for X-ray Microscope of Sigray, Inc USA.
- Application specialist for FESEM, FIB-SEM (LYRA3) of TESCAN, Brno CZ
- Experience in Electron Beam Lithography and Ion Beam Lithography.
- Application specialist for NICOMP PSS Particle size analyzer and zeta potential measurement system.
- Nanomaterials and nanocomposite processing and characterization.
- Responsible for characterization of nanocomposite using JEOL JSM 5510 and Hitachi S-3400N Scanning Electron Microscopes.
- Design of experiments for the preparation of Al based nanocomposite through stir casting route.
- Synthesis of ZnO/C hybrid nanostructure in anodic aluminium oxide template.
- Experience in handling and maintenance of **microhardness tester**, **planetary ball mill machine** (Fritsch P7), **X-ray diffraction machine** (Philips PW 1830 diffractometer, Bruker D8 Advance), **INSTRON testing machine** (Model: 8810), **Differential scanning calorimetry** machine (Perkin Elmer DSC – 8000), **Atomic force microscope** (Bruker, Dimension edge with Scan Asyst), **Nanoindentation and Nanoscratch machines** (CSM instruments).
- Metallurgical and materials sample preparations using standard polishing technique.
- Worked in MS Office applications, MATLAB, Leptos 7.0, Multex 3.0.

Work Experience

- **October 2020 – Present – ICON Analytical Equipment Pvt Ltd**
 - Technical and Application support for XPS, SEM, FESEM and XRM.
 - Product support to the sales team – All India
- **February 2017 – October 2020 – Advance Scientific Equipment Pvt Ltd**
 - Application support for FESEM, SEM, FIB-SEM to the existing users. Demonstration of FIB-SEM/FESEM for the prospective customers Technical support to Sales Team for North, East India.
 - Application Specialist for NICOMP PSS Particle Size Analyzer and zeta potential measurement system. Responsible for installation and application related matter.

- **September 2009 – July 2016**

Project Title: Indo-AUS project: Nanocomposites materials for clean energy: Energy Generation, storage, saving and safety sponsored by DST (Department of Science and Technology, Govt. of India).

Subtitle: Development of titanium-aluminide and alumina reinforced in-situ aluminium matrix nanocomposite for structural and energy saving applications.

Ph.D title: Processing of intermetallic phase reinforced Al based nanocomposites: Microstructural features and their effect on mechanical properties

Brief description: In this project, nanoparticle reinforced Al and Al alloy-based nanocomposites have been prepared by reactive stir casting technique and the influence of microstructural features and parameters on the mechanical properties has been studied.

Three different types of nanocomposites were prepared:

(i) Al/(Al₃Ti+Al₂O₃) (ii) Al-Cu/Al₂O₃ (iii) Al-Cu/(Al₂O₃+Al₃Ti). Microstructural parameters such as screw and edge dislocation density were evaluated by using x-ray diffraction analysis. Nanomechanical properties were studied by using nanoindentation and nanoscratch test. The strength properties of the nanocomposites were measured by conducting tensile tests and the properties are correlated with the respective microstructural characteristics, which are observed by scanning electron microscope and transmission electron microscopes.

Academic responsibilities:

- Synthesis of aluminium nanocomposite through melt cast route.
- Microstructure-property correlation of nanocomposite using scanning electron microscope.
- Measurement of **microstructural parameters** (dislocation density, stacking fault probability, percentage of screw and edge dislocation through modified Warren Averbach and Williamson-Hall method), **textural analysis, residual stress analysis** using **x-ray diffraction analysis**.
- Mechanical property measurements of nanocomposite using tensile testing machine and **nanoindentation** tester.
- Wear property evaluation through **nanoscratch** tester.

Other responsibilities:

- Conducting x-ray diffraction laboratory classes.
- Management of various functionalities in various conferences at IEST Shibpur.

Achievements/Certifications/Awards

- Life Membership of **Electron Microscopy Society of India** – LM 1494.
- Awarded **1st prize** in the **Oral presentation** in Ph.D scholar category in Seminar on **Microstructure of Materials** in 2014.
- **Best student research paper award** in M3 2016 conference, **Singapore**.
- Completed a course of **Silicon Nanostructures & Carbon Nanotubes Based Nanoelectronics** from Nano Science and Technology Consortium.
- **British English Certificate** (BEC) Preliminary from British Council affiliated to Cambridge University.
- Received **National Scholarship** in Higher Secondary Examination.
- Certificate and Diploma holder of **German Language** from Jadavpur University.
- Completed a course in **Intellectual Property Rights and Information Technology**, conducted by Indian Law Institute, Delhi.

Academic Qualifications

Degree	Year	University / Board	DGPA / Percentage
Doctor of Philosophy (Engineering)	2017	Indian Institute of Engineering Science and Technology, Shibpur	Not Applicable
Master of Technology (Nano Science and Technology)	2009	Jadavpur University	8.69 (80.06%) (Rank 2 nd)
Bachelor of Technology (Electronics and Communication Engineering)	2007	West Bengal University of Technology	8.5 (Out of 10)
Higher Secondary Examination (10 + 2)	2003	Katwa Kashiram Das Institution (W.B.C.H.S.E)	78.8%
Secondary Examination (10)	2001	Katwa Kashiram Das Institution (W.B.B.S.E)	78.5%

Publications

A. Peer reviewed journals

- [1]. **S. Chatterjee**, A.B. Mallick. "Insights into the microstructural parameters and mechanical property correlation of Al₃Ti phase reinforced Al based nanocomposites"; *Materials Science and Engineering Technology* (50, 2019, 1459 – 1470). (Wiley) **[Impact Factor: 0.556]**
- [2]. **Subhranshu Chatterjee**, A. Basu Mallick. "Enhancement in Field Emission Characteristics of Multifunctional ZnO/C Hybrid Nanostructures"; *Material Chemistry and Physics* (135, 2012, 411-415). (Elsevier) **[Impact factor: 3.408]**
- [3]. **Subhranshu Chatterjee**, Amitava Basumallick. "Challenges in manufacturing aluminium based metal matrix nanocomposites via stir casting route"; *Materials Science Forum* (736, 2013, 72-80). (Trans Tech publication) **[Impact Factor – 0.35]**
- [4]. **Subhranshu Chatterjee**, Arijit Sinha, Debdulal Das, Sumit Ghosh, Amitava Basumallick. "Microstructure and mechanical properties of Al/Fe-aluminide in-situ composite prepared by reactive stir casting route"; *Materials Science and Engineering A*. (578, 2013, 6-13).(Elsevier) **[Impact factor: 4.652]**
- [5]. **Subhranshu Chatterjee**, Sumit Chabri, Himel Chakraborty, Nandagopal Bhowmik, Arijit Sinha. Micromechanical and Nanoscratch Behavior of SiCp Dispersed Metal Matrix Composites. *Journal of Materials Engineering and Performance* (24, 2015, 3407 - 3418). (Springer) **[Impact factor: 1.476]**
- [6]. **Subhranshu Chatterjee**, Sudipta Ghosh Sur, Sri Bandyopadhyay, Amitava Basu Mallick. Effect of microstructure and residual stresses on nano-tribological and tensile properties of Al₂O₃ and SiC reinforced 6061-Al metal matrix composites. *Journal of Composite Materials* (50(19), 2016, 2687 – 2698) (Sage publication) **[Impact factor: 1.972]**
- [7]. Sumit Chabri, **Subhranshu Chatterjee**, Santanu Pattanayak, Himel Chakraborty, Nandagopal Bhowmik, Arijit Sinha. Development and characterization of Al₂O₃ dispersed Al/Mg/Cu/Ti matrix composite. *Journal of Materials Science and Technology* (29(11), 2013, 1085-1090).(Elsevier) **[Impact Factor: 6.155]**
- [8]. Kausik Basu, **Subhranshu Chatterjee**, Anirban Roychowdhury, Dipankar Das, Amitava Basumallick. Microstructure-property correlations of multifunctional Si-Fe nanocomposite. *Nano Hybrid* (9, 2016, 15- 23). (Trans Tech publication)
- [9]. Souriddha Sanyal, Sumit Chabri, **Subhranshu Chatterjee**, Nandagopal Bhowmik, Avijit Kumar

Metya, Arijit Sinha. Tribological behavior of thermomechanically treated Al–Mg–Si alloy by nanoscratch measurements. *Tribology International* (102, 2016, 125 – 132). (Elsevier) [**Impact factor: 4.271**]

- [10]. Souriddha Sanyal, **Subhranshu Chatterjee**, Sumit Chabri, Nandagopal Bhowmik, Arijit Sinha. Influence of over-aging and sub-zero temperature rolling on strength ductility balance in AA6061 alloy. *Engineering Science and Technology, an International Journal* 22 (2019) 359–369 (<https://doi.org/10.1016/j.jestch.2018.10.003>) (Elsevier) [**Impact Factor –3.219**]
- [11]. Shubhadeep Maity, Sumit Chabri, **Subhranshu Chatterjee**, Supriya Bera and Arijit Sinha. Micromechanical behavior of b-Al₃Mg₂-dispersed aluminum composite prepared by high-energy ball milling and hot pressing. *Journal of composite materials*. (2016). (DOI: 10.1177/0021998316673705) (Sage publication) [**Impact Factor – 1.972**]

B. Papers presented in conferences

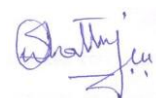
- [1]. Synthesis and characterization of multifunctional ZnO/C hybrid nanostructures. International conference on fundamental & applications of nano science & technology. 2010. Jadavpur University. (not published)
- [2]. Synthesis of multifunctional ZnO/C hybrid nanostructures. *Surface Engineering of Metals and Alloys*. 2012. IEST Shibpur. (not published)
- [3]. Different aspects of titanium aluminide reinforced aluminium nanocomposite fabricated by stir casting route. 2014. IEST, Shibpur. (**Awarded 1st prize in Ph.D scholar category**) (not published)
- [4]. Effect of anodizing medium on the morphology and photoluminescent property of porous alumina film. 3rd International Conference on Materials Science, Metal and Manufacturing (M3 2016). 2016. **GSTF, Singapore**. ([doi:10.5176/2251-1857_M316.5](http://dx.doi.org/10.5176/2251-1857_M316.5)) (**Best student research paper awarded**)
- [5]. Understanding the evolution of microstructural features in the insitu intermetallic phase reinforced Al/Al₃Ti nanocomposite. IC-FNM 2016. **Materials Today: Proceedings** 5 (2018). 10118 – 10130.
- [6]. A simple stir casting technique for the preparation of in situ Fe-aluminides reinforced Al-matrix composites. **Perspectives in Science (2016)** (<http://dx.doi.org/10.1016/j.pisc.2016.06.011>) (Elsevier)
- [7]. Magnetic Behaviour of FeCo/Cu Core Shell Nanoparticles. **Key Engineering Materials**. (2016, Vol. 719, pp 3-8)

References

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Declaration

I hereby declare that the information furnished by me is authentic, complete and correct to the best of my knowledge and belief



Signature
(Subhranshu Chatterjee)