Dr SHYAMA D RANADE

Department of Metallurgical and
Materials engineering
Indian Institute of Technology Madras,
Chennai-600036, Tamil Nadu
Mobile: +917358090499

2C, Sai Karuna Apartments,
49 Five Furlong Road,
Guindy, Chennai-600032,
Tamil Nadu
Mobile: +917767012370

WORK EXPERIENCE

Institute Post Doctoral Fellow (March 2018-Present)

Indian Institute of Technology Madras (Chennai, Tamil Nadu)

- Focus on the development of novel self-healing polyurethane coatings
- Involved in functioning of the laboratory as a part of a team
- Participated in co-curricular research related to industry, such as testing of galvanized rods and elastomer coatings

Research executive (Technology Licensing) (July 2012- February 2013)

Cheers Interactive (India) Limited (Navi Mumbai, Maharashtra, India)

- Conducted extensive background study for the technology available for licensing
- Investigated its potential applications in a broad range of industries
- Carried out substantial research for companies that had scope for the utilization of the technology

In-plant trainee (May-June 2008)

Force Motors Ltd., formerly Bajaj Tempo, Akurdi (Pune, Maharashtra, India)

- Gained experience on the workings of metallurgical laboratories in automotive industry
- Carried out hardness testing and spark testing of the components, and observed advanced testing as well

EDUCATION

Ph. D (2013-2017)

- Deakin university, Waurn ponds campus (Geelong, Victoria, Australia)
- Research in energy pipeline coatings used by Australian pipeline industry
- Thesis title: - Measuring and understanding electrochemical, mechanical, and environmental effect on coating degradation (Principal supervisor: Professor Mike YJ Tan)
- Worked as a casual assistant and have carried out testing of industrial pipeline coatings, including tests such as the mandrel bending test for flexibility, as well as supervising projects for undergraduate students

M. Tech (2010-2012)

- Indian Institute of Technology Bombay (IIT Bombay)   (Powai, Maharashtra, India)
- Post Graduation in Corrosion Science and Engineering

- Thesis title: - Pitting and exfoliation corrosion of aluminium alloy 7085 (Principal supervisor: Professor V. S. Raja)
- Research Seminar on literature review of "Hydrogen sulphide corrosion"
- Gained sufficient teaching experience in my capacity as a teaching assistant, wherein I conducted laboratory practicals for undergraduate and graduate students

B. Tech (2006-2010)
- College of Engineering, Pune (COEP) (Pune, Maharashtra, India)
- Graduation in Metallurgy and Materials Science
- Major project: - Extraction of metallic values from electronic scrap (Principal Supervisor: Emeritus Professor R. D. Angal)
- Mini project: - Corrosion inhibitors in acidic medium
- Research Seminar on a detailed literature survey on– 1) Semi-solid metal casting process, and 2) Porous nickel-titanium shape memory alloys

CERTIFICATIONS
- NACE Coating inspector level 1
- NACE Cathodic protection tester

SKILLS

Technical
- Electrochemical corrosion testing methods, especially electrochemical impedance spectroscopy (EIS), potentiodynamic and potentiostatic polarization, electrochemical noise
- Cyclic corrosion testing, especially salt spray testing of coatings
- Scanning electron microscopy (SEM), and energy dispersive spectroscopy (EDS)
- Powder X-ray diffraction spectroscopy (XRD)
- Fourier transform infra-red spectroscopy (FTIR) and Contact angle measurement
- Thermogravimetric analysis (TGA), Differential scanning calorimetry (DSC)
- Mechanical testing of polymers and metals, with special focus on tensile testing
- Characterisation of metals and polymers using optical microscopy and optical profilometry methods, including sample preparation methodologies

Software
- ANSYS mechanical modelling and computational fluid dynamics software
- MATLAB
- Image J image analysis software and Origin data analysis software
- Data constrained modelling software, used for the analysis of X-ray absorption spectroscopy computed tomography
- Electrochemical data analysis software such as EC-lab, Gamry, Solartron