CURRICULUM VITAE

Dr. Debashis Ghosh
Principal Scientist
NDT & Metallurgy Group
CSIR-Central Mechanical Engineering Research Institute
Durgapur-713209
West Bengal, India
Mobile: +91-9474557250
Phone: +91-343-6452083(O)/ +91-343-6452283
Email : **dghosh@cmeri.res.in, dbs1012000@gmail.com**

Education

PhD in Engineering (Metallurgical and Materials Engineering)-2011
Master of Technology (Metallurgical and Materials Engineering)-2004
Bachelor of Engineering (Metallurgical Engineering)-1991

Professional Experience

Engineer (Technical service)
ABB-ABL projects India Limited, Kolkata, India
Period: November, 1991 to 1997
Scientist-B
CSIR-Central Mechanical Engineering Research Institute
Durgapur-713209 West Bengal, India
Period:1997-2000
Scientist-C
CSIR-Central Mechanical Engineering Research Institute
Durgapur-713209 West Bengal, India
Period:2001-2005
Scientist-EI
CSIR-Central Mechanical Engineering Research Institute
Durgapur-713209 West Bengal, India
Period:2006- 2009
Scientist-EII
CSIR-Central Mechanical Engineering Research Institute
Durgapur-713209 West Bengal, India
Period: 2010 - Continuing

Research Area / Interest

High Temperature Oxidation/corrosion, Corrosion resistant coatings, nanostructured coatings, Damage assessment, Residual life assessment (RLA), Failure analysis and Material characterization.

Important Research Project Executed

- **"Nano structured coatings for High temperature corrosion resistance applications." 12 th Five year plan Network project, Sponsored by CSIR (Project no- ESC-0112/ RP-II/T 1.8).**

- "**High temperature corrosion protection of Cr- Mo steel by using reactive oxide coatings**" **Project sponsored by CSIR- CMERI (OLP 141312).**
- **"Rheo Pressure Die Casting of JIS ADC 12 Aluminium alloys (project no- SSP 121712) sponsored by Sona Koyo Steering system limited, Gurugaon (Role- Co-Project leader)**
- **"Component integrity and Life Assessment study of different boiler components (U-1, 2, 3 & 4) at CESC Titagarh, Kolkata (Project No- SSP-140912**)
- "**Validation of existing RLA data using ALIAS and Creating a RLA database of Indian power plants."TAREMAC network project Sponsored by CSIR (Project No- NWP- 0027), Role- Co project leader**
- **"Integrity assessment of failed MAST structure of drilling rig of Cold Bed Methane (CBM) project**."
- "**Quality assurance of Furnace ring Header 2X 600 MW thermal power plant At RTPS DVC (U-1&2)." DVC, Raghunathpur, WB.**
- "**Component Integrity, Residual Life Assessment and Failures study of different critical components of thermal power plant boiler." (Rendered various power plants in India**)
- **Development of process technology and manufacturing of Austempered ductile iron (ADI) components for engineering applications (DST Project, Project No- GAP 120312) as Co- Project leader**
-

International Research Project handled

- **Material degradation and Remaining life assessment (RLA) of Circulating Fluidized Bed boiler components (Indo- Canadian Boiler Emission and up gradations project, funded by CIDA, Government of Canada). Project Carried out in Green Field Research Inc (GRI) and Dalhousie university, Halifax, Nova Scotia, Canada.**

Member of Professional Bodies

- **Fellow, Indian Institute of Engineers (FIE)**
- **Member, National association of Corrosion Engineers (NACE), International wing**
- **Member, Indian Institute of Metals (IIM)**
- **Member, Indian Institute of Non Destructive testing**

Member of International Committees

Technical Member, NACE international (TEG 163X and TEG 121X)

Visit to Abroad

- **Work in research project "Material degradation and Remaining life assessment (RLA) of CFB boiler components" at Dalhousie university, Halifax, Canada**

- **Attend "17th international conference on Fluidized Bed combustion" organized by ASME international and CIBO USA in Jacksonville, Florida**
- **Presenting paper in International conference on "High Temperature Defect assessment (HIDA-5)" at university of Surrey, Guildford, UK.**

Distinction and Award

- **Award in-recognition of valuable services in the field of Metallurgy'** By The Indian institute of Metals, Durgapur Chapter in 2003-2004.
- Certificate of Recognition from **Council of Industrial Boiler Owners (CIBO), USA (2003).**
- **Dr. M Visvesvaraya award 2016 from The Institute of Engineers(India).**

Landmark Research Contribution

• Development of nano structured ceramic oxide (CeO_2, Y_2O_3 and YSZ) coating for high temperature corrosion protection in supercritical boiler , turbine and aero engine components.
• Damage assessment technique of industrial high temperature component based on high temperature creep corrosion.
• Refining of Residual life assessment technique industrial component.
• Creep damage assessment of industrial component by cavity classification model of high temperature material.

Publications summary

- In SCI/ international journal- **40 nos**
- In Conference proceedings-**10 nos**

M tech/ PhD supervision

- No of M tech thesis supervised- **(4 completed), 1 (ongoing)**
- No of PhD supervision – **1 No(Ongoing)**

Research Publications in Peer Reviewed Journal

2016

1. **D Ghosh, H Roy, S Das and S K Mitra, N**anostructured CeO_2 coating for high temperature oxidation protection, **Surface Engineering 2016 (**DOI 10.1179/1743294415Y.0000000011**)**
2. **D Ghosh, S Ray, H Roy, N Mandal and A K Shukla,** High temperature Graphitization Failure of Primary Superheater Tube, **High temperature Materials and Processes (Accepted in 2016)**
3. **D Ghosh, S Mukherjee, S Das,** Ceria(CeO2) based coating for High temperature corrosion protection of 9 Cr-1 Mo steel**, Protection of Metals and Physical Chemistry of Surfaces 2015, 51(3) 441-447**

4. **D Ghosh, S Mukherjee, S Das and S K Mitra,** Effect of yttria (Y_2O_3) Coating For High Temperature Oxidation Resistance of 9 Cr-1 Mo steel**, Protection of Metals and Physical chemistry of Surfaces (accepted In 2016)**
5. **D Ghosh, S Das and S K Mitra,** Effect of Plasma Sprayed Yttria Stabilized Zirconia (YSZ) Coating For High Temperature Oxidation Resistance of Low Alloy steel, **Protection of Metals and Physical chemistry of Surfaces 2016 52(2) 323-328**
6. **D Ghosh, S Das and H Roy and S K Mitra,** Oxidation Behaviour of Nanostructured YSZ Plasma Sprayed Coated Inconel Alloy , **Surface Engineering (10.1179/1743294415Y.0000000099)**
7. **D Ghosh, S Ray, J Mandal, A K Shukla,** Graphitization related failure in Boiler PRDS pipe, **Journal of Institute of Engineers- Series C(accepted) in 2015**

2015

1. **D Ghosh and S K Mitra** "High temperature corrosion behavior of cold deformed 2.25 Cr-1 Mo steel in SO_2+O_2 atmosphere." **High Temperature Material and Processes, 34(2), 2015, 107-114**
2. **D Ghosh and S K Mitra "**Plasma Sprayed Cr_3C_2- Ni-Cr coating for oxidation protection of 2.25 Cr-1 Mo steel" **Surface Engineering vol-31, No-5, 2015, 342-348**
3. **D Ghosh, S Mukherjee, S Das and S K Mitra** "CeO_2 Based Coating for High Temperature Oxidation Protection" **Surface Engineering ,Vol-31, No-5, 2015 323-328**
4. **D Ghosh, S Ray, H Roy and A K Shukla "** Investigation into cause of High Temperature Failure of Boiler Superheater Tube**" High Temperature Material and Processes, 34(2), 2015, 141-146**
5. **D Ghosh, S Ray, A Mondal and H Roy "**Failure investigation of Radiant Platen Superheater Tube of Thermal Power Plant Boiler**" High Temperature Material and Processes, 2015, 34(2), 171-175**

2014

1. **D Ghosh,** S Ray and H Roy, "Failure investigation of High Temperature Stud." **Journal of Failure Analysis and Prevention**, **Volume 14, Issue 1 (2014), Page 17-20**

1. **D Ghosh, A K Shukla and H. Roy "**Nano Structured Plasma Spray Coating for Wear and High temperature Corrosion Resistance Applications" **Journal of**

Institution of Engineers (India): Series D, **Springer publications(**DOI 10.1007/s40033-014-0034-8)

2. **P Das, M. Kumar, S K Samanta, P Dutta and D Ghosh "** Semisolid Processing of A 380 Al alloy using cooling slope." **Materials and Manufacturing Process 29(4), 2014, 422-428**
3. **K Karunanidhi, D Ghosh, K S Ghosh, S Bera "** Effect of Particle size of the dispersoid on compressibility and sinterability of TiO_2 dispersoid 7075 alloy composits prepared by Mechanical Milling" **Powder technology 25(5) 2014 1500-1509**

4. **D Ghosh, S Mukherjee and S Das** " High temperature Oxidation behavior of yttria(Y_2O_3) coated low alloy steel" **Surface Engineering 30(7),2014 524-528**

5. **D Ghosh and S K Mitra "** High Temperature Corrosion Behavior In Different regions of 9Cr-1 mo steel Weldment in SO_2+O_2 atmosphere." **Journal of Materials Engineering and Performance 23(5), 2014, 1703-1710**

6. **D Ghosh, H Roy and A Mondal "**Failure Investigation of condensate pump shaft**." Journal of Failure Analysis and Prevention, 14(4), 2014, 450-453**

7. **D Ghosh and S K Mitra "** Effect of plasma sprayed Cr3C2- NiCr coating on High temperature Corrosion resistance of 2.25 Cr-1 Mo steel**" Surface Engineering, 31(5), 2015, 342-348**

8. **D Ghosh, S Mukherjee, S Das and S K Mitra** "CeO_2 Based Coating for High Temperature Oxidation Protection" **Surface Engineering 31(5), 2015, 323-328**

9. **A Mondal, H Roy, D Ghosh and A K Shukla "**Metallurgical Failure analysis of Drum arching tube of A 140MW Thermal Power plant" **Journal of Failure analysis and Prevention**. **14, 2014, 574–577**
10. **H Roy, P Sharma, D Ghosh and A K Shukla "** Corrosion Failure of in -service economizer tube", **Journal of Failure analysis and prevention14(4), 2014, 454-458**

2013

1. **D. Ghosh**, A. K Shukla , and S. K Mitra, Effect of cerium oxide (CeO_2) coating on High temperature corrosion behavior of 2.25 Cr-1 Mo steel in SO_2+O_2 environment, **Surface Engineering Vol 29, Issue 8, pp 584-587**

2. **D Ghosh, A K Shukla and** S K Mitra Influence of CeO_2 superficial coating on the High Temperature Corrosion Behavior of 2.25 Cr-1 Mo steel in SO_2+O_2 atmospheres"**. Protection of Metals and Physical Chemistry of Surfaces, Vol 49, No 6, pp749-752, 2013**

2012

1. **D Ghosh &** S K Mitra "Influence of alloy grain size on high temperature corrosion behavior of 2.25 Cr-1 Mo steel in $SO_2+ O_2$ atmosphere" **High Temperature Material and processes, vol 31, issue 6, 2012, pp 727-731.**

2. **D Ghosh &** S K Mitra "Effect of Y_2O_3 Superficial Coating on the High Temperature Corrosion behavior of 2.25 Cr-1 Mo steel in SO_2+O_2 atmosphere." **Journal of Institution Of Engineers (India): Series D, Springer publications Vol 93, issue 2, 2012, pp 59-63**

3. **D Ghosh,** A K Shukla , S K Mitra "Ceria(CeO_2) and yttria (Y_2O_3) coating- An Effective Method of High Temperature Corrosion Protection of Industrial Grade 2.25 Cr-1 Mo steel plate in SO_2+O_2 atmosphere''. **International conference CORCON -2012 (NACE, India) at Goa, India(** 26th sept-29thseptember, 2012**)**

2011

1. **D Ghosh** and S, K Mitra "High Temperature Corrosion Problem of boiler Components in presence of sulfur and alkali based fuels."**High Temperature Material and. Processes, Vol 30, No1-2, 2011 pp81-85**

2. **D Ghosh,** H Roy,S Roy A K Shukla "High temperature Corrosion failure of a secondary Superheater tube in Thermal Power Plant Boiler" **International journal of High Temperature Material and Processes Vol. 28 (1-2), 2011 pp109-114**

3. H.Roy, **D.Ghosh,** A.C. Pankaj, A.K.Shukla and J. Basu "A Case Study on the Premature Failure of a Cooling Water Pump Shaft." **International Journal of Manufacturing science and Production Vol. 9, No 1-2, 2011, pp99-106.**

8. H.Roy, **D Ghosh,** P Roy, A.Saha, A.K.Shukla and J.Basu "Failure investigation of Platen Superheater Outlet Header" **International Journal of Manufacturing Science and Production Vol. 10, No.1, 2009, pp. 17-24.**

4. H Roy, A Saha, **D Ghosh,** S Roy, A. K. Shukla "Failure analysis of a new turbine parting plane studs" **Journal of Mechanical Behavior of Materials, Vol 19 No 6,2011, pp 373-382**
5. **D. Ghosh**, S K Mitra " High temperature corrosion behavior of different grain size specimens of 2.25 Cr-1 Mo steel in SO_2+O_2 environment." **International conference CORCON -2011 (NACE, India) at Mumbai, India (28 th sept-1st October, 2011)**

2010

1. **D Ghosh and** S K Mitra **"**High Temperature Corrosion Behavior of Boiler Waterwall tubes in Pyrite and Hematite Mixture under Solid-Solid and Gas-Solid Reaction states.**" High Temperature Material and Processes Vol 29, No 3,2010 pp 127-132**
2. **D. Ghosh, H. Roy, T. K. Sahoo and A.K. Shukla "**Failure investigation of platen superheater tube in a 210 MW thermal power plant boiler" **Transaction of The Indian Institute of Metals, vol 63 , Issue 2-3 April –june 2010 pp 687-690**

3. **S Samal, D Ghosh and S K Mitra "** Effect of crystal structure on High Temperature oxidation Behavior of Commercial pure iron, Copper and zinc**" Steel Grips vol 8, 2010, Process Technology pp 133-135**

Papers Published in Proceedings of International/ National Conferences/Conference proceedings

1. **D. Ghosh**, A. K. Shukla, P. Roy, S Naskar, W Choudhury "Characterization of microstructural features in different region of weldment of Cr-Mo steel tubes for manufacturing of high temperature boiler components in thermal power plant" **International Conference on Advance Manufacturing (ICAMT) Durgapur, India 29-30th Nov 2007.**

2. **D.Ghosh,** P.Roy, B.N Singh, K.K.Choudhury "On-site metallographic investigation to assess residual life of Main Steam Pipe Line using Surface Replication Technique" **National conference LACOM 2007, Durgapur, India 19-20th Dec 2007.**

3. **D Ghosh**, M Banerjee, K K Chowdhury & A K Shukla " Role of High Temperature Corrosion in Material Degradation and Residual Life Assessment of the critical components of Thermal power plant Boiler." **National Conference LACOM-2007 Durgapur, India 19-20th Dec 2007.**

4. **D. Ghosh**, P. Roy & A. K. Shukla, " Role of In situ metallography in damage assessment of high temperature thermal power plant components" In International conference in **High Temperature Defect Assessment (HIDA-5) at University of Surrey, Guildford, UK (23rd -25th June,2010**)

5. **D. Ghosh &** S K Mitra "High Temperature Corrosion Behavior of 2.25 Cr- 1 Mo Steel in SO_2+O_2 gaseous environment" **International conference CORCON - 2010 (NACE, India) at Goa, India(23-26 th September 2010)**

6. **D. Ghosh** & S K Mitra "High temperature corrosion behavior of different grain size specimens of 2.25 Cr-1 Mo steel in SO_2+O_2 environment" **International conference CORCON -2011 (NACE, India) at Mumbai, India (28 th sept-1st October, 2011)**

7. **D. Ghosh,** H. Roy, T. K. Sahoo & A. K. Shukla "Failure investigation of platen superheater tube in a 210 MW thermal power plant boiler" **in International conference on creep, fatigue and creep- fatigue interaction (CF5), at IGCAR, kalapakkam 24-26th Sep 2008.**

9. **D Ghosh,** A K Shukla & S K Mitra "Ceria(CeO_2) and yttria (Y_2O_3) coating- An Effective Method of High Temperature Corrosion Protection of Industrial Grade 2.25 Cr-1 Mo steel plate in SO_2+O_2 atmosphere." **International conference CORCON -2011 (NACE, India) at Goa, India (**26th sept-29thseptember, 2012**)**

10. **D Ghosh,** N Basu, A Roy, S K Mitra**, "**Characterization of Microstructure and Secondary precipitates of Tungsten Inert gas (TIG) welded 2.25 Cr-1Mo steel**. National welding Seminar,2013,Bangalore India (7-9 February, 2013)**

11. **D Ghosh,** A K Shukla , S K Mitra, Effect of Plasma Sprayed cerium oxide (CeO_2) coating on High Temperature corrosion behavior of 2.25 Cr-1 Mo steel, **National Seminar on Advanced Functional Material (NSAFM-2013) on 24 th January 2013 at CSIR- CMERI Durgapur.**

Professional Skills

- **Development of High Temperature Corrosion Resistant Coatings including Nanostructured coatings**.
- **Characterization of various coatings in SEM, EDS and FESEM**
- **Experimental technique of high temperature oxidation/ corrosion in isothermal and cyclic environments.**
- **Nondestructive testing in connection with component integrity and Residual Life of the power and process plant components.**
- **Failure analysis of different engineering components.**
- **Characterizations of post corroded/ Oxidized sample in SEM, EDS and XRD**
- **Material characterization**
- **Material testing.**

Personal Details

Date of Birth	**:**	25th February1969
Sex	**:**	Male
Nationality	**:**	Indian
Language proficiency	**:**	English, Hindi, Bengali