**Dr. Sumanth Govindarajan**

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# ACADEMIC QUALIFICATIONS

B. E. : Metallurgical and Materials Engineering 2006

M.Tech.: Materials Engineering : IISc 2008

Ph. D.: Materials Engg IISc 2017

# EARLY EDUCATION

S. Cadambi Vidya Kendra, Bangalore : 1987 – 2000

Seshadripuram Composite Pre-university College, Bangalore : 2000-2002

# SCIENTIFIC EDUCATION AND TRAINING

* National Institute of Technology Karanataka: 2002 –2006: B.E student
* Indian Institute of Science, Bangalore: 2006-2008 on Contact induced damage of hard and tough multilayer coatings, M.E student
* Project Assistantship on “Characterization of Nanolayered coatings” at Indian Institute of Science, Bangalore 2008-2009
* Ph.D. at Indian Institute of Science, Bangalore, on “Wear studies on hard nitride coatings” 2009-2017
* Research Associate at IMMT Bhubaneswar. Worked on “TBC and EBC coatings by Plasma spraying” Oct 2016 to March 2017
* Chief Technical Manager at Cosmic Laboratories Bangalore from April 2017December 2017

# PREVIOUS APPOINTMENT

Assistant Professor at Vellore Institute of Technology, Vellore: May 2018

## PRESENT APPOINTMENT

Assistant Professor: May 2018 onwards in the Department of Metallurgical & Materials Engineering, National Institute of Technology Karnataka (NITK), Surathkal, India. Responsibilities in this post include teaching both undergraduate and postgraduate students in metallurgical/materials engineering and research.

**Membership of Professional Bodies**

• Indian Institute of Metals (Life Member)

 **RESEARCH EXPERIENCE**:

### Research Interests

* Understanding friction and wear behaviour of materials
* Degradation in thermal barrier systems for gas turbine and diesel engines
* Oxidation and hot corrosion of alloys and coatings
* Evaluation of coatings in various applications

### M.Tech./Ph.D. Guidance

M.Tech: 13 (completed) + 4 (ongoing); M.Tech (Research): 1 (Ongoing); Ph.D: 2 (ongoing)

**Funded Research Projects**

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## Consultancy projects

### As, Principal consultant

1. Metallurgical and compositional investigation of hollow octagonal light poles, Manglaore City Corporation, 1 month 0.23 Lakhs- Principal Investigator
2. Testing of zinc coatings on Gabion box mesh wires, Southern Railways, 2019 3 months, 0.23 Lakhs
3. Failure analysis of Jockey Pump Shaft, Mangalore Refinery and Petrochemical Limited, 2 months, 2020, 2.71 Lakhs
4. Failure analysis of classifier Base Bolt, Mangalore Refinery and Petrochemical Limited, 2 months, 2020, 4.37 Lakhs
5. SRU2 re-heater exchanger Mangalore Refinery and Petrochemical Limited, 3

months, 2.56 lakhs

1. Testing of stainless-steel valves DKMUL, Public Sector 0 years, 1 months, 0.26 lakhs
2. Testing of Gabion Box meshes, Southern Railways Government 0 years, 1 months 0.57 lakhs
3. Testing of welded square mesh wires, Southern Railways Government 0 years, 1 months 0.22 lakhs

### As a co-consultant

1. Failure of Cooling Tower Fan Arm Mangalore Refinery and Petrochemicals Ltd Public Sector 0 years, 6 months 2019 7.78 lakhs
2. Failure analysis of centrifugal water pump shaft Mangalore Refinery and Petrochemicals Ltd Public Sector 0 years, 6 months 2020 5.0 lakhs
3. Failure investigation of KRCL flash butt welded joints Konkan Railway Corporation Ltd, 1 years, 2 months 2019 2.56 lakhs
4. Failure Analysis of Booster Pump Shaft Mangalore Refinery and Petrochemical Limited Government 0 years, 10 months 2020 7.79 lakhs

## Recognitions

* **Reviewer** for “Journal of alloys and compounds”
* **Reviewer** for “Sadhana”

***Complete Publication List***

### A) Book Chapters

Mirashi, V.U., Johnson, S., Hegde, S.R., Vijayan, V., Govindarajan, S. (2021). Failures Investigation of Marine Propellers in Corrosive Environments. In: Pal, S., Roy, D., Sinha, S.K. (eds) Processing and Characterization of Materials. Springer Proceedings in Materials, vol 13. Springer, Singapore. https://doi.org/10.1007/978-981-16-3937-1\_4

### B) Journals

5) Govindarajan S, Syamkumar K, Lamture N, Kale SS, Ram Prabhu T. Synergistic effects of iron and hexagonal-Boron Nitride additions in copper-based composites for braking application. Proceedings of the Institution of Mechanical Engineers, Part J:

Journal of Engineering Tribology. 2022;236(8):1647-1660.

doi:10.1177/13506501211064413

4) Padasale, B., Kumar, J.K.R., Sondar, P.R. et al. Failure Analysis of Cooling Tower

Fan-Arm. J Fail. Anal. and Preven. 20, 1417–1425 (2020).

https://doi.org/10.1007/s11668-020-00947-1

3) Prabhu, T.R., Arivarasu, M., Chodancar, Y. et al. Tribological Behaviour of GraphiteReinforced FeNiCrCuMo High-Entropy Alloy Self-Lubricating Composites for Aircraft Braking Energy Applications. Tribol Lett 67, 78 (2019). https://doi.org/10.1007/s11249019-1193-4

2) Cadambi, S.G., Jayaram, V. Effect of Humidity on Wear of TiN Coatings: Role of Capillary Condensation. Metall Mater Trans A 49, 6084–6092 (2018). https://doi.org/10.1007/s11661-018-4935-2

1)Nisha Verma, Sumanth Cadambi, Vikram Jayaram, Sanjay Kumar Biswas, Micromechanisms of damage nucleation during contact deformation of columnar multilayer nitride coatings, Acta Materialia, Volume 60, Issues 6–7, 2012,3063-3073, <https://doi.org/10.1016/j.actamat.2012.02.011.>

### C) Published contributions to academic conferences

2) Pranesh, Sheikh Mohammed Anas, Sheron Johnson, Robin Jose, B. Sachin, Sumanth Govindarajan, Vijeesh Vijayan, Shashikantha Karinka, Determining the solidification characteristics of Manganese bronze (MAB) alloy using computer-aided cooling curve analysis, Materials Today: Proceedings, Volume 52, Part 3, 2022, Pages 2095-2101,

1) Shubhra Bajpai, Sumanth G, Ayeshkant Mekap, D. Debashish, Microstructural characterization of plasma sprayed LaPO4 based coating, Surface Engineering INCOSURF2018 International IISc Bangalore 09- 08- 2018

### D) Scientific Presentations at Academic Conferences

1) “Hot corrosion studies on thermal spray coated FeNiCr for heater hanger application” discussion meeting on Thermal Spray Technologies, jointly organized by the Department of Materials Engineering, IISc and Pratt & Whitney R & D Centre, IISc, Bangalore.

## E) Facilties purchased and managaed for CRF

1. Tribotester- THT 1000 and Tribotester, TRB3 from Anton Paar, Estimated cost 1 Crore
2. Optical emission spectrometer- Bruker, Estimated cost 0.95 Crores
3. High Velocity Air/Oxygen Fuel coating facility- Kermetico, Estimated cost 1.5 Crores

## F) Department Level Inchargeship

1. JEOL XRD facility 2018-2022
2. Department Library 2018-2022
3. Department Website 2019-2022
4. Department co-ordinator for Institute Webpage 2018-2022
5. Department NBA co-ordinator, 2022 UG and PG
6. Department Foundry Lab 2018-2020
7. Department Workshop 2020-2022

## G) Early Achievements

Gate: 6th Rank, 2005 Metallurgy

IIT-JEE-3998 AIR 2002

CET( Karnataka) 264 2002