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4. **Academic qualifications** :
*B.E. (Mechanical Engineering),*
Coimbatore Institute of Technology, Coimbatore
*Ph.D (Metallurgical Engineering & Materials Science),*
IIT-Bombay, Mumbai

5. **Professional experience** :

Scientist, Centre for Engineered Coatings of International Advanced Research Center for Powder Metallurgy and New Materials, Hyderabad, India involving in various technological developments, research & application developments, material characterization studies associated with wide ranging engineering problems.

6. **Current fields of research interest** :
   - Thermal spraying through Solution Precursor Plasma spray, Suspension Plasma Spray, High Velocity Air-Fuel Spray, Detonation spray (D-gun), Atmospheric Plasma Spray, Cold spray
   - Development of novel functional and high performance coatings
   - In-flight particle diagnosis
   - Materials characterization and performance studies
   - Tribological studies

7. **Publications** : 3 Patents
36 peer-reviewed journals
6 book chapters
20 reviewed proceedings

**8. Awards**

Best Ph.D. Thesis under “Innovative Student Projects”, awarded by Indian National Academy of Engineering (INAE)

**9. Sponsored Projects handled (worth more than Rs. 2300 lakhs as PI and Co-PI)**

| Sponsoring Organization | Title of Project |
|---|---|
| NMITLI (CSIR) | Nano Material Coatings and Advanced Composites for Tribological Applications in Automotive Industry |
| ARDB | Development of Ultrafine WC-Co powders for Detonation Spraying |
| Ion America | Development of cathode coatings for SOFCs |
| Thermax Ltd., Pune | Development of erosion-corrosion resistant coatings for boiler tubes |
| Tata Steel Ltd., Jhamshedpur | Development of high temperature coatings for copper tuyeres |
| VSSC, Trivandrum | Assessment of thermal cyclic life for alumina bricks |
| DST-EPSRC | Improvements in gas turbine performance via novel plasma spray coatings offering protection against ingested species |
| DAE-IPR | Development of Tungsten Coating Technology for First Wall Application in |

| | |
|---|---|
| | ITER like tokamak |
| BRNS | Simulation studies on solution plasma spraying of ceramic materials |
| ARDB | Performance of coatings under fretting wear conditions |
| DST | Development of Surface Engineered Solutions for diverse components used in high performance power generation systems and other high temperature applications under "National Centre for Development of Advanced Materials and Manufacturing Processes for Clean Coal Technologies for Power Applications" |
| HAL | Development of TBC coating using EBPVD technique and air plasma processes on high pressure turbine rotor blades |
| ARDB | Residual stress and structural characterisation of thermal barrier coating systems using spectroscopic techniques |
| Applied Materials, Mumbai/USA | Corrosion resistant coatings for semiconductor applications |
| DST | National Centre for Development of Advanced Materials and Manufacturing Processes for Clean Coal Technologies for Power Applications |
| DRDL | Low Thermal Conductivity Coatings development |

**List of Publications (For last 5 years only)**


- C.Sundaresan, B.Rajasekaran, S.Varalakshmi, K.Santhy, D. Srinivasa Rao, G.Sivakumar, Comparative hot corrosion performance of APS and Detonation sprayed CoCrAlY, NiCoCrAlY and NiCr coatings on T91 boiler steel, Corrosion Science, 189, 2021, 109556
- Ashish Ganvir, Sneha Goel, Sivakumar Govindarajan, Adwait Rajeev Jahagirdar, Stefan Bj¨orklund, Uta Klement, Shrikant Joshi. Tribological performance assessment of Al2O3-YSZ composite coatings deposited by hybrid powder-suspension plasma spraying, Surface & Coatings Technology 409 (2021) 126907
- Praveen Kandasamy, Sivakumar Govindarajan, Shamnugavelayutham Gurusamy. Volcanic ash infiltration resistance of new-generation thermal barrier coatings at 1150 °C, Surface and Coatings Technology, 401, 2020, 126226
- Satyapal Mahade, Stefan Björklund, Sivakumar Govindarajan, Mikael Olsson, Shrikant Joshi. Novel wear resistant carbide-laden coatings deposited by powder-suspension hybrid plasma spray: Characterization and testing, Surface and Coatings Technology, 399, 2020, 126147
- P. Suresh Babu, Y. Madhavi, L. Rama Krishna, G. Sivakumar, D. Srinivasa Rao, G. Padmanabham, Thermal Spray Coatings for Erosion–Corrosion Resistant Applications, Transactions of the Indian Institute of Metals, 73, 2141–2159, 2020
- Goel, S.; Björklund, S.; Curry, N.; Govindarajan, S.; Wiklund, U.; Gaudiuso, C.; Joshi, S. Axial Plasma Spraying of Mixed Suspensions: A Case Study on Processing, Characteristics, and Tribological Behavior of Al2O3-YSZ Coatings. Appl. Sci. 2020, 10, 5140.
- Satyapal Mahade, Karthik Narayan, Sivakumar Govindarajan, Stefan Björklund, Nicholas Curry and Shrikant Joshi, Exploiting Suspension Plasma Spraying to Deposit Wear-Resistant Carbide Coatings, Materials 2019, 12, 2344
- K. Praveen, Nalla Sravani, Rahul Jude Alroy, G. Shanmugavelayutham, G. Sivakumar , Hot corrosion behaviour of atmospheric and solution precursor plasma sprayed (La0.9Gd0.1)2Ce2O7 coatings in sulfate and vanadate environments, Journal of the European Ceramic Society 39 (2019) 4233–4244
- B. Vignesh, W.C. Oliver, G. Siva Kumar, P. Sudharshan Phani, Critical assessment of high speed nanoindentation mapping technique and data deconvolution on thermal barrier coatings, Materials and Design 181 (2019) 108084

- Rekha Dom, Sivakumar Govindarajan, Shrikant V. Joshi and Pramod H. Borse, A solar-responsive zinc oxide photoanode for solar-photon-harvester photoelectrochemical (PEC) cells, Nanoscale Advances, 2020
- S. Patibanda, V.J. Nagda, J. Kalra, G. Sivakumar, R. Abrahams, K.N. Jonnalagadda, Mechanical behavior of freestanding 8YSZ thin films under tensile and bending loads, Surface & Coatings Technology 393 (2020) 125771
- C Sundaresan, B Rajasekaran, G Sivakumar and D S Rao, Hot corrosion behaviour of plasma and d-gun sprayed coatings on t91 steel used in boiler applications, 2020 IOP Conf. Ser.: Mater. Sci. Eng. 872 012092
- L.Venkatesh, B.Venkataraman, Manish Tak, G. Sivakumar, Ravi C.Gundakaram, S.V.Joshi, I.Samajdar. Room temperature and 600 °C erosion behaviour of various chromium carbide composite coatings, Wear 422–423, 2019, 44-53
- G. Sivakumar, S. Banerjee, V.S. Raja, S.V. Joshi, Hot corrosion behavior of plasma sprayed powder-solution precursor hybrid thermal barrier coatings, Surface & Coatings Technology 349 (2018) 452–461.
- L.Venkatesh, Suresh Babu Pitchuka, G.Sivakumar, Ravi C.Gundakaram, S.V.Joshi, I.Samajdar, Microstructural response of various chromium carbide based coatings to erosion and nano impact testing, Wear, 386–387, 2017, 72-79
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- G. Sivakumar, M. Ramakrishna, Rajiv O. Dusane, Shrikant V. Joshi, Effect of SPPS process parameters on in-flight particle generation and splat formation to achieve pure α-Al2O3 coatings, Journal of Thermal Spray Technology, 24 (7), pp. 1221-1234, 2015
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- A. Ajay, V.S. Raja, G. Sivakumar, S.V. Joshi, Hot corrosion behavior of solution precursor and atmospheric plasma sprayed thermal barrier coatings, Corrosion Science 98 (2015) 271-279.
- Prashant Nehe, G. Sivakumar, Sudarshan Kumar, Solution Precursor Plasma Spray (SPPS) technique of catalyst coating for hydrogen production in a single channel with cavities plate type methanol based microreformer, Chemical Engineering Journal 277 (2015) 168–175
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- A. Lohia, G. Sivakumar, M. Ramakrishna and S.V. Joshi, “Deposition of Nanocomposite Coatings employing a Hybrid APS + SPPS Technique”, Journal of Thermal Spray Technology, 23(7), 1054-1064, 2014
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2. Srinivasan Anandan, Sivakumar Govindarajan, Tata Narsing Rao, Shrikant Vishwanath Joshi, Method of producing high performance visible-light-active photocatalytic materials for self-cleaning applications, ARCI patent appln. no. 2625/DEL/2015
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**TECHNICAL REPORTS**

- Project report on 'DEVELOPMENT OF PROTECTIVE COATINGS FOR ELEVATED TEMPERATURE APPLICATIONS FOR TUYERES', submitted to M/s. Tata Steel, Jamshedpur
- Project report on "Development of Tungsten Coating Technology for First Wall Application in ITER like tokamak", submitted to M/s. IPR, Gandhi Nagar

**BOOK CHAPTERS**

- Joshi S., Markocsan N., Nylén P., Sivakumar G. (2020) New Generation Ceramic Coatings for High-Temperature Applications by Liquid Feedstock Plasma Spraying. In: Mahajan Y., Roy J. (eds) Handbook of Advanced Ceramics and Composites. Springer, Cham, pp 1-42

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- D. S. Rao, G. Sivakumar, D. Sen, and S.V. Joshi, Detonation Sprayed Coatings and their Tribological Performances. In M. Roy, & J. Davim (Eds.) Thermal Sprayed Coatings and their Tribological Performances, IGI Global, 2015. (pp. 294-327). Hershey, PA: Engineering Science Reference. doi:10.4018/978-1-4666-7489-9.ch010

- G.Sivakumar and S.V.Joshi, “Cold Gas Dynamic Spraying”, in Surface Engineering, D.Srinivasa Rao and S.V.Joshi eds., Centre for Science & Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre), 2010.

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