Dr. Sisir Mantry, FIE

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Senior Principal Scientist, Materials Chemistry & Interfacial Engineering
CSIR- Institute of Minerals & Materials Technology
Professor, Academy of Scientific & Innovative Research (AcSIR)
Former Raman Research Fellow, University of Nottingham, UK
Former Scientist, Indian Space Research Organization (ISRO), Trivandrum
Joint Secretary, Indian Thermal Spray Association (iTSA)
Secretary, Indian Institute of Metals (IIM, Bhubaneswar Chapter)

PERSONAL PROFILE

I am currently working as a **Senior Principal Scientist at CSIR–Institute of Minerals and Materials Technology (IMMT), Bhubaneswar**, with more than 20 years of research experience in **thermal spray coatings, tribology, and erosion wear**. I received my **Ph.D. in Engineering from IIT Bhubaneswar** and **M.Tech in Mechanical Engineering from NIT Rourkela**. Prior to joining IMMT, I served as a Scientist at **ISRO, Trivandrum**, and also worked as a Design Engineer at **Hindustan Aeronautics Ltd. (R&D), Bangalore**. My research contributions focus on developing **advanced thermal barrier coatings for aero-engine components** and **wear-resistant coatings** for industrial applications, including pipelines and boiler tubes. I have worked on novel coatings ranging from **nanostructured YSZ** to sustainable coatings utilizing **industrial wastes such as copper slag and marble dust**. Over the years, I have published **more than 65 SCI journal papers**, delivered **200+ conference presentations/invited talks**, and hold a **patent**. I am a **Fellow of The Institution of Engineers (India)**, currently serve as **Secretary of the Indian Institute of Metals, Bhubaneswar Chapter**, and also played a pivotal role in founding the **Indian Thermal Spray Association**. My work has been recognized with prestigious awards, including the **Berger Young Researcher Award (2019)**, the **IIM Bhubaneswar Chapter Award (2019)**, and the **Raman Research Fellowship (2022–23)** at the **University of Nottingham, UK**.

RESEARCH INTEREST

Advanced Thermal Spray Processes

- Suspension Plasma Spray (SPS) & Solution Precursor Plasma Spray (SPPS)
- Cold Spray and High-Velocity Oxy-Fuel (HVOF) Coatings
- Electrophoretic Deposition (EPD) for Functional Coatings

High-Temperature Coatings & Applications

- Thermal Barrier Coatings (TBCs) for aero-engine and energy systems
- High-temperature protective coatings against CMAS and erosion
- Design of novel coatings from nanostructured and waste-derived materials

Tribology and Erosion Performance

- High-temperature wear, erosion, and tribo-corrosion
- Coating design for slurry and particulate erosion resistance

Coating Design & Characterization

- Mechanical and thermal property evaluation of coatings
- Design of Experiments (DOE) for process optimization
- In-flight Particle Diagnostics and process–microstructure correlation

WORK EXPERIENCE

Sr. No.	Grade / Post	From	To	Lab. /Instt.
1	Design Engineer (R&D)	5th Nov 2005	22nd Dec 2005	ARDC, Hindustan aeronautics Limited (HAL), Bangalore, Ministry of Defence, Govt. of India
2	Scientist/Engineer "SC"	9th Jan 2006	13th Nov 2007	LPSC, Indian Space Research Organization (ISRO), Dept. of Space, Thiruvananthapuram, Kerala, Govt. of India
3	Scientist Gr. IV (1) (Re-designated as Jr. Scientist)	16th Nov 2007	15th Nov 2010	CSIR-Institute of Minerals & Materials Technology, Bhubaneswar, (DSIR), Govt. of India
4	Scientist	16th Nov 2010	15th Nov 2014	CSIR-Institute of Minerals & Materials Technology, Bhubaneswar, (DSIR), Govt. of India
5	Senior Scientist	16th Nov 2014	15th Nov 2019	CSIR-Institute of Minerals & Materials Technology, Bhubaneswar, (DSIR), Govt. of India
6	Principal Scientist	16th Nov 2019	15th Nov 2024	CSIR-Institute of Minerals & Materials Technology, Bhubaneswar, (DSIR), Govt. of India
6	Senior Principal Scientist	16th Nov 2024	Till date	CSIR-Institute of Minerals & Materials Technology, Bhubaneswar, (DSIR), Govt. of India

EDUCATION

Doctor of Philosophy in Mechanical Engineering **2010 – 2014**
Indian Institute of Technology, Bhubaneswar, India
Thesis: *"Characteristics of plasma sprayed nanostructured YSZ coatings doped with La2Ce2O7"*

Master of Technology in Mechanical Engineering **2004 – 2006**
National Institute of Technology, Rourkela, India
Thesis: *"Development and Characterization of Plasma Sprayed Cermet coatings with Fly Ash & Aluminum".*

Bachelor of Technology in Mechanical Engineering **2000 – 2003**
Kalinga Institute of Industrial Technology (KIIT), Odisha, India

HONORS/AWARDS RECEIVED

CSIR Raman Research Fellowship **2022 – 2023**
Fellow, The Institution of Engineers (India)
Received IIM Best Chapter Award as IIM Bhubaneswar Secretary **2019**
Outstanding Scientist in Materials under Engineering Discipline by VIRA **2019**
4th Berger Young Researcher Award in Coating Research Excellence, SSPC-India **2019**
Best Poster Award, National Science Day, IIT Bhubaneswar **2012**
Best Poster Award (Plasma Diagnostics), 28th Nat. Symp. on Plasma Science & Technology **2013**
GATE Score of 95.07 percentile **2004**

RESEARCH PROJECTS (ONGOING AND COMPLETED)

Sl. No.	Title of the project	Project category	Participating agencies	Your role as defined
1	Providing Coating on SS321 conduits & flexible hoses for transporting high pressure (100 bar), high temperature (650 to 750K) oxygen gas at 50 m/sec velocity (GAP- 417)	RESPOND SCHEME - ISRO	LPSC (ISRO)	**Principal Investigator (Ongoing)**
2	Lanthanum Aluminium Titanate Derived Thermal Barrier Coatings for Aerospace Propulsion (GAP-418)	Ministry of Mines	CSIR, Govt. of India, M/s MECPL, Rajasthan	**Principal Investigator (Ongoing)**
3	Nanocomposite Multi-Layered TBC by Suspension/ Solution Precursor Plasma Spraying for Aerospace Propulsion	CSIR Raman Research Fellowship FY 2023-24	CSIR, Govt. of India,	**Project Leader (Completed)**
4	COE-Degradation Resistant Thermal Spray Coatings Engineered for Indigenous Industrial Applications (at IIT Ropar)	Advanced Manufacturing Technology Centre of Excellence (AMT-COE)	DST, New Delhi, IIT Ropar M/s MECPL, Rajasthan	**Co- Principal Investigator (Ongoing)**
5	Scaling up synthesis and characterization of Ti3SiC2 MAX phases and Ti3C2Tx Mxene (MLP-83)	Fast-track translational project under 4M theme	CSIR, Govt. of India	**Co- Principal Investigator**
6	Hydrogen Generation through High Temperature Solid Oxide Electrolyze (HCP-44)	Mission Mode project under CSIR Hydrogen Technology (H2T) Programme	CSIR, Govt. of India	**Co-Project Investigator**
7	Preparation of High Pure Silicon from Low-Grade Quartz & Sillica bearing Mineral Resources of India, Tapping of Critical Minerals & Metals (Work Package-2) (MMP085202)	Mission Project "Mapping & Tapping of Critical Metals & Minerals	CSIR, Govt. of India	**Co- Principal Investigator**
8	Development, Characterization & Erosion wear analysis of plasma spray cermet coatings using copper slag	Empower Scheme	CSIR, Govt. of India	**Principal Investigator**
9	Innovation Centre for Plasma Processing	Facility Creation Project (11th Five Year Plan)	CSIR, Govt. of India	**Co- Principal Investigator**
10	Center for Special Materials	Networking project (12th Five Year Plan)	CSIR, Govt. of India	**Co- Principal Investigator**
11	MXene and metal-ion intercalated graphene-based nanocomposite coating for enhanced stability and long-term corrosion prevention (HCP-0030)	CSIR project	CSIR, Govt. of India	**Member**

12	Creation of DSIR Common Research and Technology Development Hub (CRTDH) in the area of New Materials/Chemical Process (GAP-310)	Facility Creation Project	DSIR, Govt. of India	**Member**
13	CSIR Jigyasa 2.0 (HCP-0101)	CSIR project	CSIR, Govt. of India	**Member**

OTHER SCIENTIFIC RESPONSIBILITIES

Teaching Responsibilities

AcSIR Ph.D./IDDP Program course Instructor for following course at CSIR-IMMT, Bhubaneswar

- Advanced Coating Techniques (ACSIR-36-PS-AD-003/ IDDP-IMMT-3-08,)

Administrative Responsibilities

- Member, Land Committee of CSIR-IMMT
- Member, Technical Scrutiny Committee for 3/4 High Value Equipment's

RESEARCH OUTPUTS

Research Papers published in international peer-reviewed Journals: **65**
International/Nation Conferences Proceedings: **52**
Patents: **01**
Book Chapters: **02**
Invited talks: **80+**
Citations: **1050**
h-index: **20**

Peer Reviewed Publications:

1. Swarnima Singh, Uma Batra, Dibya Singh Pradhan, **Sisir Mantry**, Anup Kumar Keshri (2025) Enhanced Tribological Performance in Simulated Body Fluid and Erosion Resistance of Plasma-Sprayed Hydroxyapatite Coatings Reinforced with Graphene Nanoplatelets, Journal of Materials Engineering and Performance (Accepted) (IF-2.3)
2. AK Behera, **S Mantry**, S Roy, S Pati (2025) Numerical Investigation of the Metal Ceramic Coating Mechanism through Cold Spray, Journal of Thermal Spray Technology (Accepted) (IF- 3.3)
3. B. Swain, **S. Mantry**, S.S. Mohapatra, P. Mallick, A. Behera (2025) Dependency of solid particle erosion behaviour of plasma sprayed NiTi coating on primary gas flow rate, Applied Surface Science Advances, Vol. 25 100681, IF 7.5
4. Swarnima Singh, Anup K. Keshari, **Sisir Mantry** (2025) Influence of residual stress on corrosion and mechanical properties of silicon carbide-reinforced nickel–tungsten coatings, Bulletin of Materials Science Vol.48(11) IF- 1.9
5. AK Behera, **S Mantry**, S Roy, S Pati (2024) Improving bond strength and deposition efficiency of ceramic coatings via low pressure cold spraying: A study on hydroxyapatite coatings with Cu-Zn blends, Surface & Coatings Technology Vol. 494(2) (2024)131430 IF-5.3
6. Sandip Kumar Nayak, Alok Satapathy, **Sisir Mantry** (2024) Sliding Wear Behavior of Marble Dust on Mild Steel Substrates Transactions of the Indian Ceramic Society, Springer (Accepted) IF 2.355
7. Swarnima Singh, **Sisir Mantry**, N Usha Kiran, Dibya Singh Pradhan, Bimal Prasad Singh (2024) Bulletin of Materials Science Vol. 47(2) pp:1-11 (IF-1.9)

8. Nikhil Pandey, Sandip Kumar Nayak, Alok Satapathy, **Sisir Mantry** and Silani Sahoo (2024) Deposition and Characterization of High Velocity Oxy-Fuel Sprayed Nickel Chrome Boron Silicium Based Coatings on Stainless Steel Substrates, Materials Science and Engineering Technology, Vol. 55(2) pp: 153-164 (IF: 1.79)
9. AK Behera, **S Mantry**, S Roy, S Pati (2023) Numerical simulation of cold-sprayed hydroxyapatite coating on 316L stainless steel Finite Elements in Analysis and Design, Vol .226, pp: 104020 (IF-3.1)
10. S Sahoo, BB Jha, **S Mantry** (2023) Optimization of Process Parameters of Hot Consolidated Steel Matrix Composites by Taguchi Method, The Journal of The Minerals, Metals & Materials Society (TMS), Vol.76 pp:818-828 (IF-2.8)
11. Nayak SK, Satapathy A, **Mantry S** (2022) A study on cotability of marble dust on metal substrates. J Mater Sci Eng Technol. Vol.54(1), pp:69-80 (IF-1.034)
12. Nayak SK, Satapathy A, **Mantry S** (2022) Use of waste marble and granite dust in structural applications: A review. Journal of Building Engineering 46:103742. (IF-7.144)
13. Nayak SK, Satapathy A, **Mantry S** (2022) Erosion Behavior of Marble Dust Coated Mild Steel Substrates. J Brazilian Soc Mech Sci Eng. Vol.44(10), pp :440 (IF-2.361)
14. Nayak SK, Satapathy A, **Mantry S**, Besra L, Deposition of Coatings of Waste Marble Dust Pre-Mixed with Nickel Chrome Powder by High-Velocity Oxy-Fuel Spraying Route. JOM: the journal of the Minerals, Metals and Materials Society. 75(9) pp: 3305-3316 (IF-2.597)
15. Nayak SK, Satapathy A, **Mantry S,** Besra L (2022) Erosion response of high-velocity oxy-fuel sprayed composite coatings of waste marble dust pre-mixed with nickel-chrome powder, Transaction of Indian Ceramic Society 81(4) pp: 149-157 (IF-2.355)
16. Nayak SK, Satapathy A, **Mantry S**, Besra L, Sliding Wear Behavior of Marble Dust Pre-mixed with NiCr Coatings on Mild Steel Substrates at Elevated Temperature. Surf. Rev. Lett. Vol.30(2), pp:2350008 (IF-1.24)
17. B. Swain, **S. Mantry, S**.S. Mohapatra, S.C. Mishra, A. Behera (2022) "Investigation of Tribological Behaviour of Plasma Sprayed NiTi Coating for Aerospace Application, Journal of Thermal Spray Technology (Vol.31(8), pp: 2342-2369 (IF- 3.3)
18. Nayak SK, Satapathy A, **Mantry S (**2021) Parametric Analysis for Erosion Wear of Waste Marble Dust-Filled Polyester Using Response Surface Method and Neural Networks. J Mater Eng Perform Vol.30, PP:3942–3954. (IF-1.895)
19. Nayak SK, Satapathy A, **Mantry S** (2021) Role of test parameters and material composition on the erosion behavior of waste marble dust - filled glass - polyester composites. J Brazilian Soc Mech Sci Eng Vol.43, pp:1–14. (IF-2.361)
20. Sahoo S, Jha BB, **Mantry S,** Nayak SK, Mahata T, Sharma J, Murthy T Src & Mandal A (2022) Investigation on Tribological Behavior of Hot-Pressed Steel/TiB2 Composites Using Taguchi Experimental Design. Journal of Materials Engineering and Performance Vol.31(3), pp: 2121–2135. (IF-1.895)
21. Nayak SK, Satapathy A, **Mantry S** (2021) Impact of Process Parameters on Solid Particle Erosion Behavior of Waste Marble Dust-Filled Polyester Composites. Arab J Sci Eng Vol46, pp:7197–7209. (IF-2.334)
22. Nayak SK, Satapathy A, **Mantry S** (2020) Wear characteristics of glass-polyester-based hybrid composites: A parametric analysis using response surface method and fuzzy logic. Polym Compos, Vol.41, pp:3687–3697. (IF-3.171)
23. Nayak SK, Satapathy A, **Mantry S** (2020) Processing and wear response study of glass-polyester composites with waste marble dust as particulate filler. Polym Compos Vol.41, pp:1–11. (IF-3.171)
24. Nayak SK, Satapathy A, **Mantry S** (2020) Response surface method and neural computation for the analysis and prediction of erosion response of glass-polyester composites filled with waste marble dust. Mater Today Proc Vol.44, pp:4425–4432.
25. P. Sahu, S. K. Parida, **S. Mantry**, (2019) "Effect of agglomerated zirconia-toughened mullite on the mechanical properties of giant cane fiber mat epoxy laminated composites", Structural Engineering and Mechanics, An International Journal (Vol. 70, No. 2 ((Techno- Press) (I.F- 3.524).

26. A. Jacob, S. Gangopadhyaya, A. Satapathy, **S. Mantry**, B.B Jha (2017), "Influences of micro-blasting as surface treatment technique on properties and performance of AlTiN coated tools", Journal of Manufacturing Processes (Elsevier)29, pp- 407–418, (I.F-6.2).
27. S. Deepak Kumar, Pandu R. Vundavilli, **S. Mantry**, A. Mandal, M. Chakraborty, (2017) "Erosion response of Thixoformed A356-5TiB2 in-situ composite using Taguchi Experimental Design", Tribology Transactions, Vol. 60(1), pp: 39-46, (Taylor & Francis, I.F- 2.19)
28. R. Sahoo, B. B. Jha, T.K. Sahoo, **S. Mantry** (2015) "Effect of volume fraction of primary alpha phase on solid particle erosion behavior of Ti-6Al-4V alloy, Tribology Transactions, Vol. 58(6), pp: 1105-1118, 2015. (Taylor & Francis, I.F- 2.19)
29. **S. Mantry,** A. Mandal, D. K. Mishra, B. B. Jha, B. K. Mishra, M. Chakraborty (2014), Microstructure and Thermal Characterization of Plasma Sprayed Nanostructured La2Ce2O7 Doped YSZ Coatings, Journal of Thermal Spray Technology, Vol. 23(7), pp: 1073-1080, (Springer, ASM International, I.F-3.3)
30. **S. Mantry,** B. B. Jha, A. Mandal, M. Chakraborty, B. K. Mishra, (2014.) "Abrasive Wear Analysis of Plasma Sprayed LaCeYSZ Nanocomposite Coatings using Experimental Design and ANN, Tribology Transactions, Vol. 57, pp: 919-927, (Taylor & Francis, I.F- 2.19)
31. **S. Mantry,** R. Sahoo, B. B. Jha, B. K. Mishra, M. Chakraborty, (2014) "Tribo-performance of plasma-sprayed nanostructured yttria-stabilized zirconia coatings using Taguchi's experimental design", Journal of Engineering Tribology, Vol. 228(8), pp: 872–880, (IMechE, Sage Publication, I.F- 1.77)
32. **S. Mantry,** B. B. Jha, A. Mandal, D. K. Mishra, B. K. Mishra, M. Chakraborty, (,2014.) "Influence of In-Flight Particle State Diagnostics on Properties of Plasma Sprayed YSZ-CeO2 Nano-composite Coatings", International journal of smart and nano materials, Vol. 5(3), pp: 207-216 (IF-4.5)
33. D. Debasish, **S. Mantry,** D. Behera, Bharat B. Jha" (2014) Improvement of microstructural and mechanical properties of plasma sprayed Mo coatings deposited on Al-Si substrates by pre-mixing of Mo with TiN Powder" High Temperature, Vol. 52(1), pp 22-29, (Springer, I.F-1.15)
34. Pravuram Panda, Gopa Mishra, **Sisir Mantry,** S.K. Singh, S. Sinha (2014.) "A study on mechanical, thermal and electrical properties of glass fiber reinforced epoxy hybrid composites filled with plasma synthesized AlN" Journal of composite Materials, Vol. 48 (25), pp: 3073-3082, (Sage Publication, IF-2.591)
35. R. Sahoo, B.B. Jha, T.K. Sahoo, **S. Mantry** (2014) "Effect of Microstructural Degradation on Solid Particle Erosion Behavior of 2.25Cr-1Mo Steel" Tribology Transactions, Vol. 57(4), pp: 679-689, (Taylor & Francis, I.F- 2.19)
36. S. Mohapatra, **S. Mantry**, S.K. Singh, A. Satapathy, "Solid particle erosion behavior of glass-epoxy composites filled with TiC derived from ilmenite" International Journal of Plastics Technology, Vol. 18(1), pp: 75-87, 2014. (Springer Publication)
37. S. Deepak Kumar, Pandu R Vundavilli, **Sisir Mantry,** A. Mandal, M. Chakraborty "A Taguchi Optimization of Cooling Slope Casting Process Parameters for Production of Semi-solid A356 Alloy and A356-5TiB2 in-situ Composite Feedstock" Procedia Materials Science, Vol. 5, pp 232-241, 2014 (Elsevier Publication)
38. **Sisir Mantry,** B.K. Mishra, M. Chakraborty "Parametric appraisal of process parameters for adhesion of plasma sprayed nanostructured YSZ coatings using Taguchi Experimental Design" The Scientific world Journal, Article No: 527491, 2013 (Hindawi Publication, I.F- 1.73)
39. **Sisir Mantry,** Debadhyan Behera, Alok Satapathy, Bharat B. Jha, Barada K. Mishra "Deposition of plasma sprayed copper slag coatings on metal substrates" Surface Engineering, Vol. 29 (3), pp: 222-227, 2013 (Taylor & Francis Publication, IF- 3.169)
40. **Sisir Mantry,** Srimant K. Mishra, Debidutta Debasish, Bharat B. Jha, Barada K. Mishra "Erosive wear analysis of plasma sprayed cermet coatings using copper slag &Aluminium" Tribology Transactions, Vol. 56, pp: 196-202, 2013 (Taylor & Francis, I.F- 2.19)
41. R. Sahoo, **S. Mantry**, T.K. Sahoo, S. Mishra, B.B. Jha "Effect of microstructural variation on erosion wear behaviour of Ti-6Al-4V alloy, Tribology Transactions, Vol. 56(4), pp: 555-560, 2013. (Taylor & Francis, I.F- 2.19)

42. R. Sahoo, **S. Mantry,** B.B.Jha, T.K. Sahoo "Influence of microstructure on high temperature solid particle erosion behaviour of Ti-6Al-4V alloy" Transactions of the Indian Institute of Metals, Vol. 67(3), pp: 299-304, 2013(Springer, I.F- 1.499).
43. S. Mohapatra, D. Mishra, G. Mishra, G. S. Roy, D. Behera, **S. Mantry,** S. K. Singh "A study on sintered TiO2 and TiO2/SiC Composites synthesized through chemical Reaction based solution method" Journal of composite Materials, Vol. 47(24), pp: 3081-3089, 2013. (Sage Publication, IF-2.591)
44. **Sisir Mantry,** B.B. Jha, A. Satapathy" Evaluation and Characterization of Plasma Sprayed Cu Slag-Al Composite Coatings on Metal Substrates" Journal of coatings, Article No. 842865, 2013. (Hindawi Publication)
45. Pravuram Panda, **Sisir Mantry,** S. Mohapatra, S.K. Singh, A. Satapathy "A Study on Erosive Wear Analysis of Glass-Epoxy-AlN Hybrid Composites" Journal of composite Materials, Vol. 48(1), pp: 107-118, 2012. (Sage Publication, IF-2.591)
46. G. Gupta, S. K. Mishra, **S. Mantry,** A. Satapathy "Preparation and Characterization of Thermal Spray Coating of Glass Microspheres on Metal Substrates" Advanced Materials Research, Vol. 585, pp 502-506, 2012.
47. A. Rout, A. Satapathy, S. Mantry, A. Sahoo, T. Mohanty "Erosion wear performance analysis of Polyester-GF-Granite Hybrid Composites using Taguchi Method" Procedia Engineering, Vol. 38, pp 1863-1882, 2012. (Elsevier Publication)
48. **Sisir Mantry,** Sankar Mohapatra, S. Mohapatra, S.K. Singh, A. Mandal, A. Satapathy "Erosion behavior of Glass-Epoxy Composites Filled with SiC from bamboo leaf" International polymer processing, Vol. 26(2), pp: 164-172, 2011. (Hanser, IF-0.68)
49. **Sisir Mantry**, Alok Satapathy, Alok Kumar Jha, S.K. Singh, Amar Pattanaik "Preparation, Characterization and Erosion Response of Jute-Epoxy Composites Reinforced with SiC Derived from Rice Husk" International Journal of Plastics Technology, 15 (1), pp. 69-76, 2011. (Springer)
50. Alok Kumar Jha, **Sisir Mantry**, Alok Satapathy, Amar Patnaik "Erosive Wear Performance Analysis of Jute-Epoxy-SiC hybrid composites, Journal of Composite Materials, Vol.44 (13), pp: 1623-1641, 2010. (Sage Publication, IF-2.591)
51. Alok Satapathy, Alok Kumar Jha, **Sisir Mantry**, S.K. Singh, A. Patnaik Processing and characterization of jute-epoxy composites reinforced with SiC derived of Rice-Husk, Journal of Reinforced Plastics and Composites, Vol. 29(18), pp: 2869-2878, 2010. (Sage Publication, IF-3.71).

International/National Conferences:

1. Sethi, S., **Mantry, S**., Besra, L., Lokachari, S., Romero, A. R., & Hussain, T. (2025, February 21). Tribo-corrosion behaviour of alumina coatings reinforced with rGO via suspension plasma spraying. Paper presented at the National Thermal Spray Conference and Expo 2025, CSIR–IMMT, Bhubaneswar, India.
2. Krishna, L. R., Sethi, S., Kumar, K., Pandel, U., & **Mantry, S.** (2025, February 21). Development of YSZ-LZ nanocomposite thermal barrier coatings with enhanced phase stability and mechanical properties for high-temperature applications. Paper presented at the National Thermal Spray Conference and Expo 2025, CSIR–IMMT, Bhubaneswar, India.
3. Behera, S., Sethi, S., Nayak, S. K., Goswami, N., **Mantry, S**., & Besra, L. (2025, February 21). Harnessing industrial waste: Developing kaolinite-based wear-resistant coatings. Paper presented at the National Thermal Spray Conference and Expo 2025, CSIR–IMMT, Bhubaneswar, India.
4. Puglia, N., Sethi, S., **Mantry, S.,** & Prabu, B. S. (2025, February 21). Recent developments in suspension plasma spray thermal barrier coatings with Sr-based perovskite materials for improved thermal stability and performance. Paper presented at the National Thermal Spray Conference and Expo 2025, CSIR–IMMT, Bhubaneswar, India.

5. Behera, A., **Mantry, S**., Roy, S., & Pati, S. (2025, February 21). Cold spray ceramic coatings: Understanding bonding mechanisms and deposition behavior. Paper presented at the National Thermal Spray Conference and Expo 2025, CSIR–IMMT, Bhubaneswar, India.
6. **Mantry, S.,** Sethi, S., & Besra, L. (2024, December 19). Nanocomposite multi-layered TBC by suspension/solution precursor plasma spray for aerospace propulsion. Paper presented at IASME 2024, IIT Kharagpur, India.
7. **Mantry, S.,** Sethi, S., & Besra, L. (2024, July 21). Advances on thermal spray coatings. Paper presented at ICOAT 2024, IIT Patna, India.
8. **Mantry, S.,** Besra, L., Lokachari, S., & Hussain, T. (2023, November 4). Nanocomposite multi-layered TBC by suspension/solution precursor plasma spray for aerospace propulsion. Paper presented at the Asian Thermal Spray & Expo 2023, IIT Chennai, India.
9. Behera, A., **Mantry, S.,** Roy, S., & Pati, S. (2023, November 4). Numerical investigation of the metal-ceramic coating mechanism through cold spray. Paper presented at the Asian Thermal Spray & Expo 2023, IIT Chennai, India.
10. Behera, S., Sahu, S., Samal, P., Tailor, **S., Mantry**, S., & Besra, L. (2023, November 4). Erosion response of cold sprayed coatings using core shell structured WC-Co powder synthesized by wet chemical reduction method. Paper presented at the Asian Thermal Spray & Expo 2023, IIT Chennai, India.
11. Patra, S., Sethi, S., Nayak, S. K., **Mantry, S**., Satapathy, A., & Besra, L. (2023, November 4). Comparative study on wear response analysis of nano-YSZ reinforced rGO composite coatings on metal substrates through plasma spraying route. Paper presented at the Asian Thermal Spray & Expo 2023, IIT Chennai, India.
12. **Mantry, S.** (2023, February 21). Functionally graded nanocomposite coatings doped with rare earth oxides by thermal spraying. Paper presented at the National Thermal Spray Conference (NTSC 2023), Jodhpur, India.
13. **Mantry, S.** (2021, February). Advanced thermal spray coatings using nanostructured agglomerates [Invited talk]. Faculty Development Programme (TEQIP-III): Concepts & Applications of Composite Materials (CACM-2021), organized by Department of Mechanical Engineering, IGIT, Sarang, India.
14. Mantry, S. (2020, September). Advanced thermal barrier coatings [Invited talk]. Faculty Development Programme (TEQIP-III): Advances in Materials & Machining Processes for Industrial Applications (AMMPIA 2020) and Recent Advancement of Materials & its Applications (RAMA 2020), organized by Department of Mechanical Engineering & Production Engineering, VSSUT, Burla, India.
15. Mantry, S. (2020, September). Surface engineering: Thermal spraying and electrophoretic deposition [Invited talk]. Faculty Development Programme (TEQIP-III): Advances in Materials & Machining Processes for Industrial Applications (AMMPIA 2020) and Recent Advancement of Materials & its Applications (RAMA 2020), organized by Department of Mechanical Engineering & Production Engineering, VSSUT, Burla, India.
16. Mantry, S. (2020, December). Thermo-mechanical and erosive wear analysis of plasma sprayed YSZ nanocomposite coatings doped with RE oxides [Invited talk]. AICTE-sponsored One Week Online Short-Term Training Programme (STTP): Design, Simulation, Development and Characterization of Composites with Advanced Techniques, organized by GIET, Gunupur, India.
17. Mantry, S. (2020, December). Advance thermal barrier coatings for industrial application [Invited talk]. AICTE-sponsored One Week Online Short-Term Training Programme (STTP): Design, Simulation, Development and Characterization of Composites with Advanced Techniques, organized by GIET, Gunupur, India.

18. Mantry, S. (2020, December). Cold spray coatings for structural repair & additive manufacturing [Invited talk]. AICTE-sponsored One Week Online Short-Term Training Programme (STTP): Design, Simulation, Development and Characterization of Composites with Advanced Techniques, organized by GIET, Gunupur, India.
19. **S. Mantry,** L. Besra "Thermo-Mechanical and Erosive wear analysis of Plasma Sprayed YSZ Nanocomposite Coatings doped with RE Oxides "at "2nd International Conference on Protective Coatings & Surface Treatment (PCST 2019)", 18-19 November, New Delhi, India.
20. **S. Mantry**, B.B. Jha, R. sahoo, "Influence of particle state diagnostics on microstructure of Plasma Sprayed nanocomposite LaCeYSZ coatings", 6th Asian Thermal Spray Conference (**ATSC-2014**) held at Hyderabad, India, 24-26thNovember, 2014.
21. **S. Mantry**, B.B. Jha, R. sahoo, "Solid particle erosion behaviour of plasma sprayed La YSZ nanocomposite coatings", 6th Asian Thermal Spray Conference (**ATSC-2014**) held at Hyderabad, India, 24-26thNovember, 2014.
22. **S. Mantry**, R. Sahoo, B.B. Jha, B.K. Mishra and M. Chakraborty, "Tribological studies of plasma sprayed YSZ-$L_{a2}C_{e2O7}$ nanocomposite coatings", International conference on emerging materials and processes **(ICEMP-14**) held at CSIR-IMMT, Bhubaneswar on 26-27th February 2014.
23. S. Deepak Kumar, Pandu R Vundavilli, **Sisir Mantry**, A. Mandal, M. Chakraborty "A Taguchi Optimization of Cooling Slope Casting Process Parameters for Production of Semi-solid A356 Alloy and A356-5TiB_2 in-situ Composite Feedstock**",** International Conference on Advances in Manufacturing and Materials Engineering **(ICAMME-2014),** at NIT, Surathkal, March 27-29, 2014.
24. **S. Mantry**, B.B. Jha and R. Sahoo, "Implementation of Taguchi Design for Performance Evaluation of Plasma Sprayed Nanostructured YSZ Coatings", 28th National Symposium on Plasma Science & Technology (**PLASMA 2013**) held at KIIT University, Bhubaneswar during 3rd -6th December 2013
25. **S. Mantry**, B.B. Jha, D. Behera, B.K. Mishra, A. Satapathy "Evaluation and Characterization of Plasma Sprayed Composite Coating on Metal Substrates" Proceedings of 4th International conference on recent advances in composite materials (**ICRAM-2013**), February, 2013, Goa.
26. B.B. Jha, M. Scheffler, S. Rannabauer, **S. Mantry**, R. Sahoo, B.K. Mishra "Structure Property Co-relationship of Glass–Epoxy Composites Filled with Copper Slag under the Influence of Tensile Loading" Proceedings of 4th International conference on recent advances in composite materials (**ICRAM-2013**), February, 2013, Goa.
27. G. Gupta, S. K. Mishra, **S. Mantry**, A. Satapathy "Preparation and Characterization of Thermal Spray Coating of Glass Microspheres on Metal Substrates" International conference on Advances in Materials and Processes: Challenges and Opportunities (**AMPCO**), 2012, IIT, Roorkee.
28. A. Rout, A. Satapathy, **S. Mantry**, A. Sahoo, T. Mohanty "Erosion wear performance Analysis of Polyester-GF-Granite Hybrid Composites using the Taguchi Method" International conference on Modeling Optimisation and Computing- ICMOC 2012, India
29. **Sisir Mantry**, Alok Satapathy, B.B. Jha, B.K. Mishra "Development of plasma sprayed ceramic coatings using copper slag – A solid waste of copper refinery plant" International congress of Environmental Science & Technology, May, 2012, Argentina.
30. Pravuram Panda, **Sisir Mantry**, S.K. Singh, S.P. Sinha "Improvement of thermal Properties as well as mechanical properties of Glass Fiber-Epoxy Hybrid Composites with AlN filler Derived through Plasma" International conference on "Advancements in polymeric materials (**APM**)", March, 2012, CIPET, Ahemadabad.
31. Prasanta Padhi, Alok Satapathy, Srimant Mishra, **Sisir mantry** "Erosive Wear Behaviour of Glass-Epoxy Hybrid Composites Reinforced with Blast Furnace Slag" International conference on "Advancements in polymeric materials (**APM**)", March, 2012, CIPET, Ahemadabad.
32. Lucy Mohapatra, Alok Satapathy, **Sisir Mantry**, Amar Patnaik "Enhancement of Thermal Conductivity of Polyester by filling Aluminium Nitride, proceedings of international conference on "Advancements in polymeric materials (**APM**)", March, 2011, CIPET, Chennai.

33. **Sisir Mantry**, Alok Satapathy, Alok Jha, S.K. Singh, Amar Patnaik "Preparation, characterization and erosion response of jute-epoxy composites reinforced with SiC derived from rice husk" proceedings of International conference on "Advancements in polymeric materials (**APM**)", February, 2010, CIPET, Bhubaneswar.
34. Alok Satapathy, Amar Patnaik, **Sisir Mantry** Erosive wear behaviour of fly- ash filled aluminium matrix composites, Proceedings of National Conference on "Mechanism Science and Technology: From Theory to Applications", November, 2008, NIT, Hamirpur.
35. Alok Satapathy, S.C. Mishra, **Sisir Mantry**, P.V.A. Padmanabhan, K.P. Sreekamar "Parameter optimization in plasma spraying of red mud using fractional factorial technique" Proceedings of 20th National Symposium of plasma science society of India **(PSSI), Plasma 2005**, Cochin.

Patents:

Sl. No	Title	Country	Filed on (Date)	Granted on (Date)	Name of other inventors
01	A composition for hard protective coatings comprising waste marble dust and a process for the preparation thereof	India	21-03-2022		Mantry, S., Besra, L. D., Nayak, S. K., & Satapathy, A. (Patent No. 202211015647).

Book Chapter:

1. Sandip Kumar Nayak, Alok Satapathy, **Sisir Mantry** and Laxmidhar Besra, Plasma Spray Coating using Industrial Wastes, in: Raj Kumar Arya et al. (Eds): From Waste to Wealth, Springer Singapore, Singapore, 2024 (Accepted)
2. Sandip Kumar Nayak, Alok Satapathy and **Sisir Mantry**, A Review on Tribology of Particulate Filled Polymer Composites: In the Context of Marble Dust Filled Polyester, in: H. Jena, J.K. Katiyar, A. Patnaik (Eds.), Tribology of Polymer and Polymer Composites for Industry 4.0, Springer Singapore, Singapore, 2021: pp. 89–112.

Invited talks:

1. Delivered about 70+ Nos. of Invited talks in Faculty Development Programme/ Seminar/Workshops of different Universities/ Engineering Colleges (2017-2025)
2. Delivered Invited Talk on "Effect of feedstock on Properties of ceramic coatings" on workshop organized by IIT Ropar 15-19 July, 2024
3. Delivered Keynote lecture in International Conference on Advances on Thermal Spray Coatings (ICOAT 2024) at IIT Patna, 21st July, 2024
4. Delivered Invited talk at the prestigious IASME 2024 (Indo-Austria Symposium on Materials Engineering held at IIT Kharagpur, 19th December 2024
5. Delivered Keynote lecture on "Suspension Plasma sprayed Coatings for Aerospace Propulsion" at International Conclave for Materials, Energy and Climate (ICMEC), 18th-21st December 2023 at Indira Gandhi Delhi Technical University for Women, Delhi
6. Delivered Invited Lecture on "Metal Clad Ceramic Powders for Thermal Spray" at one-day workshop & Discussion meeting on "Development of indigenous and commercially viable thermal spray powder manufacturing capabilities in India", 11th Dec 2023 organized by ARCI, Hyderabad, India
7. Delivered Invited Lecture on "Nanocomposite Multi-layered TBC by Suspension/Solution Precursor Plasma Spray for Aerospace Propulsion" at the 12th Asian Thermal Spray Conference & Expo" (ATSC 2023) organized by IIT Madras & Indian Thermal Spray Association.
8. Delivered Raman Research Fellow Lecture on "Advanced Thermal Barrier Coatings for Industrial Applications "at Coatings & Surface Engineering Group, University of Nottingham, UK, August 2023
9. Delivered "Advanced Materials and Nanotechnology Seminar Series" Lecture at the Central European Institute of Technology, Brno University of Technology (CEITEC-BUT) 7th June, 2023

10. Keynote speaker for Inauguration ceremony of International Conference on "Recent advances in Mechanical Engineering Research and "Development (ICRAMERD-2023), 20th July, 2023, SOA University
11. Delivered Invited Lecture on One-day thermal spray awareness workshop, AMT-DST COE-Degradation Resistant Thermal Spray Coatings Engineered for Indigenous Industrial Applications, IIT Ropar
12. Delivered Invited lecture/Chaired Technical Session in 1st National Thermal Spray Conference (NTSC), Jodhpur, 20-21 February, 2023
13. Delivered Invited Lecture on One-day thermal spray awareness workshop, AMT-DST COE-Degradation Resistant Thermal Spray Coatings Engineered for Indigenous Industrial Applications, IIT Ropar
14. Delivered Invited lecture/Chaired Technical Session in 1st National Thermal Spray Conference (NTSC), Jodhpur, 20-21 February, 2023
15. Invited as Panel Member and discussion on Session: Graphene-A Wonder Material" 14th International Conference on Surface Protective Coatings at CIDCO Convention Centre, Navi Mumbai, organized by SSPC-India (April 11-12, 2019)
16. Delivered invited talk on "Functionally Graded Nanocomposite Coatings Doped with Rare Earth Oxides by Thermal Spraying and Electrophoretic Deposition" as resource person for two-week short-term course on "Functional Engineering Material: Technology, Modeling and Analysis (FEMTMA)" organized by VSSUT, QIP scheme, AICTE, Government of India during 25th June to 7th July, 2018.
17. Delivered invited talk on "Plasma Sprayed Nanostructured YSZ Coatings Doped with Rare Earth Oxides" as resource person for refresher course on "Technological Advancement in Mines, Minerals & Metals (TAMMM-2018)" jointly organized by CSIR-IMMT, IIM, Bhubaneswar Chapter & Indian Mining association during 22-26th October, 2018
18. Delivered Invited talk entitled "Plasma Sprayed Nanocomposite Coatings for Industrial Applications" at QIP short term course on "Advanced Materials: synthesis, Processing, Characterization and Applications (AMSPCA-2015) organized jointly by Dept. of Mechanical Engineering and Dept. of Metallurgy & Materials Engineering, VSSUT, Burla on 9th Dec, 2015.
19. Delivered Invited talk entitled "Development of Plasma Sprayed Nanostructured Yttria Stabilized Zirconia (YSZ) Coatings Doped with Rare Earth Oxides" at Mahatma Gandhi University, Kottayam, Kerala, India on the occasion of Second International Conference on Nanostructured Materials and Nanocomposites, organized by International and Interuniversity Centre for Nanoscience and Nanotechnology (IIUCNN), **(ICNM 2014)** on 19-21 Dec, 2014.

THESIS/DISSERTATION SUPERVISED

- **Ph.D. Student guidance- 5 Nos. (In Progress), 2Nos. (Completed)**
- **Ph.D. Degree Awarded**
  - Dr. Sandeep Kumar Nayak (NIT Rourkela 2023-24, Awarded with **Best Ph.D Thesis 2023-24**)
  - Dr. Subhrasmita Tripathy (KIIT University 2022-23)
- **Supervised dissertation projects of 10+ Post Graduate Students from various universities (06-month -1 Yr. duration each).**

PROFESSIONAL AFFILIATIONS

- Fellow, Institute Of Engineers (India)
- Secretary, IIM Bhubaneswar Chapter
- Joint Secretary, Indian Thermal Spray Association (ITSA)
- Life Member Of IIM
- Life Member Of IIME
- Life Member, SSPC-India

SCIENTIFIC ACTIVITIES (LAST 5 YRS)

- Invited by the Indian High Commission in London for a discussion on Indo-UK R&D collaboration with the First Secretary, Science & Technology
- Visited 13 Universities of excellence in UK & Europe during RRF Tenure
- Collaboration with IOCL, Paradip, HAL, Bangalore and Jaideep ISPAT & Alloys Pvt Ltd. on corrosion prevention and thermal barrier coatings
- Signed MoUs with IOCL, Paradeep, IIT Patna, M/s MECPL Jodhpur, and M/s Jaideep ISPAT & Alloys Pvt. Ltd.
- As Secretary IIM Bhubaneswar Chapter, Received 3rd prize under the Large Category in IIM ATM 2024
- Organized one-day workshop on "Coating technologies for Industrial application was held on Wednesday, December 5, 2021 as co-convener.
- Organized National Thermal Spray Conference (NTSC 2023) was held on 18th & 19th February,2023 as Convener.
- Organized Asian Thermal Spray Conference (ATSC 2023) was held on 2-4 November as Joint Secretary.
- Coordinated One Day Student Seminar On "Current & Upcoming Trends In Materials Science & Engineering" (CUTMSE 2024) as Secretary IIM Bhubaneswar Chapter, coordinated
- Organized National Thermal Spray Conference (NTSC 2025) was held on 21-22 February 2025 as Convener.

(Sisir Mantry)