Anup Kumar Keshri (Associate Professor)

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Email: anup@iitp.ac.in, anup.kumar.keshri@gmail.com,

Anup Kumar Keshri is currently an Associate Professor in Dept. of Metallurgical and Materials Engineering at Indian Institute of Technology (IIT), Patna, India since Feb. 2022. Before joining IIT Patna, Dr. Keshri worked with Centre for Nanotechnology Group, Bharat Heavy Electricals Limited (BHEL), Corporate R&D, Hyderabad, India between April 2012-September 2013. He worked as an Associate Professor in School of Mechanical and Building Sciences at Vellore Institute of Technology (VIT), Vellore, India since April 2011. Anup Kumar Keshri, received his Ph.D. degree in Materials Science and Engineering from Florida International University (FIU), Miami, USA in July, 2010 and worked as Postdoctoral fellow in FIU until March 2011. He has a B.E. degree in Metallurgical Engineering from Bihar Institute of Technology (BIT), Sindri, India in 2002 and a M.S. degree in Metallurgical and Materials Engineering from Indian Institute of Technology (IIT), Madras, India in 2004. He worked as Asst. Manager in Ispat Industries Limited, Mumbai (2004–2006). His main research interest lies in surface Engineering, plasma spraying, CNT/graphene reinforced metal and ceramic composite coatings, mechanical, corrosion and tribological behavior of coatings. *He has published 83 papers in peer reviewed journals*,8 papers as conference proceedings, delivered 30 talks in international conferences and 21 invited talks in academics and industries. He has filed 5 Indian patents out of which 2 has been granted. *His h-index of 27 (total citations close to ~2500)* strongly endorses his research productivity. *He has received the sponsored research and consultancy funding of ~ 0.6 million USD (~ INR 4.5 Crores)* from various govt. and private funding agencies. Under his supervision, 4 Ph.D. students and 19 M.Tech. students have already been graduated and 09 Ph.D. and 05 M.Tech. are ongoing. He is a recipient of many awards and honors such as, Research stay grant by Humboldt Foundation, Dissertation Year Fellowship (2009–2010) from FIU, Arthur E. Focke leadership award by ASM Foundation delegate of "President's Council of Student Advisors (PCSA)" formed by The American Ceramic Society (ACerS). Dr. Keshri also serves as reviewers for several journals in the area of coatings and thermal spray. *Recently, one of his works published in ACS Nano has been globally covered by C&EN, Harvard University, The Graphene Council, American Ceramic Society and THEWEEK Magazine and here is the link of the news.*

- **Chemical and Engineering News (C&EN), weekly magazine published by the American Chemical Society. (February 15, 2021)**
  https://cen.acs.org/materials/nanomaterials/Plasma-gun-sprays-high-quality/99/web/2021/02?utm_source=LatestNews&utm_medium=LatestNews&utm_campaign=CENRSS
- **By the Harvard University (March 22, 2021)**
  https://sitn.hms.harvard.edu/flash/2021/a-cheaper-method-for-graphene-production/
- **The Graphene Council (Feb. 18, 2021)**
  https://www.thegraphenecouncil.org/blogpost/1501180/365858/Plasma-gun-sprays-out-high-quality-graphene?hhSearchTerms=%22keshri%22&terms=
- **The American Ceramic Society (Feb. 26, 2021)**
  https://ceramics.org/ceramic-tech-today/manufacturing/high-quality-graphene-from-ultrafast-low-cost-plasma-spray
- **THEWEEK Magazine (Dec. 26, 2021)**
  https://www.theweek.in/theweek/specials/2021/12/16/eureka-now-what.html

EDUCATION

Doctor of Philosophy (**Ph.D.**) Materials Science and Engineering	*Sept. 2006 – July 2010* Dept. of Mechanical and Materials Engg., Florida Int'l University, Miami, Florida, USA
Master of Science (**M.S.**) Metallurgical and Materials Eng.	*Aug. 2002 – July 2004* Department of Metallurgical and Materials Eng, Indian Institute of Technology (IIT), Madras, India.
Bachelor of Engineering (**B.E.**) Metallurgical Engineering	*July1998 – July 2002* Department of Metallurgical Engineering, Bihar Institute of Technology (now Birsa Institute of Technology, BIT), Sindri, India

PROFESSIONAL EXPERIENCE

Feb. 2022-Continuing	Associate Professor Dept. of Metallurgical and Materials Engineering Indian Institute of Technology, Patna
October 2013- Feb. 2022	Assistant Professor Dept. of Metallurgical and Materials Engineering Indian Institute of Technology, Patna
April 2012 – September 2013	Senior Engineer Center for Nanotechnology, Corporate R&D, Bharat Heavy Electricals Limited (BHEL), Hyderabad, India. (~10 billion USD Company) **Project:** High Strength Wear Resistance Conventional/Nanostructured Grinding Rolls in Bowl Mill for Coal Pulverizer for Thermal Power Plant Applications. Project Outlay: ~ Rs. 2.75 Crores (~0.5 million USD)
March 2011 – March 2012	Associate Professor, Vellore Institute of Technology (VIT), Vellore, Tamil Nadu, India **Project:** Plasma Processing of Nanomaterials for Functional Applications-Invited Review Paper. Instructor for Several Courses like Materials Engineering & Technology, Surface Modification Technology, Nanomaterials
July 2010 – March 2011	Post Doctoral Researcher, Plasma Forming Laboratory &High Temperature Tribology Laboratory, Florida International University, Miami, Florida, USA **Project:** Splat Morphology of Plasma Sprayed Aluminum Oxide Reinforced with Carbon Nanotube

Aug. 2007 – Aug. 2010	Research Assistant, Department of Mechanical and Materials Engineering, Florida International University, Miami, Florida, USA **Project:** Development of Process Map for Synthesizing High Density Aluminum Oxide-Carbon Nanotube Coating by Plasma Spraying with Improved Mechanical and Wear Properties
Sept 2006 – July 2007	Teaching and Research Assistant, Department of Mechanical and Materials Engineering, Florida International University, Miami, Florida, USA
Aug. 2004 – Aug. 2006	Assistant Manager, Six Sigma and Research and Development Division, Ispat Industries Limited (IIL), Mumbai. India

RESEARCH INTERESTS AND EXPERTISE

1. *Surface Engineering*
2. *Plasma spraying*, Process-structure-property relationship of plasma sprayed ceramic coatings.
3. 2D Materials (Graphene)
4. Mechanical and Tribological behavior of coatings
5. *Metal and Ceramic Matrix nanocomposite Coatings*
6. Fundamental study on plasma sprayed single splat and its mechanical characterization.
7. Room temperature and high temperature tribological behavior of composite materials.
8. In-flight particle diagnostic in plasma spraying and optimization of plasma process parameters

ACADEMIC AWARDS AND HONORS

Graphene work published in ***ACS Nano*** has been covered by

- (C&EN) Chemical and Engineering News, weekly magazine published by American Chemical Society
  https://cen.acs.org/materials/nanomaterials/Plasma-gun-sprays-high-quality/99/web/2021/02?utm_source=LatestNews&utm_medium=LatestNews&utm_campaign=CENRSS
- By the Harvard University
  https://sitn.hms.harvard.edu/flash/2021/a-cheaper-method-for-graphene-production/
- The Graphene Council
  https://www.thegraphenecouncil.org/blogpost/1501180/365858/Plasma-gun-sprays-out-high-quality-graphene
- The American Ceramic Society
  https://ceramics.org/ceramic-tech-today/manufacturing/high-quality-graphene-from-ultrafast-low-cost-plasma-spray
- **THEWEEK Magazine (Dec. 26, 2021)**
  https://www.theweek.in/theweek/specials/2021/12/16/eureka-now-what.html

- *Served as Member in "Project Evaluation Committee" appointed by* ***Technology Development Board****.*
- ***Research Stay Grant of Euro 1232.00 by Alexander Von Humboldt (AvH) foundation*** Germany under Connect Programme for collaborating with University of Kassel, Germany for December 11-21, 2018.
- ***Invitation for attending the 10th Indo-German Frontiers of Engineering Symposium 2018*** at Potsdam, Germany between May 24-27, 2018
- *Served as* ***External examiner for the PhD thesis defense*** of Mr. Raj Kumar, Department of Metallurgical and Materials Engineering, **IIT Roorkee**, September 17, 2018
- ***Dissertation Year Fellowship award:*** University Graduate School, Florida International University for 2009-2010
- ***Arthur E. Focke*** leadership award by ASM Foundation for attending the leadership camp during Summer-2008 at University of Illinois, Urbana Champaign.
- Delegate of "***President's Council of Student Advisors (PCSA)***" formed by The American Ceramic Society (ACerS)
- ***First*** in Regional Technical presentation competition organized by Material Advantage at FIU, on 16th Nov. 2007.
- ***First*** in Student Technical Poster competition organized by Material Advantage at FIU, on 17th Nov. 2006.
- ***"Mr. Anup makes ISPAT proud"*** article came in ISPAT HR buzz Dec '04 issue for representing Ispat at
- "TRANSMAT EXPO-2004" International Conference.
- Served as ***Secretary and Chair*** of Material Advantage chapter in 2007-2009 at FIU, Miami, Florida, USA
- ***Executive member*** of Cry America, FIU, Miami, Florida, USA
- Served as an ***Executive Committee Member***, Indian Society of Technical Education, B.I.T Sindri
- Chapter, India

PATENTS FILED

1. Bijalwan, P. K.; Banerjee, A.; Dan, A.; Pandey, K. K.; **Keshri, A. K.**: A method for depositing hydrophobic metallic coating on a substrate. Submitted as: Indian Patent (Application No.: 202131014777, application date 31.03.2021) (Jointly with Tata Steel Limited)

2. Alok Bhadauria, Ashutosh Tiwari, Shipra Bajpai, Ambreen Nisar, Anup Kumar Keshri, Kantesh Balani, Bimodal structure based thermal barrier coating composition, process for preparation thereof, and substrate coated therewith Submitted as: Indian Patent (Application No.: 202111039562, application date 1.09.2021) (Jointly with IIT Kanpur)

3. Anup Kumar Keshri, Pushpender Singh, Aminul Islam, Krishna Kant Pandey, Satya Gowtam Dommeti Plasma Sprayed Carbon Nanotube Reinforced Molybdenum Disulphide Anti-Friction Coating, Submitted as: Indian Patent (Application No.: 202111042583, application date: 20.09.2021) (Jointly with Naval Research Board (NRB), DRDO)

4. Madiraju, A.V.; Taneja, K.; Seelaboyina, R.; Kumar, M.;Mahajan, S. B.; **Keshri, A.K.** (2019): Microwave synthesis of CZTS in aqueous media and preparation of printable inks for thin film solar application. Indian Patent (Patent No. 317841).

5. Seelaboyina, R.; Madiraju, A.V.;Kumar, M.; Taneja, K.; **Keshri, A.K.**; Mahajan, S.; Singh, K. (2019): A Microwave assisted synthesis method to produce high dielectric constant perovskite structured CCTO powder in nano (20-100 nm) and micro (1-5 micron) form. Indian Patent (Patent No. 318023)

6. **Keshri, A. K.**; Seelaboyina, R.; Kumar**,** M.; Mahajan, S.; Madiraju, A.V.; Taneja, K.; Singh, K.: A fabrication process for high strength wear resistance grinding rolls with enhanced performance and higher operational life. Submitted as: Indian Patent (Application No.: 479/Kol/2013, application date 29.04.2013).

7. Taneja, K.; Madiraju, A.V.; Seelaboyina, R.; Kumar, M.;Mahajan, S.B.; **Keshri, A. K.**: A method of depositing a thin layer of semiconductor material by selective heating of a microwave absorbing substrate to reduce deposition time. Submitted as: Indian Patent(Application No. 485/Kol/2013, application date 29.04.2013).

PATENT FILING in Feb. 2022 (Under approval from IIT Patna and CUMI)

8. Aminul Islam, Anup Kumar Keshri, Bala Raghupathy, Sivakumaran M V, Robust Ceramic Membrane with Higher Water Flux at Low Transmembrane Pressure, Lower Fouling and higher Reusability: Towards Industrialization (Jointly with Carborundum Universal Limited)

PAPERS IN PEER REVIEWED INTERNATIONAL JOURNALS

1. Rahul Verma, Swati Sharma, Biswajyoti Mukherjee, Pushpender Singh, Aminul Islam, **Anup Kumar Keshri**, Microstructural, Mechanical and Marine Water Tribological properties of Plasma-Sprayed Graphene Nanoplatelates reinforced Al_2O_3-40/ wt.% TiO_2 Coating, **Journal of European Ceramics Society** (2022) in Press, doi.org/10.1016/j.jeurceramsoc.2022.02.014

2. Aminul Islam, Akanksha Sharma, Pushpender Singh, Niranjan, Anup Kumar Keshri, Plasma-sprayed CeO_2 Overlay on YSZ Thermal Barrier Coating: Solution for resisting molten CMAS Infiltration, Under Revision in Ceramics International (2022), in Press, doi.org/10.1016/j.ceramint.2022.01.352

3. Aminul Islam, Biswajyoti Mukherjee, Krishna Kant Pandey, and ***Anup Kumar Keshri***, Ultra-Fast, Chemical-Free, Mass Production of High Quality Exfoliated Graphene, **ACS Nano,**

2021, 15, 1, 1775–1784

4. Sumit Choudhary, Aminul Islam, Biswajyoti Mukherjee, Julia Richter, TizianArold, Thomas Niendorf, ***Anup Kumar Keshri***, Plasma Sprayed Lanthanum Zirconate Coating over Additively Manufactured Carbon Nanotube reinforced Ni-based Composite: Unique performance of Thermal Barrier Coating System without Bondcoat, **Applied Surface Science**, 550, 2021, 149397.

5. Krishna Kant Pandey, Pushpender Singh, Abhishek Pathak, Pavan Bijalwan, Monojit Dutta, Atanu Banerjee, and ***Anup Kumar Keshri***, Tailoring the mechanical, tribological and corrosion behaviour of Fe-based metallic glass coating synthesized using atmospheric plasma spraying" (2022) **Journal of Thermal Spray technology**, Accepted (In Press)

6. Rahul Davis, Abhishek Singh, Kishore Debnath, Roberta Maia Sabino, Ketul Popat, Paulo Soares, Anup Kumar Keshri, Bhaskar Borgohain, Enhanced Micro-Electric Discharge Machining-Induced Surface Modification on Biomedical Ti-6Al-4V Alloy, **Journal of Manufacturing Science and Engineering** (2022), DOI.org/10.1115/1.4053110

7. Abhishek Pathak, Biswajyoti Mukherjee, Krishna Kant Pandey, Aminul Islam, Pavan Bijalwan, Monojit Dutta, Atanu Banerjee and ***Anup Kumar Keshri***, Process–structure–property relationship for plasma-sprayed iron-based amorphous/crystalline composite coating,International **Journal of Minerals, Metallurgy and Materials** (2022),

8. Swarnima Singh, Krishna Kant Pandey, Vamsi Krishna Balla, Mitun Das, ***Anup Kumar Keshri***, Corrosion, Wear and in-vitro Biocompatibility Property of Surface Mechanical Attrition Treatment processed Ti-6Al-4V Alloy, Accepted for Publications in JOM (2021).

9. Swarnima Singh, Swati Sharma, ***Anup Kumar Keshri***, Tribological Behaviour of Plasma-Sprayed Graphene Nanoplatelets Reinforced Hydroxyapatite Nanocomposite Coating, Transactions of the Indian Institute of Metals (2021), DOI:org/10.1007/s12666-021-02367-7

10. Krishna Kant Pandey, Dipak Kumar Shukla, Rahul Verma, ***Anup Kumar Keshri****** Mechanical Property and Adhesion Strength of Carbon Nanofillers Reinforced Alumina Single Splats using In-situ Picoindentation and Nanoscratch Test, Ceramics International, 47, 2021, 26800-26807.

11. Dipak Kumar Shukla, Biswajyoti Mukherjee, Aminul Islam, ***Anup Kumar Keshri***, Peculiar high temperature tribological behaviour of plasma sprayed graphene nanoplatelets reinforced cerium oxide coatings, Ceramics International, 47, 2021, 17809-17812.

12. Krishna Kant Pandey, Swarnima Singh, Sumit Choudhary, Cheng Zhang, Arvind Agarwal, Lu Hua Li, Ying Chen, ***Anup Kumar Keshri***, Microstructural and mechanical properties of plasma sprayed boron nitride nanotubes reinforced alumina coating, **Ceramics International** 47, 2021, 9194-9202.

13. Krishna Kant Pandey, Ravi Kumar Singh, OS Asiq Rahman, Sumit Choudhary, Rahul Verma,

Anup Kumar Keshri, Insulator-conductor transition in carbon nanotube and graphene nanoplatelates reinforced plasma sprayed alumina single splat: Experimental evidence by conductive atomic force microscopy, **Ceramics International** 46, 2020, 24557- 24563.

14. OS Asiq Rahman, Biswajyoti Mukherjee, Sony Priyadershini, Madhu Ranjan Gunjan, Rishi Raj, ST Aruna, ***Anup Kumar Keshri***, The Investigating the Wetting Phenomena and Fabrication of Sticky, Para-hydrophobic Cerium Oxide Coating, **Journal of the European Ceramic Society**(2020), DOI: 10.1016/j.jeurceramsoc.2020.06.028

15. Swarnima Singh, Krishna Kant Pandey, Siva Kumar Bose, ***Anup Kumar Keshri***, The Role of surface nanocrystallization on corrosion properties of low carbon steel during surface mechanical attrition treatment, **Surface & Coatings Technology** (2020), DOI: 10.1016/j.surfcoat.2020.125964

16. Swarnima Singh, Krishna Kant Pandey, ***Anup Kumar Keshri***, The Effect of Plasma Power on Corrosion Behaviour of Plasma Sprayed Hydroxyapatite Coatings, **Metals and Materials International** (2020), DOI: 10.1007/s12540-020-00704-x

17. Aarthi Uthayakumar, Arunkumar Pandiyan, Sribalaji Mathiyalagan,***Anup Kumar Keshri***, and Suresh Babu Krishna Moorthy, The Effect of Space Charge on Blocking Grain Boundary Resistance in Yttrium Doped Barium Zirconate Electrolyte for Solid Oxide Fuel Cells, **The Journal of Physical Chemistry C** (2020), DOI: 10.1021/acs.jpcc.0c00166

18. Swarnima Singh, Krishna Kant Pandey, Aminul Islam, ***Anup Kumar Keshri***, Corrosion behaviour of plasma sprayed graphene nanoplatelets reinforced hydroxyapatite composite coatings in simulated body fluid, **Ceramics International** (2020) doi.org/10.1016/j.ceramint.2020.02.139

19. Swarnima Singh, Krishna Kant Pandey, Asiq Rahman O S, Swati Haldar, DebrupaLahiri and ***Anup Kumar Keshri***, "Investigation of crystallinity, mechanical properties, fracture toughness and cell proliferation in plasma sprayed graphene nano platelets reinforced hydroxyapatite coating 2020 Mater.", **Materials research express** (2020) https://doi.org/10.1088/2053-1591/ab6c23

20. Shreshtha Ranjan, Biswajyoti Mukherjee, Aminul Islam, Krishna Kant Pandey, Rohit Gupta, ***Anup Kumar Keshri***, "Microstructure, Mechanical and High Temperature Tribological Behaviour of Graphene Nanoplatelets reinforced Plasma Sprayed Titanium Nitride Coating", **Journal of the European Ceramic Society** (2019) doi.org/10.1016/j.jeurceramsoc.2019.10.043

21. Krishna Kant Pandey, Aminul Islam, Rakesh Kumar, Rahul Ghosh, Venugopal Arjunan, and ***Anup Kumar Keshri***, Role of the Hybrid Addition of Carbon Nanotubes and Graphene Nanoplatelets on the Corrosion Behavior of Plasma-Sprayed Aluminum Oxide Nanocomposite Coating, **Advanced Engineering Materials** (2019) DOI: 10.1002/adem.201900763

22. Rakesh Kumar, Krishna Kant Pandey, Aminul Islam, ***Anup Kumar Keshri***, Graphene nanoplatelets: A promising corrosion inhibitor and toughening inclusion in plasma sprayed

cerium oxide coating, ***Journal of Alloys and Compounds***, 809, (2019), 1-10, (IF- 4.175, h5 index-73)

23. Pavan Bijalwan, Krishna Kant Pandey, Biswajyoti Mukherjee, Aminul Islam, Abhishek Pathak, Monojit Dutta, ***Anup Kumar Keshri,*** Tailoring the Bimodal Zone in Plasma Sprayed CNT Reinforced YSZ Coating and its Impact on Mechanical and Tribological Properties, ***Surface & Coatings Technology,*** 377, (2019) 124870 (IF-3.192, h5 index-52)

24. Atul Ranjan, Aminul Islam,Manabendra Pathak, Mohd. Kaleem Khan, ***Anup Kumar Keshri***,Plasma sprayed copper coatings for improved surface and mechanical properties, ***Vacuum***(2019) 168, 108834, (IF-2.515, h5 index-34)

25. Biswajyoti Mukherjee, OS Asiq Rahman, Aminul Islam, Krishna Kant Pandey, ***Anup Kumar Keshri,*** "Deposition of multi-scale thickness graphene coating by harnessing extreme heat and rapid quenching: Towards Commercialization" **ACS Applied Materials and Interfaces** 2019 11, (2019) 25500−25507(IF: 8.457, h5 index: 147)

26. A Pathak, M Sribalaji, KK Pandey, P Bijalwan, M. Dutta, ***Anup Kumar Keshri,*** "Microstructural Evolution and Fracture Toughness of Plasma Sprayed CNT Reinforced Yttria Stabilized Hafnia Coating" **International Journal of Applied Ceramic Technology**, 2019. https://doi.org/10.1111/ijac.13327(IF: 1.074, h5 index: 24)

27. NitikaKundan, BiswajitParida, ***Anup Kumar Keshri***, Prathvi Raj Soni, "Synthesis and characterization of the nanostructured solid solution with extended solubility of graphite in nickel by mechanical alloying" **International Journal of Minerals, Metallurgy, and Materials**, 2019, 26, 1031–1037.(IF: 1.221, h5 index: 19)

28. Rohit Gupta, Aminul Islam, Krishna Kant Pandey, Shreshtha Ranjan, Ravi Kumar Singh, Biswajyoti Mukherjee, ***Anup Kumar Keshri***, "In-situ oxide-free titanium nitride coating by conventional plasma spraying with improved properties" **Ceramics International** (2019), doi.org/10.1016/j.ceramint.2019.03.063, in press (IF :3.450, h5 index: 67)

29. O. S. Asiq Rahman, Biswajyoti Mukherjee, Aminul Islam, ***Anup Kumar Keshri***, "Instant Tuning of Superhydrophilic to Robust Superhydrophobic and Self Cleaning Metallic Coating: Simple, Direct, One-Step and Scalable Technique. **ACS Applied Materials and Interface** 11, (2019) 4616–4624 (IF: 8.456, h5 index: 147)

30. S. Bhanuchandara,P. Arunkumar,M. Sribalaji,***Anup Kumar Keshri***,K. Suresh Babu, "Controlled growth of Ni/NiO composite nanoparticles and its influence on exchange anisotropy and spin glass features"***Journal of Alloys and Compounds***,780, (2019), 256-265(IF-4.175, h5 index-73)

31. Sony Priyadershini, O.S. Asiq Rahman, Krishna Kant Pandey, ***Anup Kumar Keshri,*** "Remarkable improvement in tribological behavior of plasma sprayed carbon nanotube and graphene nanoplatelates hybrid reinforced alumina nanocomposite coating",***Ceramics International***, (2018),doi.org/10.1016/j.ceramint.2018.12.043(IF: 3.450 , h5 index:67)

32. Biswajyoti Mukherjee, Aminul Islam, Krishna Kant Pandey, O.S. Asiq Rahman, Rishow Kumar, ***Anup Kumar Keshri***, "ImpermeableCeO2 overlay for the protection of plasma sprayed YSZ thermal barrier coating from molten sulfate-vanadate salts" ***Surface and Coating Technology***, In press, DOI:10.1016/j.surfcoat.2018.11.048(IF: 3.192 , h5 index: 53)

33. Aminul Islam. Kundan Kumar, Krishna Kant Pandey, Biswajyoti Mukherjee, O.S. Asiq Rahman, Anirban Chowdhury, ***Anup Kumar Keshri***, "Exceptionallyhigh fracture toughness of carbon nanotube reinforced plasma sprayed lanthanum zirconate coatings" ***Journal of Alloys and Compounds***, 777 (2019), 1133-1144(IF: 4.175, h5 index:82)

34. M. Sribalaji, Davinder Singh, Swarnima Singh, AminulIslam,Mayank Kumar Pandey, B. Viswanath,***Anup Kumar Keshri***, "A New Insight on the Role of 1-D and 2-D Reinforcements in TiC during High Temperature Plastic Deformation", ***Ceramics International***, 44(2018), 18389-18399(IF: 3.450 , h5 index:67)

35. B. Mukherjee, R. Kumar, A. Islam, O. S. Asiq Rahman, ***Anup Kumar Keshri***, "Evaluation of strength-ductility combination by in-situ tensile testing of graphene nano platelets reinforced shroud plasma sprayed Nickel-Aluminium coating", ***Journal of Alloys and Compounds***, 765(2019), 1082-1089(IF:4.175, h5 index:73)

36. Aditi Pandey, Anup Kumar Patel, Vikram Kumar, Rajeev Kumar Sharma, Satish Kanhed, Vinod Kumar Nigam, ***Anup Kumar Keshri***, Arvind Agarwal, KanteshBalani, "Enhanced Tribological and Bacterial Resistance of Carbon Nanotube with Ceria-and Silver- Incorporated Hydroxyapatite Biocoating", ***Nanomaterials***,(2018) *8*(6), 363(IF:4.034 , h5 index: 45)

37. P. Arunkumar, U. Aarthi, M. Sribalaji, B. Mukherjee, ***Anup Kumar Keshri***, Waqas Hassan Tanveer, Suk-Won Cha, K Suresh Babu, "Deposition rate dependent phase/mechanical property evolution in zirconia and ceria-zirconia thin film by EB-PVD technique" ***Journal of Alloys and Compounds***, 765(2018), 418-427(IF:4.175, h5 index:73)

38. Aminul Islam, Biswajyoti Mukherjee, M. Sribalaji, O.S. Asiq Rahman, P. Arunkumar, K. Suresh Babu,***Anup Kumar Keshri***,"Role of hybrid reinforcement of carbon nanotubes and graphene nanoplatelets on the electrical conductivity of plasma sprayed alumina coating", ***Ceramics International***, Available online 5 December 2017.(IF: 3.450 , h5 index:67)

39. M.Sribalaji, Aminul Islam, Biswajyoti Mukherjee, Mayank Kumar Pandey, ***Anup Kumar Keshri***, "Tailoring the thermal shock resistance of titanium carbide by reinforcement with tungsten carbide and carbon nanotubes", ***Ceramics International***, 44 (2018), 2552-2562.(IF: 3.450 , h5 index:67)

40. OS Asiq Rahman, M Sribalaji, Biswajyoti Mukherjee, Tapas Laha, ***Anup Kumar Keshri***, "Synergistic effect of hybrid carbon nanotube and graphene nanoplatelets reinforcement on processing, microstructure, interfacial stress and mechanical properties of Al_2O_3 nanocomposites", ***Ceramics International***, 44 (2018), 2109-2122.(IF: 3.450 , h5 index:67)

41. Biswajyoti, Mukherjee, Asiq Rahman O.S, Aminul Islam, Sribalaji M,***Anup Kumar Keshri,*** "Plasma sprayed carbon nanotube and graphene nanoplatelets reinforced alumina hybrid

composite coating with outstanding toughness", ***Journal of Alloys and Compounds***, 727 (2017), 658-670.(IF:4.175, h5 index:73)

42. P.Arunkumar, P Panda, M Sribalaji, R Ramaseshan, ***Anup Kumar Keshri***, K S Babu, "Enhancing the oxygen ionic conductivity of (111) oriented $Ce_{0.80}Sm_{0.20}O_{2-\delta}$ thin film through strain engineering", ***ElectrochimicaActa***, 240 (2017), 437-446.(IF: 5.383, h5 index:91)

43. M Sribalaji, Biswajyoti Mukherjee, Aminul Islam, ***Anup Kumar Keshri***, "Microstructural and Mechanical Behavior of Spark Plasma Sintered Titanium Carbide with Hybrid Reinforcement of Tungsten Carbide and Carbon Nanotubes", ***Materials Science and Engineering: A***, 702 (2017), 10–21. (IF:4.081 , h5 index:67)

44. M. Sribalaji, Biswajyoti Mukherjee, Srinivasa Rao Bakshi, P. Arunkumar, K. Suresh Babu,***Anup Kumar Keshri.***"In-situ formed graphene nanoribbon induced toughening and thermal shock resistance of spark plasma sintered carbon nanotube reinforced titanium carbide composite", ***Composites Part B: Engineering*** 123 (2017) 227–240.(IF:6.864 , h5 index:82)

45. M. Sribalaji, O.S. Asiq Rahman, P. Arunkumar, K. Sureshbabu, Nitin P. Wasekar, G. Sundarajan, ***Anup Kumar Keshri***, "Role of Silicon Carbide in Phase Evolution and Oxidation Behaviorof Pulse Electrodeposited Nickel-Tungsten Coating", ***Metallurgical and Materials Transactions A***, (2016) 1-12.(IF:1.985 , h5 index:45)

46. AarthiUthayakumar, ArunkumarPandiyan, SribalajiMathiyalagan, Ashutosh Kumar, ***Anup Kumar Keshri***, Shobit Omar, KanteshBalani, Suresh Babu Krishna Moorthy, "Interfacial Effect of Oxygen Ion Distribution on Conduction Mechanism in Strontium Added $Ce_{0.8}Sm_{0.2}O_{2-\delta}/Na_2CO_3$ Nanocomposite", ***The Journal of Physical Chemistry C***, (2016)25068-25077. (IF:4.309 , h5 index:112)

47. Biswajyoti Mukherjee, O.S. Asiq Rahman, M. Sribalaji, Srinivasa Rao Bakshi, ***Anup Kumar Keshri***, "Synergistic effect of carbon nanotube as sintering aid and toughening agent in spark plasma sintered molybdenum disilicide-hafnium carbide composite",***Materials Science and Engineering A***, 678 (2016) 299-307 . (IF:4.081 , h5 index:67)

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UNDER REVIEW (PAPERS IN PEER REVIEWED INTERNATIONAL JOURNALS)

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85. Alok Bhadauria1, Shipra Bajpai1, Ashutosh Tiwari2, Shiva Kant Mishra, Ambreen, Nisar, Shruti Dubey, Nishant Chavan, Anup K. Keshri, Kantesh Balani1, Bimodal Microstructure Toughens Plasma Sprayed Al_2O_3-8YSZ-CNT Coatings, Under Review in Journal of European Ceramics Society (2022)

BOOK CHAPTER/BOOK

1. Coatings for Energy Applications, ***Anup Kumar Keshri,*** M. Sribalaji, in "Thin Film Structures in Energy Applications" Editor Suresh Babu Krishna Moorthy, ***Springer International Publishing Switzerland*** 2015.Pages: 51-84, ISBN:978-3-319-14773-4

2. Instant Tuning of Wettability of Metallic Coating **Anup Kumar Keshri**, Swati Sharma, Pages 32, **CRC Press**, 2021, eBook ISBN: 9781003213185

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1. Nitika Kundan, Biswajit Parida, ***Anup Kumar Keshri*** and P. R. Soni, "Synthesis of Sub-micron/Nano Diamond Powder by Hot Pressing/Spark Plasma Sintering of Supersaturated Solid Solution of Ni- Cgr" Journal of Material Science and Mechanical Engineering (JMSME) , p-ISSN: 2393-9095; e-ISSN: 2393-9109; Volume 5, Issue 4; October-December, 2018

CONFERENCE PROCEEDING PUBLICATIONS

1. "Synthesis of CIS Nano-Ink and Its Absorber Layer withoutSelenization" Manoj Kumar, Raghunandan Seelaboyina*, Kshitij Taneja, AlekhyaVenkataMadiraju, ***Anup Kumar Keshri,*** Sarang Mahajan, Kulvir Singh. http://www.hindawi.com/cpis/energy/2013/739532/.

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CONFERENCE PRESENTATIONS

1. Biswajyoti Mukherjee, Rishow Singh, Aminul Islam, ***Anup Kumar Keshri,*** Graphene Nanoplatelets Reinforced Plasma Sprayed Alumina-Titania Coating with Improved Corrosion and Wear Resistance., **CIMTEC 2018**, Perugia, Italy, 04-08, 2018.

2. Aminul Islam, Biswajyoti Mukherjee, O. S. Asiq Rahman, ***Anup Kumar Keshri,*** "In-situ tensile testing of graphene nano platelets reinforced shroud plasma sprayed Nickel-Aluminiumcoating"**Indian Institute of Metals (NMD-ATM)**, Kolkata November 14-16 2018, West Bengal.

3. Rakesh Kumar, Ravi Kumar Singh, O. S. Asiq Rahman, ***Anup Kumar Keshri,*** "Role of graphene nano platelets reinforcement on mechanical properties of plasma sprayed Alumina-titania coating" **Indian Institute of Metals (NMD-ATM)**, Kolkata November 14-16 2018, West Bengal.

4. Rohit Gupta, Shreshtha Ranjan, Krishna Kant Pandey, ***Anup Kumar Keshri,*** "In-situ synthesis of Titanium nitride coatings by shroud-reactive plasma spraying" **Indian Institute of Metals (NMD-ATM)**, Kolkata November 14-16 2018, West Bengal.

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6. O.S. Asiq Rahman, Sony Priyadershini, ***Anup Kumar Keshri,*** "Wear Resistance of Plasma Sprayed Graphene Nanoplatelets Reinforced Alumina Coating in Dry and Wet Environment" **14th International Ceramics Congress (CIMTEC-2018)**, June 4-8 2018, Italy.

7. ***Anup Kumar Keshri***" Investigation of High Temperature Mechanical Properties of Carbon Nanotube Reinforced Titanium Carbide Nanocomposites for Aerospace Applications"**10th Indo-German Frontiers of Engineering Symposium 2018**, May 24-27, 2018, Potsdam, Germany.

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9. M. Sribalaji, Biswajyoti Mukherjee, Aminul Islam, Tapas Laha, ***Anup Kumar Keshri*,** "Synergistic Reinforcement of Tungsten Carbide and Carbon Nanotubes for Improving the Fracture Toughness of Titanium Carbide based Ultra High Temperature Ceramic", **28th International Conference on Diamond and Carbon Related Materials**, Gothenburg, Sweden, September 03-07, 2017.

10. Biswajyoti Mukherjee, O.S Asiq Rahman, Sribalaji M, ***Anup Kumar Keshri*,** "Spark Plasma Sintering of Molybdenum Disilicide and Multi-Walled Carbon Nanotube Reinforced hafnium carbide Ceramic Composite" **Indian Institute of Metals (NMD-ATM)**, Bits Pilani, Goa, November 11-14, 2017.

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12. O.S Asiq Rahman, Biswajyoti Mukherjee, Sony Priyadershini, ***Anup Kumar Keshri*,** "Graphene Nanoplatelets Reinforced Plasma Sprayed Alumina Coating with Improved Mechanical Properties" **International Conference on Nanotechnology, Ideas, Innovations and Initiatives (ICN: 31-2017)**, IIT Roorkee, December 6-8, 2017.

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16. Sribalaji M, Biswajyoti Mukherjee, Asiq Rahman O.S, Srinivasa Rao Bakshi,***Anup Kumar Keshri,*** Spark Plasma Sintering Of Carbon Nanotube Reinforced Hafnium Carbide Composite, **5th International Conference on Materials Science and Engineering Technology,** October 29-31, 2016, Tokyo, Japan.

17. ***Anup Kumar Keshri,*** "Comprehensive Process Maps for Synthesizing High Density Aluminum Oxide-Carbon Nanotube Coatings by Plasma Spraying for Improved Mechanical and Wear Properties", **International Conference on Functional Materials**, September 07- 10, 2016, Tirunelveli, India.

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20. ***Anup Kumar Keshri,*** Jun Huang, Wonbong Choi, and ArvindAgarwal, "Chemical Vapor Deposited Carbon Nanotubes Reinforced Aluminum Oxide Coating with Improved Fracture and wear resistance" **International Conference & Exposition on Advanced Ceramics and Composites,** Daytona, Florida, 25-28th Jan. 2010.

21. ***Anup Kumar Keshri,***KanteshBalani, Tapas Laha, SrinivasRaoBakshi, Arvind Agarwal, "Comparative Study of Carbon Nanotubes/Plasma Interaction during Various Thermal Spray Processes" Presented in **International Thermal Spray Conference-2009** held in Las Vegas, Nevada, May 4-7, 2009.

22. ***Anup Kumar Keshri,*** Jun Huang, Virendra Singh, Wonbong Choi, Sudipta Seal and ArvindAgarwal, "Synthesis of Al_2O_3 Coating Reinforced with In Situ Grown CNTs for Improved Fracture and Wear Resistance" **Surface and Modification Technology-2009** Chennai, Tamilnadu, India, Nov. 2-5, 2009.

23. Debrupa Lahiri, Ana Benaduce, Francois Rouzaud, John Solomon, ***Anup Kumar Keshri,*** Lidia Kos, ArvindAgarwal, Investigation on Wear Resistance of Plasma Sprayed Hydroxyapatite-Carbon Nanotube Composite Coating on Orthopedic Implant and Cytotoxicity of Wear Debris, **International Conference & Exposition on Advanced Ceramics and Composites**, Daytona, Florida, 25-28th Jan. 2010.

24. Srinivas Rao Bakshi, Yao Chen, ***Anup Kumar Keshri,*** Graham McCartney, P. Shipway and ArvindAgarwal, "Wear Behavior of Aluminum/Aluminum-Silicon Composite Coatings Prepared by Cold Spraying" Presented in **International Thermal Spray Conference-2009** held in Las Vegas, Nevada, May 4-7, 2009.

25. Riken Patel***, Anup Kumar Keshri,*** George Dulikravich, Arvind Agarwal, "An Experimental and Numerical Algorithm for Near Net Shape Forming of Thin Walled Ceramic Structures by Plasma Spraying" Presented in **International Thermal Spray Conference-2009** held in Las Vegas, Nevada, May 4-7, 2009.

26. DebrupaLahiri, SabnamNamin, Tanisha Richard, ***Anup Kumar Keshri,*** SrinivasaRaoBakshi, Nicolaos Tsoukias, ArvindAgarwal, "Copolymer-Boron Nitride Nanotube Composite for Biodegradable Scaffold application" **25thSouthern Biomedical Engineering Conference-2009**, Miami, May2009.

27. KanteshBalani, ***Anup Kumar Keshri,*** Arvind Agarwal, "Plasma Sprayed Aluminum Oxide-Carbon nanotube Composite Coatings with Improved FractureToughness and Wear Resistance" **Sub-Micron and Nanostructured Ceramics-2009**held in Colorado Springs, Colorado, June 7-12, 2009.

28. RikenPatel,***Anup Kumar Keshri,*** GeorgeDulikravich, ArvindAgarwal, "An Experimental and Numerical Algorithm for Near Net Shape Forming of Thin Walled Ceramic Structures by Plasma Spraying", presented in **US National Congress on Computational Mechanics - 2009** held in Columbus, Ohio, July 16-19, 2009.

29. DebrupaLahiri, Francois Rouzaud, Tanisha Richard, ***Anup Kumar Keshri,*** SrinivasaRaoBakshi, Lidia Kos and ArvindAgarwal, "Poly Lactide-Caprolactone Copolymer - Boron Nitride Nanotube: A Novel Polymer Composite for Biodegradable Scaffold Application", **International Conference on Mechanics of Biomaterials and Tissues,** Clearwater Beach, Florida, USA December 13-17,2009.

30. DebrupaLahiri, Virendra Singh, ***Anup Kumar Keshri,***Sudipta Seal and ArvindAgarwal, "Precipitation and Crystallization of Hydroxyapatite on Boron Nitride Nanotubes Immersed in Simulated Body Fluid" **The Minerals, Metals & Materials Society (TMS) Conference**, San Diego, California, USA, February 27 - March 3, 2011.

INVITED TALKS

1. Workshop on Thermal Spray Coatings: Processing-Structure-Property Correlations through Multi-Disciplinary Collaborations, ASM International Bangalore Chapter in association with IISc Banglore, January 18, 2022

2. Tuning the Wettability of Metallic Coating, A key Note Lecture in DHATVIKA'2021, Organized by Dept. of Metallurgical and Materials Engineering, BIT Sindri in association with IIM Student's Chapter BIT Sindri, March 24-25, 2021.

3. Characterization of Tribological properties of coatings, QIP course on "Materials Characterization Techniques", 22-27 March 2021, MEMS, IIT Indore.

4. Advances in Plasma Spraying: Beyond Traditional Coating, **Vaishwik BharatiyaVaigyanik Summit**. In panel discussions held during 2nd 31st October, 2020

5. Advancement in Plasma Spraying for Fabricating the Pristine Graphene Coating, Online Short Term Course on Advances in Materials Manufacturing Processes and Properties. Sponsored by TEQIP III, **MNIT Jaipur,** July 6-10, 2020

6. Wetting Phenomena in Plasma Sprayed Rare Earth Oxide Coating, 3rd Structural Integrity Conference and Exhibition (SICE 2020 e Conference) 2020**, IIT Bombay**, INDIA December 11-13 and 18-20, 2020.

7. Advancement in Plasma Spray Coatings. Discussion meeting on thermal spray coating, **IIT Bombay**, Jan. 24, 2020

8. Simple, Direct, One-Step, and Scalable Technique to Instantly Tune the Metallic Coating from Superhydrophilic to Robust Superhydrophobic. AICTE Training and Learning (ATAL) Academy sponsored FDP on Novel Materials organized by Rajkiya Engineering College Banda in association with **IIT Kanpur**, September 18-22, 2020.

9. One Step and Scalable Technique for Immediate Tuning of Superhydrophilic to Robust Super hydrophobic and Self Cleaning Metallic Coating, 10th Anniversary, International Conference of the Asian Consortium on Computational Materials Science (ACCMS-10), **University of Hong kong**, July 22-27, 2019

10. "Instant Tuning of Superhydrophilic to Robust Superhydrophobic and Self Cleaning Metallic Coating by One Step and Scalable Technique." **MNIT Jaipur**, July 29, 2019

11. Carbon Nanocomposites for Potential Structural Applications as UHTCs", QIP short-term course on Carbon Nanomaterials -Recent Advances and Functional Applications, **IIT Roorkee**, May 22, 2019

12. Revolutionary Graphene Coating: Efficient and Scalable Approach towards Commercialization, (ISMANAM-2019) 8-12 July 2019, at Chennai, India.

13. "Development of Process Maps for Synthesizing High Density Aluminum Oxide-Carbon Nanotube Coatings by Plasma Spraying for Improved Mechanical and Wear Properties". 4th International Conference on Nanostructured Materials and Nanocomposites (ICNM 2017) 10-12 February 2017 at ***Mahatma Gandhi University***, Kottayam, Kerala.

14. "Comprehensive Process Maps for Synthesizing High Density Aluminum Oxide-Carbon Nanotube Coatings by Plasma Spraying for Improved Mechanical and Wear Properties" 11 Feb. 2017, ***Bharathiar University***, Coimbatore, India

15. "Plasma Spray Nanocomposite Coating with Improved Wear Properties" May 29, 2017, **SatlujJalVidyut Nigam Limited, Shimla**, India.

16. "Plasma Spray Composite Coating with Improved Mechanical and Wear Properties"November 18 2016, **Tata Steel**, Jamshedpur, India.

17. "Nanoindentation and Nano-scratch Approach to Determine the Mechanical Properties of Plasma Sprayed Aluminum Oxide-Carbon Nanotube Splat" (Invited talk to Academics), November 2 2016, **Toyohashi University of Technology**, Toyohashi, Aichi, Japan.

18. "Plasma Sprayed Composite Coating with Improved Mechanical and Wear Properties", (Invited talk to Industry), 08 October, 2016, **Carborundum Universal Limited (CUMI)**, Ernakulam, India.

19. "Plasma sprayed composite coating with improved mechanical and wear properties" (Invited talk to Academics), September 07, 2016, **Organized by department of Physics, NIT Surathkal**, Mangalore, India.

20. "Thermal Spray Coatings: Fundamentals, Properties and Applications" (Invited talk to Academics), September 06, 2016, **Organized by Centre for Nanoscience and Technology, Pondicherry University (A Central University)**, Pondicherry, India.

21. "Thermal Sprayed Coatings & Composites: Science, Engineering and Applications (TSCC-2016)", Co-Instructor, June 20-July 01, 2016, **Organized by Global Initiative of Academic Networks (GIAN)**, MNIT Allahabad, India.

22. "Thermal Spray Coatings: Fundamentals, Properties and Applications" (Invited talk to Industry), July 22, 2016, **Bharat Forge**, Pune, India.

PROJECTS (COMPLETED/ONGOING/ UNDER REVISION)

Projects	Funding Agency	Project Amount (Rs.)	Status
Fabrication of Robust Plasma Sprayed Rare Earth Oxide Hydrophobic Coating for the High Temperature and Wear Resistance Applications	SERB-DST	31.00 Lakhs	**Completed**
Surface modified metallic orthopedic implant for sustained drug release **Co-PI: Dr. Anup Kumar Keshri (IIT Patna)**	DST/TSG/AMT	92.49 Lakhs	**Completed**
Plasma Sprayed Carbon Nanotube reinforced Molybdenum Disulfide Anti-friction Nano Composite Coating with enhanced Mechanical and Wear Properties	Naval Research Board (NRB), India	15.05 Lakhs	**Completed**
Plasma Sprayed Carbon Nanotube and Graphene Reinforced Alumina Hybrid Nanocomposite Coating with Enhanced Electrical Conductivity, Corrosion and Mechanical Properties for Light Metal Alloys	Indian Space Research Organization (ISRO)	19.40 Lakhs	**Completed**
Development and optimization of cost effective and scalable near net shape plasma sprayed membrane with graded porosity for microfiltration application.	IMPRINT II	65.00 Lakhs	**Completed**
High Temperature Materials for Thermal Protection Systems **(With IIT Kanpur)**	IMPRINT II	45.00 Lakhs	**Ongoing**
Optimization of corrosion and wear properties in plasma sprayed Fe based metallic glass protective coatings **(With IIT Kharagpur)**	CRG-SERB	48.51 Lakhs	**Ongoing**
Graphene Based Membrane for Water Desalination with Improved Properties	CRG-SERB	32.18 Lakhs	**Ongoing**
Plasma Sprayed CNT Reinforced Graphene Coated Electrode for the Super Capacitor Applications: Towards Industrialization	Indo Hungary	28.20 Lakhs	**Ongoing**
Plasma Sprayed Nano-diamond reinforced NiCrBSi Nanocomposite Coatings: Substitute to Electroplated Hard Chromium	BRNS	29.51 Lakhs	**Ongoing**
Plasma Spraying of rare-earth niobates powder and controlling its stoichiometry and porosity for the advanced thermal barrier coating applications	AR&DB-GTMAP (DRDO)	72.5 Lakhs	**Ongoing**
Development of High Temperature Wear and Corrosion Resistant Graphene Nanoplatelates Reinforced Plasma Sprayed Cr_3C_2-NiCr composite Coating for thermal power plant	CPRI, Bangalore	32 Lakhs	**Revision Submitted**

CONSULTANCY (SANCTIONED/UNDER CONSIDERATION)

Consultancy	Funding Agency	Project Amount (Rs.)	Status
Development of Plasma Spray Process Maps for Various Powders Developed by Carborundum Universal Limited (CUMI)	Carborundum Universal Limited (CUMI)	8 Lakhs	**Completed**
Fabrication of Plasma Sprayed Coating with Improved Thermal Shock Resistance, Non Wetability to Molten Iron/Slag and Moderate Wear Resistance	Tata Steel	8 Lakhs	**Completed**
Process Map of Plasma sprayed Iron Based Coating	Tata Steel	12 Lakhs	**Completed**
Plasma Sprayed Nanostructured Coating	Tata Steel	12.5 Lakhs	**Completed**
Plasma Sprayed Hydrophobic Coating	Tata Steel	12.5 Lakhs	**Completed**
Establishing the Plasma process parameters for CUMI's GNPs, Al2O3-GNPs and YSZ-GNPs powder	Carborundum Universal Limted	15.0 Lakhs	**Ongoing**
Developing Plasma spray Coating on Commercial Scale	Associated Plasmatron Private Limited, Mumbai	17.0 Lakhs	**Ongoing**

PROJECTS (SUBMITTED/ UNDER REVIEW)

1. Project Submitted to Advanced Manufacturing Technology (AMT), DST for **Centre of Excellence at IIT Patna** in Wear and Corrosion Resistant Coatings Technology

   Total Project Cost: 5.78 Crores
   Industry Commitment: 89 Lakhs
   In-Cash: 45 Lakhs, from Applied Materials Pvt. Ltd.
   In-Cash: 24 Lakhs, from Tata Steel. Ltd.
   In-Kind 20 Lakhs from Associated Plasmatron Pvt Ltd.

   Other Institute Involved: AIIMS Patna, NIT Patna, IIT Dhanbad, CMERI Durgapur

2. Project Submitted to Technology Development Programme (TDP), DST for Low cost gram scale high quality and defect free graphene by scalable Plasma spraying, (Industry Partner Associated Plasmatron Pvt Ltd.) Total Project Cost: 1.96 Crores

3. Project Submitted to Water Technology of India, DST, Development of Robust and Superhydrophobic Plasma Sprayed Graphene reinforced TiAl Intermetallic membranes with

improved Desalination in Membrane Distillation, (Industry Partner Associated Plasmatron Pvt Ltd.) Total Project Cost: 64 Lakhs

DOCTORAL STUDENTS

Students	Dissertation Title	Status
Mr. Sribalaji M	Ultra-High Temperature Ceramics	Graduated-2018 (December)
Mr. Asiq Rahman	Plasma Sprayed Hydrophobic Coating	Graduated-2019 (December)
Ms. Swarnima Singh	Plasma Sprayed Hydroxyapatite Coating	Graduated-2020 (January)
Ms. Nitika Kundan (Co-PI) MNIT Jaipur	High Entropy Alloys	Graduated-2019 (June)
Mr. Biswajyoti Mukherjee	Plasma Sprayed CNT & Graphene hybrid Nanocomposite	March 2022
Mr. Aminul Islam	Surface modified metallic orthopedic imp for sustained drug release	March 2022
Mr. Krishna Kant Pandey	Plasma Sprayed coating for Superlubricity	Ongoing
Mr. Pushpender Singh	Plasma Sprayed $La_2Ce_2O_7$ coating	Ongoing
Mr. Sabyasachi Shit	Plasma sprayed Graphene Coating	Ongoing
Mr. Vijay Kumar	Plasma spray exfoliation of MoS_2	Ongoing
Mr. Sai Kiran (CRG-SERB)	Plasma Sprayed Graphene Membrane	Ongoing
Mr. Niranjan (Indo-Hungary)	Plasma sprayed CNT Reinforced Graphene Coated Electrode for the Super Capacitor	Ongoing
Mr. Rahul Kumar (AR&DB, DRDO)	Plasma sprayed Thermal Barrier Coating	On-Going
Mr. Satish Indupuri (AR&DB, DRDO)	Plasma sprayed Thermal Barrier Coating	Ongoing
Mr. Abhishek Grain (JRF-BRNS) Offer letter will be sent.	Plasma Sprayed NiCrBSi powder	On-going

M.TECH. STUDENTS

Students	Dissertation Title	Status
Mr. Amit Kumar	Fabrication of Al_2O_3–Y_2O_3 stabilized ZrO_2 composite by slip casting method for wear resistant	Completed

	applications	
Mr. Anil Kumar	Polymer composite for sound reduction in electrical machinery	Completed
Mr. Rishi Kumar Gupta	Fabrication of Al_2O_3–ZrO_2–TiB_2 wear resistant ceramic composites for bowl mill roll application	Completed
Mr. Yashanshu Dixit	Development of corrosion resistant hydrophobic coating on 304 stainless steel	Completed
Ms. Nishtha Singh	Fabrication and characterizations of spark plasma sintered TiC-WC-CNT composites	Completed
Mr. Mayank Kumar Pandey	Damping behavior of plasma sprayed AlO_3– CNT -GNP coating	Completed
Mr. Rishow Kumar	In-situ Tensile behavior of Plasma sprayed Ni-Al coating	Completed
Ms. Sony Priyadershini	Wear behavior of Plasma sprayed AlO_3– CNT -GNP coating	Completed
Mr. Rakesh Kumar	Plasma sprayed graphene reinforced ceria coating with excellent corrosion resistant property	Completed
Mr. Rohit Gupta	In-situ synthesis of Titanium nitride coatings by shroud-reactive plasma spraying	Completed
Mr. Shrestha Ranjan	High temperature tribologicalbehaviour of titanium nitride coatings prepared by shroud-reactive plasma spraying	Completed
Mr. Ravi Singh	In-Situ mechanical behavior of single splats prepared with hybrid GNP & CNT reinforced in Alumina	Completed
Mr. Bihar Gaurav	Role of carbon nanotube on mechanical properties of plasma sprayed Alumina-titania coating	Completed
Dipak Kumar Shukla	Plasma sprayed Ceramic Coatings	Completed
Rahul Verma	Plasma sprayed Single Splat	Completed
Sumit Choudhary	Plasma sprayed Thermal Barrier Coating	Completed
Shubham Kumar Vishwakarma	Plasma sprayed Graphene Oxide coating	Completed
Rahul Kumar	Plasma sprayed CrN Coating	Completed
Ravi Ranjan	Plasma Sprayed AlN Coating	Completed
Aakash M Nair	Plasma Sprayed Ceramic Coating	On-Going
Deepak Kumar	Plasma Sprayed Metallic Coating	On-Going
Kamlesh Kumar Mirche	Plasma Sprayed GNP reinforced ceramic coating	On-Going
ShubhendraShivam Maury	Plasma Sprayed ND reinforced ceramic coating	On-Going
Sudha Kumari	Plasma Sprayed ND reinforced metallic coating	On-Going

TEACHING (Teaching Feedback: Minimum: 4.26/5.0, Maximum: 4.99/5.0)

1. Engineering Materials (ME202)
2. Thermodynamics and Kinetics (MM205)
3. Phase Transformation and Diffusion (MM204)
4. Iron and Steel Making (MM303)
5. Introduction to Materials Processing (MS502) (M.Tech. core course)
6. Advanced Materials Characterization Techniques (MS 503) (M.Tech. core course)
7. Surface Engineering (MS509) (M.Tech elective course)
8. Structural and Functional Properties of Materials (MS504) (M.Tech core course)
9. Composite Science and Technology (MS510) (M.Tech elective course)
10. Advanced Building Materials (MS515) (M.Tech elective course)
11. Alloy Development and Heat Treatment (MS512) (elective course)

Workshop Organized:

A Workshop on "Plasma Spray Coatings of Wondrous Materials & its Applications" in association with Navel Materials Research Laboratory was organized on Feb. 03-04, 2020. **Total Budget of the workshop was 2.0 Lakhs**. In this workshop, Participants as executives/Faculty/research scholar from Schlumberger Pune, Tata Steel Limited, Jamshedpur, Anton Parr, IIT Kanpur, IIT Roorkee, MNIT Jaipur, MNIT Allahabad, NIT Patna, IIT Patna, DTU, NIT Surathkal registered. Speaker in the workshop was Prof. Kamaraj, IIT Madras, Dr. Gopi Chandran, GE Aviation, Dr. Shyam Choudhary, Graphene Head, Tata Steel and Dr. Anup Kumar Keshri, IIT Patna.

TRAINING/MENTORING

1. Mentored and Trained Mr. Michael Gomes, Mr. Chen Zhang, Mr. Di Wang (MS) in Plasma Spraying
2. Mentored Mr. David Virzi, an undergrad from Florida International University, Miami, USA during Fall 2009
3. Mentored high school students Mr. Joachim Ardisson (MASTAcademy, Miami) and Mr. Juan Puertas (Coral Park high School, Miami)

PEER REVIEW ACTIVITIES

ACS Applied Materials and Interface, Materials Design, Journal of Thermal Spray Technology, Surface and Coatings Technology, Metallurgical and Materials Transactions A, Applied Surface Science, Journal of Composite Materials, Journal of Alloys and Compounds, Physica A, Ceramics International, Materials Science and Engineering A