

RESUME

Dr. RAMESH M.R.

Professor

Department of Mechanical Engineering

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❖ CURRENT AREA OF RESEARCH :

Thermal Spray Coatings, Thin films, Laser and microwave surface modification, Biomaterials, Machining, Wear, Erosion.

❖ ACADEMIC RECORD

➤ DEGREE

: **Ph.D**
Institution : **Indian Institute of Technology Roorkee, Roorkee.**
Thesis Title : Studies on the Role of HVOF Coatings in Improving Resistance to Hot Corrosion and Erosion
Year of completion : 2008

➤ POST GRADUATION

: **M.Tech (Mechanical Engineering)**
Specialization : **Manufacturing Science and Engineering**
Institution : M.S. Ramaiah Institute of Technology, Bangalore.
University : Visveswaraiah Technological University.
Year of Passing : February 2002.
Results : **Ist class with distinction @ 75.20% aggregate (Secured university third rank)**

➤ GRADUATION

: **B.E. (Mechanical Engineering)**
Institution : Siddaganga Institute of Technology, Tumkur.
University : Bangalore University.
Year of Passing : Aug. 1999.
Results : **Ist class with distinction @ 67.03% aggregate**

❖ WORK EXPERIENCE: (present to previous)

- Institution : National Institute of Technology Karnataka, Surathkal
Designation : Associate Professor
Duration : October 09, 2023 – Till date
- Institution : National Institute of Technology Karnataka, Surathkal
Designation : Associate Professor
Duration : May 16, 2018 – October 09, 2023
- Institution : National Institute of Technology Karnataka, Surathkal
Designation : Assistant Professor
Duration : December 2012 – May 16, 2018
- Institution : M.S.Ramaiah Institute of Technology, Bangalore.
Designation : Associate Professor
Duration : April 2011 – December 2012
- Institution : Reva Institute of Technology and Management, Bangalore.
Designation : Assistant Professor
Duration : July 2008 – April 2011
- Institution : Nitte Institute of Technology, Bangalore.
Designation : Assistant Professor

Duration : September 2002 – July 2003, February 2008 – July 2008

❖ RESEARCH PROJECTS:

1. Design and development of Supercritical carbon dioxide based naturally circulated solar thermal collector, Funding Agency: SERB, New Delhi, under Core Research Grant, PI: Dr. Ajay Kumar Yadav; Co-PI: Dr. M. R. Ramesh
Funding amount: Rs 23,817,64/-
Duration: 3 years (2021-24)
2. Performance evaluation of HVOF sprayed NiAl intermetallic based composite coatings for aerospace repair and manufacturing applications
Funding Agency: SERB, New Delhi, under Core Research Grant, PI: Dr. M. R. Ramesh; Co-PI: Dr. Sharnappa Joladarashi
Funding amount: Rs 30,288,17/-
Duration: 3 years (2023-26)
3. Combined HVOF-PVD technology in coating manufacturing alternate to hard chrome
Funding Agency: DST-International Cooperation Division
PI: Dr. Ramesh M R; Co-PI: Dr. Ravikiran Kadoli and Dr. Sharnappa J
Funding amount: Rs 12,51,680/-
Duration: 2 years (2023-25)
4. Development of HVOF sprayed cermets coatings in improving resistance to hot corrosion and erosion of gas turbine alloys granted by All India Council for Technical Education during 2013 with funding of Rs 18,10,000.(Completed)
PI: Dr. M. R. Ramesh; Co-PI: Dr. N D Prasanna

❖ RESEARCH PUBLICATIONS/BOOKS:

Journal Publication

- 1) Durgaprasad, sharanabasava, ramesh, Microstructure, Mechanical and Wear Properties of SiC and Mo Reinforced NiCr Microwave Cladding, Accepted in Advances in Materials and Processing Technologies
- 2) Nidhi Ojha, Sumodh Kumar, M.R. Ramesh, A.S.S. Balan, Mrityunjay Doddamani, Influence of subsequent thermomechanical cycles on shape memory behavior of 4D printed PEKK, Materials Letters, Volume 352, 1 December 2023, 135213, <https://doi.org/10.1016/j.matlet.2023.135213>
- 3) Netrananda Behera, Subba Rao Medabalimi, M.R. Ramesh, Effect of impact angles and temperatures on the solid particle erosion behavior of HVOF sprayed WC-Co/NiCr/Mo and Cr₃C₂-CoNiCrAlY coatings" in its current form for publication in the Journal of Thermal Spray Technology.
- 4) Netrananda Behera, Subba Rao Medabalimi, M.R. Ramesh, Elevated temperatures erosion wear behavior of HVOF sprayed WC-Co-Cr/Mo coatings on Ti6Al4V substrate, Surface and Coatings Technology, Volume 470, 15 October 2023, <https://doi.org/10.1016/j.surfcoat.2023.129809>
- 5) Sowmya C, Karibasavaraja D, Ramesh M. R, Sharnappa Joladarashi, Aishwarya M. V, Design Optimization and Implementation of an Automated Storage and Retrieval System, Journal of Mines, Metals & Fuels, Volume 71, Issue 2, February 2023, <https://doi.org/10.18311/jmmf/2023/33389>
- 6) Sumodh Kumar, M.R. Ramesh, P. Jeyaraj, Mrityunjay Doddamani, Buckling and dynamic responses of 3D printed nanocomposites and their graded variants, Composite Structures, Volume 316, 15 July 2023, 117031, <https://doi.org/10.1016/j.compstruct.2023.117031>
- 7) Sumodh Kumar, M.R. Ramesh, Mrityunjay Doddamani, Investigation on Hardness, Impact and Compression responses of additively manufactured functionally graded nanocomposites, Composites Communications, Volume 39, April 2023, <https://doi.org/10.1016/j.coco.2023.101545>
- 8) G. M. S. Reddy, C. D. Prasad, P. Patil, G. Shetty, N. Kakur & M. R. Ramesh (2023) High temperature erosion performance of NiCrAlY/Cr₂O₃/YSZ plasma spray coatings, Transactions of the IMF, DOI: [10.1080/00202967.2023.2208899](https://doi.org/10.1080/00202967.2023.2208899)
- 9) Rakkala, U., Suresh, G. & Ramesh, M.R. Comparative Study of Plasma Spray and Friction Stir Processing on Wear Properties of Mg-Zn-Dy Alloy. J. of Mater Eng and Perform (2023). <https://doi.org/10.1007/s11665-023-08087-x>
- 10) H. Sharanabasava, C. Durga Prasad, and M.R. Ramesh, Characterization and Wear Behavior of NiCrMoSi Microwave Cladding, Journal of Materials Engineering and Performance, 2023, <https://doi.org/10.1007/s11665-023-07998-z>
- 11) Sumodh Kumar, M. R. Ramesh, Mrityunjay Doddamani, Recycling potential of MWCNTs/HDPE nanocomposite filament: 3D printing and mechanical characterization, Journal of Material Cycles and Waste Management, <https://doi.org/10.1007/s10163-023-01607-w>
- 12) Uzwalkiran Rakkala, Srikanth Bontha, M. R. Ramesh, and Vamsi Krishna Balla, Influence of friction stir processing on microstructure, mechanical properties and corrosion behaviour of Mg-Zn-Dy alloy, (2023), Journal of Materials Science, [10.1007/s10853-023-08208-w](https://doi.org/10.1007/s10853-023-08208-w)

- 13) Durga Prasad, "Investigation of the Effect of NiCrAlY/Cr₂O₃/YSZ Plasma Coatings on Erosion Performance of MDN 420 Steel at High Temperature" *Int. J. of Surface Science and Engineering*. DOI: 10.1504/IJSURFSE.2023.10054266
- 14) H. Sharanabasava, C. Durga Prasad, M. R. Ramesh, Effect of Mo- and SiC-Reinforced NiCr Microwave Cladding on Microstructure, Mechanical and Wear Properties, *Journal of The Institution of Engineers (India): Series D*, <https://doi.org/10.1007/s40033-022-00445-8>, 2023
- 15) Pradeep V Badiger, Vinyas Mahesh, Vijay Desai, M R Ramesh, Hemanth Gourkar, Wear behaviour of AICN/AIC and FeCrN coatings developed on alloy steel, *Advances in Materials and Processing Technologies*, <https://doi.org/10.1080/2374068X.2022.2136668>, Accepted 11 October 2022
- 16) Subba Rao Effect of microwave hybrid heating on high temperature adhesive wear behaviour of HVOF-sprayed WC-CrC-Ni and WC-Co/NiCrFeSiB coatings" in its current form for publication in the *Journal of Materials Engineering and Performance*
- 17) Sumodh Kumar, Ramesh M.R, Mrityunjay Doddamani, Sanjay Mavinkere Rangappa, Suchart Siengchin, Mechanical characterization of 3D printed MWCNTs/HDPE nanocomposites, *Polymer Testing*, Volume 114, October 2022, 107703, <https://doi.org/10.1016/j.polymer> testing.2022.107703
- 18) Sumodh Kumar, Ramesh M. R, Mrityunjay Doddamani, Compressive behavior of 3D printed MWCNT/HDPE nanocomposites, *Composites Communications*, Volume 35, November 2022, 101317, <https://doi.org/10.1016/j.coco.2022.101317>
- 19) G. Suresh, M. R. Ramesh, N. Siva Shanmugam, M. S. Srinath, Microstructure And Tribological Performance Of Self-Lubricate Cladding Produced By Tungsten Inert Gas And Microwave Hybrid Heating Techniques, *Surface Review and Letters*, Vol. 29, No. 09, 2250125, 2022. <https://doi.org/10.1142/S0218625X22501256>
- 20) Madhu Sudana Reddy, C Durga Prasad, Pradeep Patil, Gagan Shetty, M R. Ramesh and Nageswara Rao, Investigation of thermally sprayed NiCrAlY/TiO₂ and NiCrAlY/Cr₂O₃/YSZ Cermet Composite Coatings on titanium alloys, *Engineering Research Express*, 4 (2022) 025049, <https://doi.org/10.1088/2631-8695/ac7946>
- 21) Viresh G Patil, B. Somasundaram, Sakthivel Kandaiah, M. R. Ramesh, Sachin Kumar Patil, High Temperature Corrosion Behavior of HVOF Sprayed NiCrMoFeCoAl-30%SiO₂ and NiCrMoFeCoAl-30%Cr₂O₃ composite coatings on ASTM SA213-T22 steel in a coal-fired boiler environment, *International Journal of Engineering*, Accepted for publication
- 22) Syam Narayana Addepalli, Sharnappa Joladarashi, M. R. Ramesh & S. B. Arya, Effect of Mechanical Alloying on the Microstructure of CoCrNiTiMox High Entropy Alloy. *Journal of Thermal Spray Technology*, 31, 1045–1055 (2022). <https://doi.org/10.1007/s11666-021-01317-5>
- 23) Suresh Gudala, M.R. Ramesh, and M.S. Srinath, Microstructure and Wear Behavior of Self-Lubricating Microwave Clads Deposited on Titanium Alloy, *Journal of Materials Engineering and Performance*, (2022), <https://doi.org/10.1007/s11665-022-06926-x>
- 24) Madhu Sudana Reddy G, C Durga Prasad, Pradeep Patil, Naresh Kakur and M. R. Ramesh, Elevated Temperature Erosion Performance of Plasma Sprayed NiCrAlY/TiO₂ Coating on MDN 420 Steel Substrate, *Surface Topography: Metrology and Properties*, (2022), Volume 10, Number 2, <https://doi.org/10.1088/2051-672X/ac6a6e>
- 25) G. Madhu Sudana Reddy, C. Durga Prasad, Gagan Shetty, M. R. Ramesh, T. Nageswara Rao & Pradeep Patil, High-temperature oxidation behavior of plasma-sprayed NiCrAlY/TiO₂ and NiCrAlY/Cr₂O₃/YSZ coatings on titanium alloy. *Welding in the World*, 66, 1069–1079 (2022). <https://doi.org/10.1007/s40194-022-01268-7>
- 26) Uzwalkiran Rokkala, Anuradha Jana, Srikanth Bontha, M.R.Ramesh, Vamsi Krishna Balla, Comparative investigation of coating and friction stir processing on Mg-Zn-Dy alloy for improving antibacterial, bioactive and corrosion behaviour, *Surface and Coatings Technology*, Volume 425, 15 November 2021, 127708
- 27) Thavarya Naik, Mahantayya Mathapati, C. Durga Prasad, H. S. Nithin, M. R. Ramesh, Effect Of Laser Post-Treatment on Microstructural and Sliding Wear Behavior of HVOF-Sprayed NiCrC and NiCrSi Coatings, *Surface Review and Letters*, Vol. 29, No. 1 (2022) 2250007
- 28) G. Madhu Sudana Reddy, S. Ramesh, Gajanan Anne, M. R. Ramesh, T. Nageswara Rao & Pradeep Patil, Solid Particle Erosion Behaviour of Plasma-Sprayed (WC-Co)/(Cr₃C₂-NiCr) Coatings. *Journal of Bio- and Tribo-Corrosion*, 8, 40 (2022). <https://doi.org/10.1007/s40735-022-00629-5>
- 29) G. Madhu Sudana Reddy, C. Durga Prasad, Gagan Shetty, M. R. Ramesh, T. Nageswara Rao & Pradeep Patil, High-Temperature Oxidation Studies of Plasma-Sprayed NiCrAlY/TiO₂ and NiCrAlY/Cr₂O₃/YSZ Cermet Composite Coatings on MDN-420 Special Steel Alloy. *Metallography, Microstructure, and Analysis*, 10, 642–651 (2021). <https://doi.org/10.1007/s13632-021-00784-0>
- 30) G. Suresh, M. R. Ramesh & M. S. Srinath, Development of Self-lubricating Nickel Based Composite Clad using Microwave Heating in Improving Resistance to Wear at Elevated Temperatures. *Metals and Materials International*, (2021). <https://doi.org/10.1007/s12540-021-01078-4>
- 31) Suresh Gudala, M. R. Ramesh, Siva Shanmugam Nallathambi, Evolution of Microstructure and High-Temperature Tribological Performance of Self-Lubricating Nickel-Based Composite Tungsten Inert Gas Coatings, *Journal of Materials Engineering and Performance*, 30, 8080–8094 (2021). <https://doi.org/10.1007/s11665-021-06008-4>
- 32) G. Suresh, M. R. Ramesh, Influence of solid lubricants on microstructure and tribological performance of nickel-based composite coatings" *Metallography, Microstructure, and Analysis*, 11, 281–292 (2022). <https://doi.org/10.1007/s13632-022-00837-y>
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- 35) Subba Rao Medabalimi, Ramesh M R, Ravikiran Kadoli, High-temperature solid particle erosion behavior of partially oxidized NiCrBSiFe/NiCr plasma spray coatings, *Journal of Thermal Spray Technology*, 30, 1638–1652 (2021). <https://doi.org/10.1007/s11666-021-01225-8>
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- 39) Uzwalkiran Rokkala, Srikanth Bontha, Ramesh M.R., Vamsi Krishna Balla, A Srinivasan, Satish V. Kailas, Tailoring surface characteristics of bioabsorbable Mg-Zn-Dy alloy using friction stir processing for improved wettability and degradation behavior, *Journal of Materials Research and Technology*, , Volume 12, May–June 2021, Pages 1530-1542, <https://doi.org/10.1016/j.jmrt.2021.03.057>
- 40) N.Nagabhushana, S.Rajanna, M.R.Ramesh, N.Pushpa, Influence of Temperature on Friction and Wear Behavior of APS Sprayed NiCrBSi/Flyash and NiCrBSi/Flyash/TiO₂ Coatings, *Journal of Green Engineering*, Volume-10, Issue-11, November 2020
- 41) C.Durga Prasad, M.Shashank Lingappa, Sharnappa Joladarashi, M.R.Ramesh, B.Sachin, Characterization and sliding wear behavior of CoMoCrSi + Flyash composite cladding processed by microwave irradiation, *Materials Today: Proceedings*, 2021, <https://doi.org/10.1016/j.matpr.2021.01.156>.
- 42) S. Hanumanthlal, C. Siddaraju, M. R. Ramesh, H. P. Thirtha Prasada, B. Somasunder, and Lakkonavar Virupakshappa, Microstructural Characterization and Hot Corrosion Behavior of Plasma-Sprayed Fe17Cr2Ni0.18C/Fly Ash Cenosphere-Based Composite Coating, *SAE Int. J. Mater. Manuf*, Volume 14, Issue 3, 2021
- 43) Timothy Harold Gonsalves , Mohan Kumar Garje Channabasappa , Ramesh Motagondanahalli Rangarasaiah & Sharnappa Joladarashi, Dynamic Characterization of Hybrid Composite Material used in Rotor-Bearing Support System, *Mechanics of Advanced Materials and Structures*, 2020, <https://doi.org/10.1080/15376494.2020.1861667>
- 44) MadhuSudana Reddy, C Durga Prasad, Pradeep Patil, M.R.Ramesh, Nageswara Rao, Hot corrosion behavior of plasma-sprayed NiCrAlY/TiO₂ and NiCrAlY/Cr₂O₃/YSZ cermets coatings on alloy steel, *Surfaces and Interfaces*, Volume 22, February 2021, 100810.
- 45) Timothy Harold Gonsalves , Mohan Kumar Garje Channabasappa & Ramesh Motagondanahalli Rangarasaiah, Hybrid composite shaft of High-Speed RotorBearing System - A rotor dynamics preview, *Mechanics Based Design of Structures and Machines*, 2021, Vol. 49, No. 3, 440–462, <https://doi.org/10.1080/15397734.2020.1841003>
- 46) N. Ramesh Babu, M. R. Ramesh, R. N. Murthy, J. Sudheer Reddy, S. Kiran Aithal, H. N. Manjunath, Study of tribological characteristics of Al-Si based directional solidified FGM with graphite end chill, *AIP Conference Proceedings* 2274, 030045 (2020); <https://doi.org/10.1063/5.0022478>
- 47) C. Durga Prasad, Sharnappa Joladarashi, M. R. Ramesh, M. S. Srinath, Microstructural and Tribological Resistance of Flame-Sprayed CoMoCrSi/WC-CrC-Ni and CoMoCrSi/WC-12Co Composite Coatings Remelted by Microwave Energy, *Journal of Bio- and Tribo-Corrosion*, (2020) 6:124, <https://doi.org/10.1007/s40735-020-00421-3>
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Book Chapter

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Book:

Co-authored book titled "Elements of Mechanical Engineering" – A text book for I/II semester B.E. of VTU syllabus, Suggi Publishing, Bangalore.

❖ RESEARCH STUDENTS AWARDED PhD UNDER MY GUIDANCE:

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