

**Coordinator:** Dr. Aravindan M K

**Members:** Dr. Adarsha H, Dr. Aravindan M K, Dr. Venkadeshwaran K, Dr. AshuthoshPattanaik, Mr. Arunkumar D T, Mr.Kaushik V Prasad, Mr. Ranganatha Swamy MK, and Mr. Abhijith Nagaraj, Mr. Vinod Moger

Research is focused on the following key areas: manufacturing systems, manufacturing processes, advanced machining processes, micro/nano fabrication and finishing, nanotechnology, bioengineering, nano-composites, MEMS, laser/plasma surface coating technologies.

### **Research Group Publications**

1. D. T. Arun Kumar, K. G. Basava Kumar, A. Pattanaik & M. Mukherjee  
Improvement of Al–Si Hypoeutectic Cast Alloy Properties by Forging with Grain Refiner and Modifier, *Transactions of the Indian Institute of Metals*, ISSN: 0972-2815, Springer, 73, pages 3105–3112, (2020), Nov, 2020, Impact factor:1.205.
2. S. Dinesh Kumar, K. Venkadeshwaran, M.K. Aravindan, Fused deposition modelling of PLA reinforced with cellulose nanocrystals, *Materials Today: Proceedings*, ISSN:2214-7853, Elsevier, Available at: <https://doi.org/10.1016/j.matpr.2020.06.404>, July 2020.
3. Pravat Ranjan Pati, Mantra Prasad Satpathy b, Basant Kumar Nanda, Bharat Chandra Routara, Ashutosh Pattanaik, Dissimilar joining of Al/SS sheets with interlayers by ultrasonic spot Welding: Microstructure and mechanical properties, *Materials Today: Proceedings*, ISSN:2214-7853, Elsevier, Available at: <https://doi.org/10.1016/j.matpr.2020.02.369>, May 2020.
4. Pravat Ranjan Pati, Mantra Prasad Satpathy, Ashutosh Pattanaik, Sambit Kumar Mohapatra, Swayam Bikash Mishra" Ultrasonic spot welding of Al/Mg alloys: A state-of-the-art review, *Materials Today: Proceedings*, ISSN:2214-7853, Elsevier, Available at: <https://doi.org/10.1016/j.matpr.2020.02.829>, May 2020.
5. Kaushik V. Prasad, H. Adarsha, Ashutosh Pattnaik, B. Shashank, P. Sri Sai Kiran, Mitai Mallikarjuna, and B. Sandeep, "SEM characterization of 3D printed ABS tensile specimens developed by fused deposition modelling", *AIP Conference Proceedings*, AIP, Available at: <https://doi.org/10.1063/1.5141582>, Jan, 2020.

6. H. Adarsha, A. Pattanaik, A. Chaturvedi, and S. Bhat, "Development & characterization of composite coatings on A-36 steel using HVOF technique", *AIP Conference Proceedings*, AIP, Available at: <https://doi.org/10.1063/1.5141574>, Jan, 2020.
7. M K Ranganatha Swamy, U S Mallikarjun and V Udayakumar Synthesis and Characterization of Shape Memory Polymers, *IOP Conf. Series: Materials Science and Engineering*, IOP Science, Available at: <https://doi.org/10.1088/1757-899X/577/1/012095>, December, 2019
8. Soumyajit Das, Mantra Prasad Satpathy, Ashutosh Pattanaik & Bharat Chandra Routara, Experimental investigation on ultrasonic spot welding of aluminum-cupronickel sheets under different parametric conditions, *Materials and Manufacturing Processes*, ISSN: 1042-6914, Taylor & Francis, Available at <https://doi.org/10.1080/10426914.2019.1689265>, Nov, 2019, Impact factor: 3.350.
9. A. Pattanaik, M. Mukherjee, S.B. Mishra, Influence of curing condition on thermo-mechanical properties of fly ash reinforced epoxy composite, *Composites Part B, Elsevier*, 176 (2019) 107301, August 2019, Impact factor: 6.864.
10. S. Dinesh Kumar, Study on mechanical & thermal properties of PCL blended raphemebiocomposites, *Journal –Polimeros, Brazilian Polymer Association*, 29(2), 1-9, Jul 2019.
11. Kaushik V Prasad, Review on effect of various reinforcements on the thermal properties of LM-25 al alloy and some common light metal alloys, *International Journal of Mechanical Engineering & technology*, IAEME, 143 – 159, May 2019.
12. A Pattanaik, M Mukharjee, S C Mishra, Effect of environmental aging conditions on the properties of fly ash filled epoxy composites, *Advanced Composite Materials*, Taylor & Francis, 201-1-30, April 2019.
13. Aayush Poudel, Yashaswi Khandelwal, Sayantan Das, K Venkadeshwaran, Karthik N, Design and development of multi terrain vehicle, *International journal of trend in scientific research and development*, Volume-2, Issue-4, pp.2443-2447, <https://doi.org/10.31142/ijtsrd14495>, June 2018.
14. Adarsha H, Kaushik V P, Ishfaq, V Ravinarayan, Vishnu K R, Review on the effects of various reinforcements on thermal properties of LM-25 alloy, *International journal of Mechanical Engineering & Technology*, IAEME, Vol.10 / Issue 5, May 2019.
15. Akash Pathak, K. Venkadeshwaran, Alok Kumar Rohit, Niranjana Kumar Naulakha, Review Paper on Improved Exhaust Emission Control by The Use of Cu-Zeolite

- Catalyst Based Catalytic Converter, *International Journal of Trend in Scientific Research and Development (IJTSRD)*, Index Copernicus, Vol-2, Issue-4, June2018.
16. Arunkumar D T, Raghavendra Rao P S, Mohammed Shadab Hussain, Naga Sai Balaji P R, Wear Behaviour and Microstructure Analysis of Al7075 alloy reinforced with Mica and Kaolinite, *Advances in Manufacturing, Materials and Energy Engineering IOP*,376, Aug-2018.
  17. Arunkumar D T, Vinod, A Pattanaik, P S Raghavendra Rao, Study of Mechanical Properties of Aluminium Based Hybrid Metal Matrix Composite, *Journal of Material Science & Manufacturing Technology, STM Journal*, Volume 4, Issue 2, 2019.
  18. Arunkumar DT,Dr.K.GBasavakumar, Studies on Machinability and Microstructures of Hypereutectic Al-Si Cast Alloys, *Indian Foundary Journal, The Institute of Indian Foundrymen*, Volume65/issue 5, 2019.
  19. Ashutosh Pattnaik, Adarsha H, Prashanth Kumar HG, Kaushik V P, Tribological properties of Epoxy - Marble Powder, *Trends in Mechanical Engineering & Technology, STM journals*, Vol.8/Issue 2, Jul 2018.
  20. Deepak J, Ashutosh Pattnaik, Adarsha H, Polymer Matrix Composites with Improved Thermal Conductivity: A Review, *Journal of Material Science and Manufacturing Technology, ManTech Publication*, Volume 3, Issue 3, 1-24, Sep-18.
  21. K. Velayutham; K. Venkadeshwaran; G. Selvakumar Optimisation of laser cutting of SS 430 plate using advanced Taguchi entropy weighted-based GRA methodology, *International Journal of Mechatronics and Manufacturing Systems, Inderscience Publisher*, Vol.11 No.2/3, 2018.
  22. Kaushik V. Prasad, Karthik Nagendra, Hiriannaiah Adarsha, Abhijeeth Nagaraj, VenkatacharRavinarayan, Venkatesh Sandeep, MadihalliKenchappa Ranganatha Swamy. Analysis on the Effects of Cut-Outs in Hollow Inconel 718 Gas Turbine Shafts, *Open Journal of Applied Sciences, Scientific Research Publishing*, Vol 8, 304-313, June 2018.
  23. Nagaraj Sitaram, Abhijeeth Nagaraj, Adarsha H, Kaushik V Prasad and V Ravinarayan, Investigation of hydraulic performance of a flap type check valve using CFD and Experimental Technique, *International Journal of Mechanical Engineering and Technology, IAEME*, Vol 10, Issue 1, 409-413, January 2019.
  24. Nagaraj Sitaram,Abhijeeth, Adarsha , Kaushik and Ravinarayan V, Investigation of Flap check valve using CFD & Experimental Technique, *International journal of*

*Mechanical Engineering & Technology, IAEME Publications, Vol.9 / issue 12, Dec 2018.*

25. Kaushik, Karthik, Adarsha H, Abhijeeth N, V Ravinarayan, Sandeep V, Ranaganath Swamy MK Ananalysis on the effects of cut-outs in shafts, *Open Journal of Applied Sciences, Scientific Research Publishing, Vol.2018/Issue 7, Jul 2018.*
26. Nandhisree Harsha, Aravindan M K, Dew extraction from air using Nanocomposites, *International Research Journal of Engineering and Technology, Volume: 05 Issue: 06, June 2018.*
27. Pattanaik, Adarsha H, Prashanthakumar H G, Kaushik V, Tribological Behaviour of Epoxy-Marble Powder Composite with Taguchi Optimization Technique, *Trends in Mechanical Engineering & Technology, STM Journal, Volume 8, Issue 2/110-117, 2018.*
28. Adarsha H, Anoushka Chaturvedi, Khushbu Chopda, Nikitha Nair, Composite Coating Techniques: A Review on Process Parameters and its Impact on Characterizations *Journal of Nanoscience, Nanoengineering & Applications, STM Journals, Volume 7, Issue 1, 1-7, 2017.*
29. Adarsha H., Ramesh S., Kaushik V. Prasad, Ranganatha Swamy M. K., Simulation of Dual Microstructure Heat Treatment Process and Residual Stresses in Gas Turbine Disc by DeformHT Software, *Journal of Materials & Metallurgical Engineering, STM Journals, Volume 7, Issue 1, 30–42, May 2017.*
30. Adarsha. H, Kaushik. V. Prasad, K. S. Harishanand & S. C. Sharma, Development of electromagnetic engine for future transport applications, *International Journal of Mechanical and Production Engineering Research and Development, Transstellar Publishing, Vol. 7, Issue 2, 145-154, Apr 2017.*
31. Kaushik, Kishore T Kashyap, Richard, Gerard, Hiren and Abhishek, Grey Relational optimization of turning parameters in dry machining of austenitic stainless steel using Zr based coated tools, *Open Journal of Applied Sciences, Scientific Research Publishing, Vol.2017/Issue 7, Jul 2017,*
32. Amith Kumar Gajakosh, R. Keshavamurthy, Ugrasen. G, Adarsh. H, Investigation on Mechanical Behavior of Hot Rolled Al7075-TiB2 In-situ Metal Matrix Composite, *Materials today: proceedings, Elsevier, 5(11):25605-25614, Jan 2018.*
33. Vinod, Ajith Kumar, B Suresha, M V Kiran Kumar and S Ramesh, Study on Two Body Abrasive Wear behaviour of Carboxyl- Graphene Reinforced Epoxy Nanocomposites, *IOP Conference Series: Materials Science and Engineering, IOP*

*Publishing*, Volume 376, conference 1, <https://doi.org/10.1088/1757-899X/376/1/012058>, June 2018.

34. Adarsha. H, C S Ramesh, Nikitha Nair, Karisiddeshwaraswamy K M, Anoushka Chaturvedi, Investigations on the Abrasive Wear Behaviour of Molybdenum Coating on SS304 and A36 using HVOF Technique, *Materials today: proceedings Elsevier*, 6 /2018/ 24422–24427, Jan 2018.
35. C.S Ramesh, Adarsha H, Anoushka Chaturvedi, Nikitha Nair, Investigations on the Effect of Molybdenum (Mo) and Molybdenum Silicon Carbide (Mo-10% Sic) Composite Coatings on Mild Steel Substrate using HVOF Technique, *Materials today: proceedings*, Elsevier, 6 /2018/ 24422–24427, Jan2018.
36. Adarsha H, Kaushik V Prasad, Harishanand K S, Ranganatha Swamy M K, Entrepreneurial aspects of nano technology in developing countries, *International Journal of Business Management and Research, TJPRC Pvt. Ltd.*, Vo.7/Issue 2, Apr 2017
37. Adarsha H, Kaushik V Prasad, Ramesh S, Ranganatha Swamy MK, Simulation of dual microstructure using Deform Software, *Journal of Materials and Metallurgical Engineering, STM journals*, Vol.7 / Issue 1, April 2017
38. Adarsha H, Ramesh S., Kaushik V. Prasad, Ranganatha Swamy M. K., Simulation of Dual Microstructure Heat Treatment Process and Residual Stresses in Gas Turbine Disc by DeformHT Software, *Journal of Materials & Metallurgical Engineering, STM Journals*, Volume 7, Issue 1, 2017
39. Dr H Naganagouda, Shashikiran N, Dr Adarsha H, Naveen S, Mufasssireen Ahmed, Essence of Green Energy and Innovative Lighting Systems, *International Research Journal of Engineering and Technology, IJRET*, Volume: 04 Issue: 05, May -2017.
40. K. S. Harishanand, Adarsha. H, Kaushik. V. Prasad &Ranganathaswamy. M. K, Entrepreneurial aspects of nano – technology in developing countries, *International Journal of Business Management & Research (IJBMR), Transtellar Journal Publications*, Vol. 7, Issue 2, Apr 2017, 43-48, Apr 2017.
41. Adarsha H, S C Sharma, Ramesh S, Harishanand K S., Information and Communication Technology and its Brunt on Learning Objectives, *International Journal of Latest Technology in Engineering, Management & Applied Science (IJLTEMAS)*, Volume VI, Issue VS, pp 16-31, May 2017.

42. Kaushik V Prasad, P S Raghavendra Rao, DT Arunkumar, Tensile and Impact properties of Jute / Glass and Jute/Carbon fiber reinforced polypropylene, *Journal of polymer and composites, STM journals*, vol.4/issue 3/2016, Oct2016.
43. Ranganatha Swamy MK, U S Mallikarjun, V Udayakumar, Shape Memory Polymers Synthesised For Controllable Switching Temperatures, *Materials today proceedings, Elsevier*, Volume 4, Issue 10, 2017.
44. Arunkumar D T, Kaushik V Prasad, P S Raghavendra Rao, Study of Mechanical Properties of Carbon Fiber Reinforced Polypropylene, *International Journal of Engineering Research & Technology*, Vol. 4 Issue 10, 406, Oct 2015.