## **ACHIEVEMENTS**

- **1. Patent** A Process of Synthesis and characterization of Nano metal matrix composites
- **2. Patent:** A Process of Development and Mechanical Characterization of Al-6061, Boron and Graphite Metal Matrix Composites
- **Patent:** Method to Improve Heat Transfer Performance Through Heat Sink with Fins Used for LED Lighting Solutions
- **4. Patent:** Double Pipe Heat exchanger with Regularly Spaced Turbulators
- **5. Patent:** An aluminum, Boron & Graphite Metal composite

Completed the Ph.D by Sangmesh (USN: 5VX15PMJ41)

**Topic:** Heat Transfer Performance Studies on Heat Sink with Fins used for LED Lighting Solutions Completed the Ph.D by Srinivasa Reddy M N (USN: 5VX13PMN12)

Topic: Effects of Biodiesel in Compression Ignition Engine Performance and Corrosion

**Dr. S H Manjunath , has reviewed a paper titled** "Tribological Characterization of Graphite reinforced Al-Si-Ce Metal Matrix Composites" submitted for presentation at the International Conference on Smart and sustainable developments in Materials, Manufacturing & Energy Engineering (SME-2019), organized by Department of Mechanical Engineering, NMAM Institute of Technology, Nitte, India during 23-24 May 2019.

**Book chapter:** Numerical Analysis of Turbulent Heat Exchanger Tube Using Novel Para-Winglet Tape.(Advances in Fluid and Thermal Engineering, Publisher: Springer, Singapore, vol22, pages753-766)

### Dr. Manjunath S H

# JOURNAL PUBLICATION

- 1. Manjunath.S.H. Dr.P.Sankaran Kutty, 'Performance of Silkworm pupa oil and methyl ester and diesel– fuel blends in IC Engine', International Journal of Applied Engineering Research (ISSN 0973-4562), Vol.3, No.9(2008), pp1189-1196 [Impact-1.30]
- 2. Manjunath. S.H., Dr.P.Sankaran Kutty, 'Performance and Emission Characteristics of A Diesel Engine operating on Silkworm pupa oil blends', National Journal of MT&M Journal Indian Institution of Production Engineers(IIPE), September 2008. [Impact-1.30]
- 3. Manjunath. S.H. Dayananda B S, Sreepathi L K 'A Experimental Approach on Gasification of Chicken Litter with Rice Husk', International Journal of Innovative Research Science, Engineering and Technology (IJIRSET) (ISSN 2319-8753), Vol.2, Issue 7(2013), [Impact-80118]
- Manjunath.S.H. et.al "Evaluation of Mechanical Properties of borax and graphite based al-6061 Composites", International Journal of Research in Engineering and Technology eISSN: 2319-1163 | pISSN: 2321-7308, Volume: 04 Special Issue: 08 | TIAMTE-2015 | Aug-2015. [Impact-6.933]
- 5. S.H.Manjunath, et.al "*Biogas from Biodegradable Kitchen waste*", Journal of Engineering and Fundamentals Vol. 2(2), pp. 24-29, December, 2015.
- Manjunath, S.H. et.al "Thermal performance of heat sink with fluid pockets for high power light emitting diode", International Journal of Automotive and Mechanical Engineering ISSN: 2229-8649 (Print); ISSN: 2180-1606 (Online); Volume 14, Issue 4 pp. 4846-4862 December 2017 ©University Malaysia Pahang Publishing DOI: <a href="https://doi.org/10.15282/ijame.14.4.2017.17.0378">https://doi.org/10.15282/ijame.14.4.2017.17.0378</a> [Impact-1.349]
- 7. Manjunath.S.H. et.al "Wear behavior of Al6061 Reinforced with Borax, MMCs". International Journal of Advanced research Trends in Engineering and Technology (IJARTET), Vol.5, Special Issue 3, January 2018. [Impact-50338]
- 8. Manjunath, S.H. et.al "Experimental investigation on HSFP using MWCNT based

- nanofluids for high power light emitting diodes", Journal of Mechanical Engineering and Sciences ISSN (Print): 2289-4659; e-ISSN: 2231-8380 Volume 12, Issue 3, pp. 3852-3865, September 2018 © University Malaysia Pahang, Malaysia DOI: <a href="https://doi.org/10.15282/jmes.12.3.2018.7.0338">https://doi.org/10.15282/jmes.12.3.2018.7.0338</a>[Impact-1.015]
- 9. Manjunath.S.H. et.al "Corrosion Effects of Chicken Fat Biodiesel in CI Engine Cylinder". International Conference on Topical Transcends in Science, Technology and Management ICTTSTM— 2018,17th and 18th August, 2018 Sai Vidya Institute of Technology, Bengaluru Karnataka, India, International Journal of Scientific Research and Review Volume 7, Issue 9, 2018 ISSN NO: 2279-543X [Impact-1.021]
- 10. Manjunath, S.H. et.al "Heat transfer Enhancement in a High powered LED using Heat sink with liquid pockets", Journal of Scientific and Industrial Research, ISSN:0975-1084 (Online); 0022-4456 (Print): Volume 77, pp. 600-603, October 2018 Impact Factor of JSIR is 0.534 (JCR 2017) [Impact-0.555]
- 11. Manjunath.S.H. et.al "Synthesis and Characterization of Al 6061 Reinforced with 2% Graphite, 2% Boron Hybrid MMC's using Stir and Centrifugal Casting Technique". International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN(P): 2249-6890; ISSN(E): 2249-8001 Vol. 8, Special Issue 8, Oct 2018, 113-124 (IJMPERD), Received: Jul 24, 2018; Accepted: Aug 14, 2018; Published: Oct 27, 2018; Paper Id.: IJMPERDSPL201813 [Impact-0.744]
- 12. Manjunath.S.H. et.al "Corrosion Effects of Simarouba Glauca Biodiesel on Compression Ignition Engine Cylinder". International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN(P): 2249-6890; ISSN(E): 2249-8001 Vol. 8, Special Issue 8, Oct 2018, 113-124 (IJMPERD), Received: Jul 24, 2018; Accepted: Aug 14, 2018; Published: Oct 27, 2018; Paper Id.: IJMPERDSPL2018137. [Impact-0.744]
- 13. Thejaraju R, Girisha KB, S.H. Manjunath, B.S. Dayananda,

"Experimental investigation of turbulent flow behavior in an air to air double pipe heat exchanger using novel para winglet tape," Case Studies in Thermal Engineering, Volume 22, 2020,100791, ISSN 2214-157X, <a href="https://doi.org/10.1016/j.csite.2020.100791">https://doi.org/10.1016/j.csite.2020.100791</a>. [Impact-4.724]

- 14. Manjunath.S.H. et.al "Microwave Assisted Extraction And Transesterification Of Biofuels A Comprehensive Review" International Journal of Mechanical and Production Engineering Research and Development (IJMPERD) ISSN(P): 2249-6890; ISSN(E): 2249-8001 Vol. 8, Special Issue 8, Oct 2018, 131-138 © TJPRC Pvt. Ltd. [Impact-0.744]
- 15. Manjunath.S.H. et.al "Performance and Emission Characteristics of Hybrid Biofuels in DI Diesel Engine". International Journal of Vehicle Structures & Systems, 13(1), 10-13 International Journal of Vehicle Structures & Systems Available online at www.maftree.org/eja ISSN: 0975-3060 (Print), 0975-3540 (Online) doi: 10.4273/ijvss.13.1.03 © 2021. Mech Aero Foundation for Technical Research & Education Excellence [Impact-0.53]
- 16. Use of empirical mode decomposition and K-nearest neighbour classifier for rolling element bearing fault diagnosis Authors SH Manjunath, Publication date 2022/1/1, Journal Materials Today: Proceedings, Volume 52, Pages 796-801, Publisher Scholar articles HS Kumar, SH Manjunath Materials Today: Proceedings, 2022 [Impact-1.46]
- Manjunath.S.H. et.al "Mechanical Behavior of CNT reinforced PETG based Nanocomposite developed by Fused Filament Fabrication" International Journal of Mechanical Engineering, Vol. 6 (Special Issue, Nov.-Dec. 2021),1132-1139 [Impact-1.35]

Organized: National level intercollegiate project exhibition

## Dr.Girisha K B

**Patent** A Process of Synthesis and characterization of Nano metal matrix composites

Patent: A Process of Development and Mechanical Characterization of Al-6061,

**Boron and Graphite Metal Matrix Composites** 

**Patent:** Method to Improve Heat Transfer Performance Through Heat Sink with Fins Used for LED Lighting Solutions

Patent: Double Pipe Heat exchanger with Regularly Spaced Turbulators

Patent Awarded: An aluminum, Boron & Graphite Metal Matrix composite

Completed the Ph.D by Thejaraju.R 1SG17PMA01

**TOPIC:** Comprehensive Study of Heat Transfer and Flow Friction in Double Pipe Heat Exchanger with Regularly Spaced Turbulators

1. A Comprehensive Review on Design and Analysis of Passive Enhancement Techniques in Double Pipe Heat Exchanger

(International Journal of Scientific & Technology Research Volume 8, Issue 08, August 2019)

- 2. Experimental investigation of turbulent flow behaviour in an air to air double pipe heat exchangerusing novel para winglet tape
  - (Publisher :Elsevier, Volume 22, December 2020, 1007)
- 3. Numerical Evaluation of Thermo-Hydraulic Performance Index of A Double Pipe Heat Exchanger Using Double Sided Louvered Winglet Tape

(Journal of Thermal Engineering, Yildiz Technical University Press, Istanbul, Turkey, volume 6, issue 5, Pages 843-857)

- 4. Mechanical Behavior of CNT reinforced PETG based Nanocomposite developed by Fused Filament Fabrication
  - "International Journal of Mechanical Engineering, Vol. 6 (Special Issue, Nov.-Dec. 2021),1132-1139 [Impact-1.35]
- 5. Numerical Modelling and Experimental Validation of Novel Para Winglet Tape for Heat Transfer Enhancement.
  - (Journal: MDPI, pages 1-19,2022)
- 6. Study on Mechanical Properties of hBN Reinforced Al-7075 Metal Matrix Composite (Publisher: IJRASET, Volume10, Issue7, Pages 3121-3130)
- 7. Experimental Investigation on Zirconia Reinforced Aluminium 6061 Metal Matrix Composite
  - (Publisher: IJRASET, Volume10, Issue7, Pages 3311-3318)
- 8. Enhanced photocatalytic activity and stability of 2D Cs3Bi2Br9 Perovskite Nano sheets synthesized via modified antisolvent method
- 9. 3 body abrasive behaviour of AL6061-WC metal matrix composite
- 10. Characterization of aluminium alloy LM6 with B4C and graphite reinforced hybrid metal matrix composites
- 11. Metal halide perovskite based photo catalysts for organic pollutants degradation advances, challenges and future directions
- 12. A Experimental Approach on Gasification of Chicken Litter With Rice Husk
- **13**. Preparation, characterisation and wear study of aluminium alloy (al356. 1) reinforced with zirconium nano particles
- 14. Synthesis and mechanical properties of zirconium nano-reinforced with aluminium alloy matrix composites
- **15**. Preparation, characterization and mechanical properties of Al356. 1 aluminium alloy matrix composites reinforced with MgO nanoparticles
- 16. A Comprehensive Review on Design and Analysis of Passive Enhancement Techniques in Double Pipe Heat Exchanger
- **17**. Wear performance and hardness property of A356. 1 Aluminium alloy reinforced with zirconium oxide nano particle
- **18.** Experimental investigation and mechanical behavior of a 356.1 aluminium alloy matrix composite reinforced with silicon carbide

19. Characterization and Property Evolution of A356. 1 Aluminium Alloy Reinforced With MgO Nanoparticle 20. Microstructure and Wear Properties of Zirconium Nano Metal Matrix Composites 21. Wear and Impact Characterization of A356. 1 Aluminium Alloy Reinforced with Magnesium Nano Particle 22. Studies on charecterization of aluminium alloy based metal matrix composite dispersed with different nano materials **Organized** One- week National Level Online AICTE-ISTE Refresher Program on "Finite Element Methods & Analysis, 25<sup>th</sup> to 31<sup>st</sup> January 2022, BGSIT, Adichunchanagiri University Dr. Ranganatha Swamy **Participated** Ranganatha Swamy L., Chandrashekar T.K and Banapurmath N.R., Effect of Injection Timings and Duration on Port Injection of Oxygenated Fuels in Diesel Engine Applications, Online 2<sup>nd</sup> International Conference on Technological Convergence in Engineering, Energy and Sustainability (ICTCEES-2020) held during 18<sup>th</sup>-19<sup>th</sup> of July 2020 at Vimal Jyothi Engineering College, Kannur, Kerala, India. 2. International Conference Recent Advances on in Engineering Materials(ICRAEM 2022) March 3-5,2022, Organized by Departments of Mechanical Engineering, Civil Engineering and Basic Sciences, Alva's Institute of Engineering and Technology, Moodbidri, Karnataka-574225. International Conference on Recent Trends in Mechanical Engineering, IJSRSET, Volume 9, Issue 9, March 2022. Govt. Engineering College, K R Pet, Karnataka. 4. One week national Level Faculty Development Program on "Renewable Energy for Sustainable Development, 1st to 5th march 2022.BIGCE, Solapur, Maharashtra, India. 3-Day Online Faculty Development Program on "Recent Trends in Thermal 5. Engineering", April 28-30 2022, RNSIT, Bengaluru-98, Karnataka. One week Online Faculty Development Program on "Industrial Automation-Industry 4.0", 4<sup>th</sup> to 9<sup>th</sup> April 2022.SJBIT, Bengaluru-60, Karnataka. 5-Day Online Faculty Development Program on "Advances and Challenges in Electrical Vehicle Technology-22", Nov,4-18, 2022, RNSIT, Bengaluru-98, Karnataka. 8. One day National Level Workshop on "Design and Development of Drone-Hands on Experience", 1st Nov 2022.BIGCE, Solapur, Maharashtra, India. 3-Day Online Workshop on "Getting Started with Ansys: Simulation Driven Engineering Design"  $22^{nd}$  to  $24^{th}$  July 2020, AWH Engineering College, Kozhikode-8, Kerala. One week Online Faculty Development Program on "Mechanical Engineering Virtual Labs", 6th to 13th May, 2020, Nagarjuna College of Engineering and Technology, Bengaluru, Karnataka. 11. UGC- Approved Short Term Professional Development Program on "Implementation of NEP-2020 for University and College Teachers", 9<sup>th</sup> to 17<sup>th</sup> September 2022. Presented (Keynote, Invited, Oral Poster paper) 1. Chaired a Technical Session at National Conference on Emerging Trends in Mechanical Engineering-2019 on 3<sup>rd</sup> May 2019 at Adichunchanagiri Institute of Technology, Chikmagaluru, Karnataka, India. 2. Technical Committee Member at 9<sup>th</sup> State Level Technical Paper Presentation PANCHAJANYA-2019 at Ekalavya Institute of Technology, Ummathur, Karnataka, India. 3. Resource person on "One-week Online Refresher Program on Thermal engineering Phase-3, 22<sup>nd</sup> to 28<sup>th</sup> April 2021, Kalpataru Institute of Technology, Tiptur-572201, Karnataka.

	Research Publications
	<ol> <li>Effect of injection timing and duration on the performance of diesel engine fueled with port injection of oxygenated fuels, Chemical Engineering Communications, Taylor &amp; Francis, 2021, https://doi.org/10.1080/00986445.2021.2013211</li> <li>Diesel engine performance fuelled with manifold injection of ethanol and water-indiesel emulsion blends, Elsevier, Materialstoday Proceedings, Volume 66, Part 4, 2022, Pages 1914-1919, https://doi.org/10.1016/j.matpr.2022.05.419</li> <li>A Review of Mechanical and Tribological Properties of Natural Fibre Reinforced Polymer Composites, International Conference on Recent Trends in Mechanical Engineering, IJSRSET, Volume 9, Issue 9, March 2022.</li> </ol>
	Publications
Dr Hemaraju	1. Design of Drill Jig and Milling Fixture for the Component Button Lock, International Journal of Innovative Technology and Exploring Engineering, Vol-8, Issue-9, ISSN: 2278-3075, Blue Eyes Intelligence Engineering & Sciences Publication,https://www.ijitee.org/wp- content/uploads/papers/v8i9/17755078919.pdf
	2. Impact of sized abrader and normal load on deformation morphology of EN 24 steel subjected to abrasion, AIP Conference Proceedings,2204,1,04,https://aip.scitation.org/doi/abs/10.1063/1.5141581
	3. Inelastic Behavior of En 31 Steel Metallic Surface Subjected to Hard Body, IOP Conference Series: Materials Science and Engineering, 947,925 (2020) 012046,IOP
	Publishing, https://iopscience.iop.org/article/10.1088/1757-899X/925/1/012046  4. Modification of Mechanical Behaviour of Long Jute –Banana Hybrid Fibrous Epoxy Composites, International Journal of Scientific Research in Science, Engineering and Technology, 9, Issue-8, P-704-713,https://ijsrset.com/PDF.php?pid=7693&v=9&i=8&y=2021&m=November-December
	<ul> <li>5. <u>Diesel engine performance fuelled with manifold injection of ethanol and water-indiesel emulsion blends</u>, Materials Today Proceedings, Elsveir, 2022/6/4https://www.sciencedirect.com/science/article/pii/S2214785322037373</li> <li>6. Tribological behaviour of metal matrix composites, Materials Today Proceedings, Elsveir, 2022/6/4, Vol-54, Part-2, Elsveir,P-441-443.</li> </ul>
	https://www.sciencedirect.com/science/article/pii/S2214785321066797  7. Experimental investigation of three-body abrasive wear behavior of rice husk filled polylactic acid (PLA) composites, Materials today Proceedings, Vol-52, Part-3, 599-603. https://www.sciencedirect.com/science/article/pii/S2214785321065184  8. 3 Body Abrasive Behavior of AL6061- WC Metal Matrix Composites, Journal of
	Emerging Technologies and Innovative Research (JETIR),9-9,b-74-b78, https://www.jetir.org/indexx?v=9&i=9&j=September%202022
	Review Articles
	1. <b>Hemaraju</b> , Santosh Kumar TC, Sharath N, Sudesha Shetty M, Tribological Studies of Structural Steels - A comprehensive Study, International Journal of Scientific
	Research in Science, Engineering and Technology, Vol-9 Issue-9, P-508-515.https://ijsrset.com/PDF.php?pid=7901&v=9&i=9&y=2022&m=January-February 2.Prashanth N, Dr. Ranganatha Swamy L, <b>Dr. Hemaraju</b> , A Review on Mechanical and Tribological Properties of Natural Fiber Reinforced Polymer Composites, International Journal of Scientific Research inScience, Engineering and Technology, Vol-9 Issue-9, P-542-556.  https://ijsrset.com/PDF.php?pid=7904&v=9&i=9&y=2022&m=January-February

## **Conference Proceedings**

- 1. **Dr Hemaraju,** "Studies on Theorotical and Tribological behaviour of Al6061-WC metal Matrix Composites, ICTEES-2020, July 18-19 2020, Vimal Jyothi College of Engineering, Kannur, Kerala
- 2. Darshan C J , Mahendra.H.S , Rashmi S N , **Dr.Hemaraju** , Santhosh Kumar, *Inelastic Behavior of En 31 Steel Metallic Surface Subjected to Hard Body*, ICCEMS-2020, July 17-18 2020 GMIT, Dhavanagere
- 3. **Dr Hemaraju,***Impact Of Sized Abrader And Normal Load On Deformation Morphology Of En 24 Steel Subjected Abrasion*" ERCAM 2019 July 26 & 27, Nitte Meenakshi Institute of Technology, Bengaluru.
- 4. **Dr Hemaraju**, Siddath D E, Sampath Kumar Patil, Contact Mechanics Behaviour of Al6061-WC Metal Matix Composites "ICAMMME-2021, July 9<sup>th</sup>&10<sup>th</sup>, REVA University, Bengaluru.
- 5. **Dr Hemaraju,** Prashanth N, Umesha,Fractal Contact Mechanic Behaviour of Base Structural Steels in Abrasion, 8<sup>th</sup> july to 9<sup>th</sup> July-2022, Reva University

### **Participated**

- 1. Dr Hemaraju, Inelastic Behavior of En 31 Steel Metallic Surface Subjected to Hard Body,ICCMS 2020, 17<sup>th</sup>& 18<sup>th</sup> July 2020, GMIT, Dhavanagere
- 2. Dr Hemaraju, Studies on theoritical and tribological behaviour of Al6061-WC metal matrix composites, ICTCEES, July 18<sup>th</sup> & 19<sup>th</sup> 2020, VJEC Kerala
- 3. Dr Hemaraju, Tribological behaviour of metal matrix composites,9<sup>th</sup>&10<sup>th</sup> July-2021, Reva University, Bengaluru
- 4. Dr Hemaraju, Modification of Mechanical Behaviour of Long Jute –Banana Hybrid Fibrous Epoxy Composites, 9<sup>th</sup>& 10<sup>th</sup> Dec-2021, ICETMCCT-2021, Annai Vailankanni College of Engineering, Tamil Nadu, India.
- 5. Dr Hemaraju, Tribological Studies of Structural Steels A comprehensive Study, ICRTIME2022. 14 and 15 March 2022 GEC K R Pet, Mandya dist
- 6. Dr Hemaraju, A Review on Mechanical and Tribological Properties of Natural Fiber Reinforced Polymer Composites ICRTIME2022. 14 and 15 March 2022 GEC K R Pet, Mandya dist
- 7. **Dr Hemaraju**, "Design and fabrication of coconut De- Schelling Machine, Recent trends & Innovations in Mechanical Engineering & Technology-RITMET-2019 May 3<sup>rd</sup>& 4<sup>th</sup>, Cambridge Institute of Technology, K R Puram Bengaluru.
- 8. **Dr Hemaraju** "Applications of 3D Printing-A Critical Survey,3DPAMT-2022, May 23<sup>rd</sup> to May 24<sup>th</sup>, BIT Bengaluru
- 9. Emerging areas in Manufacturing, VJEC, Kerala, from 25/05/2020 to 30/05/2020
- 10. Mechanical Engineering Virtual Labs, NCET, Bangalore, from 06/05/2020 to 13/05/2020
- 11. "Recent Advances In Material Design, Manufacturing, Characterization, Machining, And Applications" AICTE-ISTE Refresher Programme 22/02/2022 to 28/02/2022, Oxford college of Engineering, Bangalore
- 12. Academic Writing, 5 Days online FDP Programme from 04/04/22 to 08/04/2022, St Joseph College of Engineering, Mangalore.
- 13. Thermal Engineering, AICTE-ISTE Refresher Programme from 17.02.2021 to 23.02.2021 KIT Tiptur
- 14. One week Online FDP on "Industrial Automation- Industry 4.0" at SJBIT, Bengaluru from 04-04-2022 to 09-04-2022.
- 15. One Week National Level Online Faculty Development Programme on "Advances in Materials & Manufacturing" from 12-07-2021 to16-07-2021 at SJMIT Chitradurga

# Sudeep Kumar K S

- 1. A paper titled "Impact of Bio-diesel fuel on Durability of CI Engines A Review" has been published at IOP Conf. Series: Materials Science and Engineering 376 (2018) 012011 doi:10.1088/1757-899X/376/1/012011
- 2. A paper titled "Impact of Nano Material added Biodiesel on Combustion, Performance & Emission of CI Engine A Review" has been published at International Journal of Mechanical and Production Engineering Research and

	Development (IJMPERD) 10 (2020), 317-327.
	3. A paper titled "The Studies of Impact of Nano Material added Honge Biodiesel on durability of Components of C I Engine and Lubricating oil performance" has been published at Design Engineering 04 (2021), 2318-2331.
Naveen S S	Publication
	Diesel engine performance fueled with manifold injection of ethanol and water-in-diesel emulsion blends
	Participated
	1. One Week Online Faculty Development Programme and STTP6th to 13th May 2020
	2. Machine Design Concepts
	3. Steady State Heat Transfer
	4. How to Write Research Proposals
	5. Webinar series by industrial Experts
	6. Digital Era of teaching
	7. Industrial Quality
	8. Pervasive High-speed flow simulation research on scram jets
	9. Research opportunities in welding consumables
	10. NPTEL course on IC Engines & Gas turbine
	11. FDP ON An Overview of Teaching Techniques on Mechanics of Materials
	12. FDP ON Management of intellectual Property
	13. FDP ON Mechanical Engineering Virtual Labs
	14. FDP ON Emerging areas in Manufacturing 15. FDP ON Health Care System in USA
	16. AI in Healthcare System
	10. At in recatticate system