Publications:

Patent Granted=01, Patent Published=01, IJs=26 [SCI=11, Scopus=11, Non-SCI=4], ICs=19, BC=2

Patents:

- 1. Patent Title: A Reversible Motion-Wire Electrochemical Spark Machining Device for Profile Cutting of Nanocomposite Workpiece, Name of Inventors: Audhesh Narayan and Harishanker Maurya, Date of filing application:03.03.2023, Date of Publication: 26.05.2023, Patent No. 475324, Application No. 202311014525, Date of grant: 30.11.2023
- 2. Patent Title: An Electromagnetic Field Assisted Reversible Motion-Wire Electrochemical Spark Machining Setup, Name of Applicants: Audhesh Narayan, Harishanker Maurya and Nisha Singh, Appl. No. 202311085806, Date of Filing: 15.12.2023, Date of Publication: 16.08.2024.

International Journals:

- [1] V. Yadava, **Audhesh Narayan**, M.C. Panda, and R. Prakash, Thermal finite element analysis of high efficiency deep surface grinding, *International Journal of Abrasive Technology 3*,4 (2010), 275-298 . **Scopus** (Inderscience), **IF:1.2**, DoP:18.11.2010, https://doi.org/10.1504/IJAT.2010.036961.
- [2] **Audhesh Narayan**, and Vinod Yadava, Investigation of Temperature Distribution in the Workpiece during High Speed Deep Surface Grinding using FEM, *International Journal of Manufacturing, Materials, and Mechanical Engineering* 2, 3 (2012), 16-33. **Scopus** (Elsevier), **IF:0.7**, **DoP DOI:** 10.4018/ijmmme.2012070102
- [3] **Audhesh Narayan**, and VinodYadava, Investigation of Temperature Distribution in the Workpiece during Creep-Feed Surface Grinding using Finite Element Method, *Materials and Manufacturing Processes*, 27,10 (2012), 1101-1109. **SCI** (Taylor and Francis), https://doi.org/10.1080/10426914.2011.654154
- [4] **Audhesh Narayan**, and VinodYadava, Thermal Stress Distribution in the Workpiece during Creep-Feed Surface Grinding, *International Journal of Abrasive Technology*, 5, 2 (2012), 128-151. **Scopus** (Elsevier), https://doi.org/10.1504/IJAT.2012.048545
- [5] **Audhesh Narayan**, and Vinod Yadava, Modeling and Optimization of High Speed Deep Surface Grinding for Thermal Stresses *Journal of Machining and Forming Technologies*, 6,1-2 (2014). (Nova Science)
- [6] A. Suryavanshi, V.Yadava and **Audhesh. Narayan**, Finite Element Based Modeling of Surface Roughness in Micro Electro-Discharge Machining Process, *International*

- Journal of Materials Forming and Machining Processes (IJMFMP), 1, 2 (2014), 44-61. **Scopus** (IGI Global), DOI: 10.4018/ijmfmp.2014070104
- [7] A. Suryavanshi, V. Yadava and **Audhesh Narayan**, "Finite Element Prediction of Crater Geometry and Material Removal Rate in Sinking Micro-Electrical Discharge Machining of AISI 4140 Steel", Journal of Machining and Forming Technologies, 7, 1-2, (2015). (Nova Science)
- [8] **Audhesh Narayan,** and V.Yadava, Modeling and Optimization of Creep Feed Deep Surface Grinding using FEM based NNGA, *International Journal of Engineering Systems Modelling and Simulation*, 8, 1 (2016), 65-74. **Scopus** (Elsevier), https://doi.org/10.1504/IJESMS.2016.073320
- [9] A. Suryavanshi, V. Yadava and **Audhesh Narayan**, "Modelling and multi-response optimisation of sinking micro-electrical discharge machining of AISI 4140 steel", International Journal of Industrial and Systems Engineering, 26, 3 (2017), pp. 397-424. **Scopus** (Elsevier), https://doi.org/10.1504/IJISE.2017.084431
- [10] Param Singh, Vinod Yadava and Audhesh Narayan, "Machining performance characteristics of Inconel 718 superalloy due to hole-sinking ultrasonic assisted micro-EDM", Journal of Advanced Manufacturing Systems,2018,17 (1) 89-105. Scopus (World Scientific) https://doi.org/10.1142/S0219686718500063,
- [11] Param Singh, Vinod Yadava and **Audhesh Narayan**, "Parametric Study of Ultrasonic Assisted Hole Sinking Micro-EDM of Titanium Alloy", International Journal of Advanced Manufacturing Technology, 2018, 94, 2551-2562 **SCI** (Springer),IF=3.4, DoP: 14.09.2017, https://doi.org/10.1007/s00170-017-1051-1
- [12] Param Singh, Vinod Yadava and **Audhesh Narayan**, "Comparison of machining performance of hole-sinking micro-EDM without and with ultrasonic vibration on titanium alloy", International Journal of Precision Technology, 2018, 7 (2-4), 205-221, https://doi.org/10.1504/JJPTECH.2017.090777, DoP: 29.03.2018
- [13] Pallvita Yadav, Vinod Yadava and **Audhesh Narayan**, "Experimental Investigation for Kerf Characteristics due to Wire Electrochemical Spark Cutting of Alumina Epoxy Nanocomposite", Journal of Mechanical Science and Technology, 2018, 32, 345-350. **SCI** (Springer),IF=1.6,DoP: 23.01.2018, https://doi.org/10.1007/s12206-017-1234-6
- [14] Param Singh, Vinod Yadava and **Audhesh Narayan**, "Micro-EDM Performance of Inconel 718 Superalloy with and without Ultrasonic Vibration", International Journal of Precision Technology 2019, 8, 2/3/4, 174 189. (Inderscience), https://doi.org/10.1504/IJPTECH.2019.100949
- [15] Pallvita Yadav, Vinod Yadava and **Audhesh Narayan**, "Experimental Investigation for Performance Study of Wire Electrochemical Spark Cutting of Silica Epoxy Nanocomposites", Silicon, 2020, 12, 1023-1033 (**SCI Springer**). https://doi.org/10.1007/s12633-019-00197-3

- [16] Shyam Bihari Kaushal and **Audhesh Narayan**, "Experimental setup development and parametric study of electrochemical face grinding (ECFG) process using Nibased superalloy", International Journal of Abrasive Technology, 2020, 10(1), 1-15 **Scopus** (Inderscience),Cited score:1.2,DoP: 16.09.2020, https://doi.org/10.1504/IJAT.2020.109611
- [17] Piyush Pal, Suresh Kumar Patel, Ajaya Bharti, **Audhesh Narayan**, Rahul Dev, Dhananjay Singh, "Energy, exergy, energy matrices, exergoeconomic and enviroeconomic assessment of modified solar stills", Sustainable Energy Technologies and Assessments, 2021,47,1-34. (SCIE Elsevier, IF- 8),DoP: Oct.2021, https://doi.org/10.1016/j.seta.2021.101514
- [18] Raju Singh and **Audhesh Narayan**, "Parametric study of indigenously developed electrochemical diamond cut-off grinding setup using INCONEL925", International Journal of Machining and Machinability of Materials, 2022, 24 (5), 370-390, ISSN: 1748-572X. **Scopus** (Inderscience),DoP: 17.10.2022,Cited Score:2.3, https://doi.org/10.1504/IJMMM.2022.126592
- [19] Kriti Sahai, **Audhesh Narayan** and Vinod Vadava, "Development and Experimental Study of Milling Electrochemical Spark Micromachining (M-ECSMM) of Silicon", SILICON, 2023, 15, 473-497. (**SCI Springer, IF=3.4**), DoP: 28.07.2022, DOI: https://doi.org/10.1007/s12633-022-02023-9.
- [20] Param Singh, Vinod Yadava and **Audhesh Narayan**, "Performance Study of Ultrasonic-Assisted Micro-Electrical Discharge Machining of Inconel 718 Superalloy Using Rotary Tool Electrode", Journal of The Institution of Engineers (India): Series C , 2023,104, 149-162 (Accepted October-2022) **Scopus** ,IF=0.349, DoP: 03.11.2022, DOI: 10.1007/s40032-022-00892-y
- [21] Kriti Sahai, **Audhesh Narayan**, Comparative analysis of Flexural Strength of Silicon Dioxide Epoxy Nanocomposite and Graphene Epoxy Nanocomposite; NanoWorld J (2023), 9(S1): S499-S503, IF=1.53, DoP: 30.04.2023, https://doi.org/10.17756/nwj.2023-s1-0 (**Scopus indexed**)
- Bhupendra Koshti, Rahul Dev, Ajaya Bharti and **Audhesh Narayan**, Comparative performance evaluation of modified solar cookers for subtropical climate conditions, Renewable Energy, 2023, 209, 505-515, (SCIE), https://doi.org/10.1016/j.renene.2023.04.021, DoP: 07.04.2023
- [23] Bhupendra Koshti, Rahul Dev, Ajaya Bharti and **Audhesh Narayan**, Experimental investigation and performance analysis of box type standard solar cooker with an inclined cover (BTSCIC), Environmental Science and Pollution Research, 2023, 30,117110-117131, (SCIE), https://doi.org/10.1007/s11356-023-30120-8 DoP: 21.10.2023
- [24] Kriti Sahai, **Audhesh Narayan**, Parametric Study of RSM Modelling and Multiresponse Optimization of Milling Electrochemical Spark Micromachining (M-ECSMM) for Microchannel Fabrication on Silicon Wafers, Arabian Journal for Science and Engineering(2024), (**SCI**)

- [25] Harishanker Maurya and **Audhesh Narayan**, Development and parametric study of reversible motion-wire electrochemical spark machining (RM-WECSM) setup for micro-width curve profile cutting on Al2O3 epoxy nanocomposites, Machining Science and Technology, An International Journal, 2024, 1-34 https://doi.org/10.1080/10910344.2024.2372769 (**SCIE**)
- [26] Harishanker Maurya and **Audhesh Narayan**, Development of Reversible Motion Wire-Electrochemical Spark Cutting (RM-WECSC) Setup for Profile Cutting with High Cutting Rate in Micro-cut Width of Al2O3 ceramic epoxy Nano-composite, Journal of Mechanical Science and Technology, 2024, Accepted on 01.08.2024 (SCIE)

International Conferences:

- [27] **Audhesh Narayan**, and V.Yadava. Finite Element and Experimental Evaluation of Material Removal Rate in Electric Discharge Machining (EDM), 5th International Conference on Manufacturing Research (ICMR '07) held at De Montfort University Leicester, UK, Sept. 11-13, 2007.
- [28] **Audhesh Narayan**, and V.Yadava. Finite Element Simulation of Material Removal Rate In Electro-Discharge Machining Process", 4th International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2007) held at IIT Kharagpur, India, Dec.27-29, 2007.
- [29] **Audhesh Narayan**, and V.Yadava. Thermal Stress Prediction within the Contact Surface during High Speed Deep Surface Grinding, 4th International and 25th National All India Manufacturing Technology, Design and Research (AIMTDR-2012),held at Jadavpur University Kolkata, Dec. 14-16, 2012.
- [30] Audhesh Narayan, and V.Yadava. Thermal Stress Prediction within the Contact Surface during Creep Feed Deep Surface Grinding, 5th International and 26th National All India Manufacturing Technology, Design and Research Conference (AIMTDR-2014) on Innovation for Sustainable Manufacturing held at IIT Guwahati, Guwahati, India, Dec. 12-14, 2014.
- [31] A. Suryavanshi, V.Yadava and **Audhesh Narayan** Electro-Thermal Modeling for the Prediction of Surface Roughness in μ -EDM Using Finite Element Method, Proceedings of International Conference on Advancements in Mechanical Engineering at Al-Falah University, Faridabad (Aug-2014), pg. 71 (1-5).
- [32] A. Suryavanshi, V.Yadava and **Audhesh Narayan**, FEM Modeling and Multi-Objective Optimization of Electro-Discharge Micromachining of AISI 4140 Steel, Proceedings of International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering at PTU, Kapurthala (Oct-2014), pg. 226-231.
- [33] A. Suryavanshi, V. Yadava and **Audhesh Narayan**, ANN Modeling of Micro Electro-Discharge Machining Process for the Prediction of Material Removal Rate, Proceedings of International Conference on Advancements and Futuristic Trends in Mechanical and Materials Engineering at PTU Kapurthala, page 17-22 (Oct-2013).

- [34] A. Suryavanshi, Vinod Yadava and **Audhesh Narayan**, Modeling and Optimization of Electro-Discharge Micromachining of AISI 4140 Steel, Proceedings of International Conference on Smart Technologies for Mechanical Engineering at DTU Delhi, page 833-841 (Oct-2013).
- [35] A. Suryavanshi, V. Yadava and **Audhesh Narayan**, ANN Modeling of Electro-Discharge Micromachining Process for Prediction of Material Removal Rate and Surface Roughness, International Conference on Precision, Meso, Micro and Nano Engineering (COPEN-8:2013) at NIT Calicut. Page 569-575 (Dec-2013)
- [36] Param Singh, VinodYadava and **Audhesh Narayan**, One parameter at a time study of ultrasonic vibration assisted hole sinking micro-EDM of inconel 718 superalloy, International Conference on Precision, Meso, Micro and Nano Engineering (COPEN-2015) at IIT Bombay, India, December 10-12.
- [37] Param Singh, VinodYadava and **Audhesh Narayan**, Development and Experimental Study of Ultrasonic Assisted Hole Sinking Micro-EDM, International Conference on Advanced and Agile Manufacturing Systems (ICAM' 15) held at KNIT Sultanpur, U.P., India, Page: 146-150, December 28-29, 2015
- [38] Param Singh, VinodYadava and **Audhesh Narayan**, "Experimental Study of Electrical Discharge Machining on Stainless Steel Workpiece using One-Parameter at a time (OPAT) Approach", Proceeding of 1st International Conference on Advancements and Recent Innovations in Mechanical, Production and Industrial Engineering (ARIMPIE-2015), ITS Engineering College, Greater Noida, pp. 264-269.
- [39] Param Singh, Vinod Yadava and **Audhesh Narayan**, "Comparative study of hole sinking micro-EDM without and with ultrasonic vibration", Proceeding of 6thInternational and 27th All India Manufacturing Technology, Design and Research (AIMTDR) Conference 2016, College of Engineering Pune, pp. 1561-1564.
- [40] Param Singh, Vinod Yadava and **Audhesh Narayan**, "Comparative Experimental Study of Drilling Micro-EDM Without and With Ultrasonic Vibration on Inconel 718 Superalloy", Proceedings of 10th International Conference on Precision, Meso, Micro and Nano Engineering (COPEN10) held at IIT Madras, Chennai India during December 07-09, 2017.
- [41] Devendra Kumar Gautam, **Audhesh Narayan**, Satish Kumar and Ajaya Bharti, "Finite Element Analysis of Laser Cladding Process, International Conference on Advancements in Interdisciplinary Research (AIR-2022), held at MNNIT Allahabad, Prayagraj, India during May 6-7, 2022.
- [42] Raju Singh and **Audhesh Narayan**, Effect of grinding wheel speed on performance characteristics of Electrochemical Cut-off Grinding using Nimonic 90, International Conference on Mechanical Design and Manufacturing (ICMDM), held at Indian Institute of Engineering Science and Technology, Shibpur, India, during April 27-28, 2023.

- [43] Kriti Sahai, and **Audhesh Narayan**, Neural Network based modeling for the comparative prediction of Material Removal Rate and Surface Roughness in fabricating channels on glass and silicon surface through the M-ECSMM process, 9th International and 30th All India Manufacturing Technology, Design and Research (AIMTDR-2023) Conference, held at IIT (BHU) Varanasi, Uttar Pradesh, India during Dec. 08-10, 2023.
- [44] Kriti Sahai, and **Audhesh Narayan**, Face Centered CCD based RSM modeling and optimization of parameters for Milling Electrochemical Spark Micromachining of E-Glass fiber composites, 9th International and 30th All India Manufacturing Technology, Design and Research (AIMTDR-2023) Conference, held at IIT (BHU) Varanasi, Uttar Pradesh, India during Dec. 08-10, 2023.
- [45] Kriti Sahai, and Audhesh Narayan, Effect of Energy Partition on MRR and Ra for Microchannel Fabrication in Nonconductive Materials using Thermal Energy Driven Milling Electrochemical Spark Micromachining, First International Conference on Advancements in Energy (355) Sangam-2023), held at MNNIT Allahabad, Prayagraj, Uttar Pradesh, India during Dec. 18-20, 2023.

National Conferences:

[46] Param Singh and **Audhesh Narayan**, "Neural network modeling and prediction of heat affected zone and taper in laser beam drilling", Proceeding of National Conference on Challenges of Efficient Energy Technology for Clean Energy – 21st Century (NCCEETCE-21st Century-2013), Eshan College of Engineering, Farah, Mathura, ISBN: 978-93-828806-9-1.

Book Chapters

- [47] Ajay Suryavanshi, Vinod Yadava and **Audhesh Narayan**, FEM Based Thermal Modeling of Micro-Electrical Discharge Machining Process for the Prediction of Performance Characteristics, Chapter 1 in book "Advancements and Current Trends in Industrial, Mechanical and Production Engineering", pp. 1-9, edited by MANIT, Bhopal, published by Excellent Publishing House, New Delhi, 2014, ISBN: 978-93-84935-05-4.
- [48] Kriti Sahai, **Audhesh Narayan** and Vinod Yadava (2021). **Micro-milling Processes: A Review**, Advances in Manufacturing and Industrial Engineering. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-15-8542-5_35. (Scopus), (presented in In 4th International Conference on Advanced Production and Industrial Engineering (ICAPIE2019) organized by CAPIER, Delhi Technical University (DTU) during 20-21 December 2019.)