



(<http://ipindia.nic.in/index.htm>)



(<http://ipindia.nic>)

Patent Search

Invention Title	Advanced Magneto-hydrodynamic (MHD) Techniques for Enhancing Heat Transfer in 3D Nanofluid Systems
Publication Number	07/2025
Publication Date	14/02/2025
Publication Type	INA
Application Number	202541008480
Application Filing Date	01/02/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	CHEMICAL
Classification (IPC)	C09K0005100000, H02K0044080000, C09K0005120000, C22C0009000000, H05K0007200000

Inventor

Name	Address	Country
Dr. J. Manoj Kumar	Professor, Department of Basic Science and Humanities, BVRIT Hyderabad College of Engineering for Women, Hyderabad, Telangana, India, Pin code: 500090	India
Dr. Ch. Neeraja	Associate Professor, Department of Humanities and Sciences, CMR Technical Campus, Kandlakoya (v), Medchal, Hyderabad, Telangana, India, Pin code: 501401	India
Dr. Nellore Manoj Kumar	Independent Researcher, Founder & CEO, Infinite-Research Organization, B.O, 15-225, Gollapalem, Venkatagiri, Tirupati District, Andhra Pradesh, India, Pin code: 524132	India
Mr. Voruganti Santhosh Kumar	Assistant Professor, Department of ECE, St. Peters Engineering College, Hyderabad, Telangana, India, Pin code: 500100	India
Dr. Parasa. Naga Lakshmi Devi	Assistant Professor, Department of Mathematics, Institute of Aeronautical Engineering, Hyderabad, Telangana, India, Pin code: 500043	India
Dr. Vijaya Lakshmi Kunche	Associate Professor, Department of Mathematics, DVR & Dr. HS MIC College of Technology, Kanchikacherla, Andhra Pradesh, India, Pin code: 521180	India
Mr. M. Amarnath	Assistant Professor, Department of Mathematics, Chaitanya Bharathi Institute of Technology (A), Hyderabad, Telangana, India, Pin code: 500075	India
Dr. D. Priya Matharasi	Associate Professor, Department of Chemistry, St. Joseph's Institute of Technology, OMR, Chennai, Tamil Nadu, India, Pin code: 600119	India
Mrs. M. Jyothsna Devi	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering, Tirupati, Andhra Pradesh, India, Pin code: 517507	India

Applicant

Name	Address	Country
Dr. J. Manoj Kumar	Professor, Department of Basic Science and Humanities, BVRIT Hyderabad College of Engineering for Women, Hyderabad, Telangana, India, Pin code: 500090	India
Dr. Ch. Neeraja	Associate Professor, Department of Humanities and Sciences, CMR Technical Campus, Kandlakoya (v), Medchal, Hyderabad, Telangana, India, Pin code: 501401	India
Dr. Nellore Manoj Kumar	Independent Researcher, Founder & CEO, Infinite-Research Organization, B.O, 15-225, Gollapalem, Venkatagiri, Tirupati District, Andhra Pradesh, India, Pin code: 524132	India
Mr. Voruganti Santhosh Kumar	Assistant Professor, Department of ECE, St. Peters Engineering College, Hyderabad, Telangana, India, Pin code: 500100	India
Dr. Parasa. Naga Lakshmi Devi	Assistant Professor, Department of Mathematics, Institute of Aeronautical Engineering, Hyderabad, Telangana, India, Pin code: 500043	India
Dr. Vijaya Lakshmi Kunche	Associate Professor, Department of Mathematics, DVR & Dr. HS MIC College of Technology, Kanchikacherla, Andhra Pradesh, India, Pin code: 521180	India
Mr. M. Amarnath	Assistant Professor, Department of Mathematics, Chaitanya Bharathi Institute of Technology (A), Hyderabad, Telangana, India, Pin code: 500075	India
Dr. D. Priya Matharasi	Associate Professor, Department of Chemistry, St. Joseph's Institute of Technology, OMR, Chennai, Tamil Nadu, India, Pin code: 600119	India
Mrs. M. Jyothsna Devi	Assistant Professor, Department of EEE, Sri Venkateswara College of Engineering, Tirupati, Andhra Pradesh, India, Pin code: 517507	India

Abstract:

The proposed invention is an advanced system designed to enhance heat transfer in three-dimensional systems by combining nanofluid technology with Magnetohydrodynamic (MHD) techniques. The system utilizes a nanofluid, which consists of nanoparticles suspended in a base fluid to significantly increase the fluid's thermal conductivity. A magnetic field is applied to the nanofluid, inducing a Lorentz force that optimizes fluid flow, enhances heat transfer, and stabilizes the nanofluid by preventing particle agglomeration. This innovative system can be applied to various industries, including electronics, power generation, and renewable energy systems, offering efficient solutions. It allows for precise control of fluid dynamics, improving heat dissipation in confined geometries and high-performance devices. The adaptable nature of the system makes it scalable for both small-scale applications, such as microelectronics, and large-scale industrial processes, improving thermal efficiency and reducing energy consumption.

Complete Specification

Description:The proposed system falls within the field of thermal engineering and nanofluid technology, focusing specifically on the application of advanced Magnetohydrodynamic (MHD) techniques to enhance heat transfer in three-dimensional nanofluid systems. MHD, which involves the study of magnetic fields interacting with electrically conducting fluids, has been gaining attention for its potential to improve thermal management in various industrial applications. By incorporating nanofluids—suspensions of nanoparticles in a base fluid—this system aims to optimize heat transfer rates in complex geometries. The integration of MHD techniques with nanofluid systems offers the potential to manipulate fluid flow and thermal conductivity through external magnetic fields, leading to more efficient heat dissipation. This approach is particularly beneficial for high-performance heat exchangers, cooling systems in electronic devices, energy conversion, and renewable energy technologies. The proposed system leverages the synergistic effects of nanofluids and MHD forces to create advanced, energy-efficient solutions for modern thermal systems.

Background of the invention:

The rapid advancement of technology has led to an increased demand for efficient heat transfer systems in a variety of industrial and technological applications. From electronics cooling to renewable energy systems, the need for effective thermal management has become a critical issue in improving performance and ensuring the reliability of devices and systems. Traditional heat transfer fluids, such as water, oil, and air, have limitations in their thermal properties, particularly in systems requiring high heat fluxes or in complex, confined geometries. These challenges have driven researchers and engineers to explore novel solutions that can significantly enhance heat transfer efficiency while also maintaining manageable system sizes and costs. Nanofluids, which are suspensions of nanoparticles in base fluids, have emerged as a promising solution to improve thermal conductivity, offering superior heat transfer properties compared to conventional fluids.

Nanofluids consist of various types of nanoparticles, including metals, ceramics, and carbon-based materials, suspended in liquids. These nanoparticles increase the

[View Application Status](#)



Terms & conditions (<https://ipindia.gov.in/Home/Termsconditions>) Privacy Policy (<https://ipindia.gov.in/Home/Privacypolicy>)

Copyright (<https://ipindia.gov.in/Home/copyright>) Hyperlinking Policy (<https://ipindia.gov.in/Home/hyperlinkingpolicy>)

Accessibility (<https://ipindia.gov.in/Home/accessibility>) Contact Us (<https://ipindia.gov.in/Home/contactus>) Help (<https://ipindia.gov.in/Home/help>)

Content Owned, updated and maintained by Intellectual Property India, All Rights Reserved.

Page last updated on: 26/06/2019