Patent Search

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Inventor

Name	Address	Country
Dr. Kethavath Narender	Associate Professor, Department of ECE, St Peters Engineering College, Maisammaguda, Hyderabad, Telangana, India, Pincode: 500100	India
Mr. Raj Paul	Research Scholar, Department of Physics, GNA University, Punjab, India, Pincode: 144401	India
Dr. Nalineekumari Arasavali	Assistant Professor, Electronics and Communication Engineering, Dadi Institute of Engineering & Technology, Anakapalle, Andhra Pradesh, India, Pincode: 531001	India
Dr. Ashish Verma	Professor, Department of Physics, Dr. Harisingh Gour Viswavidyalaya, Sagar, Madhya Pradesh, India, Pincode: 470003	India
Dr. Nellore Manoj Kumar	Independent Researcher, Infinite-Research, Founder and CEO, B.O. 15-225, Gollapalem, Venkatagiri, Tirupati District, Andhra Pradesh, India, Pincode: 524132	India
Dr. M.S.N.A. Prasad	Assistant Professor, Department of Chemistry, Institute Of Aeronautical Engineering (IARE), Dundigal, Hyderabad, Telangana, India, Pincode: 500043	India
Mr. Ram Kumar Sadula	Assistant Professor in Physics, Science and Humanities Department, B V Raju Institute of Technology, Narsapur, Medak, Telangana, India, Pincode: 502313	India
Mr. Majahidul Islam	Assistant Professor, Department of Physics, Baba Ghulam Shah Badshah University, Rajouri, Jammu & Kashmir, India, Pincode: 185234	India
Dr. K. Siva Kumar	Assistant Professor, Petroleum Department, Godavari Institute of Engineering and Technology (A), Rajahmundry, Andhra Pradesh, India, Pincode: 533296	India

Applicant

Name	Address	Country
Dr. Kethavath Narender	Associate Professor, Department of ECE, St Peters Engineering College, Maisammaguda, Hyderabad, Telangana, India, Pincode: 500100	India
Mr. Raj Paul	Research Scholar, Department of Physics, GNA University, Punjab, India, Pincode: 144401	India
Dr. Nalineekumari Arasavali	Assistant Professor, Electronics and Communication Engineering, Dadi Institute of Engineering & Technology, Anakapalle, Andhra Pradesh, India, Pincode: 531001	India
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Dr. K. Siva Kumar	Assistant Professor, Petroleum Department, Godavari Institute of Engineering and Technology (A), Rajahmundry, Andhra Pradesh, India, Pincode: 533296	India

Abstract:

The present invention introduces a method for synthesizing, integrating, and applying organic nanomaterials in the fabrication of next-generation flexible electronic c invention focuses on the development of novel organic nanomaterials with enhanced electrical, mechanical, and environmental properties. It also proposes innovativ architectures and advanced integration techniques to optimize the performance and durability of the flexible devices. Additionally, the invention presents a scalable a environmentally-friendly fabrication process for mass production of these devices. With its potential for biocompatibility, the invention expands the application of fle: electronics in the biomedical field. Overall, it offers a comprehensive and sustainable solution to the production of efficient, flexible, and durable electronic devices.

Complete Specification

Description:The present invention pertains to the field of nanotechnology, and more particularly, to the development, synthesis, and application of organic nanoma for advancing the performance of next-generation flexible electronics. The invention focuses on exploiting the unique properties of organic nanomaterials such as enhanced flexibility, exceptional lightweight, and tunable electrical properties to pave the way for improved flexible electronic devices including, but not limited to, v tech, flexible displays, electronic skins, and bio-implantable devices.

Background of the invention:

The continuous expansion of technology into various facets of life has driven the need for more adaptable and resilient electronic devices. Particularly, the advent o Internet of Things (IoT), wearable technology, and flexible displays has made a compelling case for the development of flexible electronics that can conform to com shapes and withstand mechanical deformation. The current limitations of conventional electronics, which primarily use rigid and brittle inorganic materials, have necessitated the exploration of new materials and techniques to overcome these challenges.

One promising avenue for achieving this goal is the utilization of organic nanomaterials. Organic nanomaterials, derived from carbon-based compounds, offer seve advantages over their inorganic counterparts. They are lighter, flexible, and can be designed to exhibit a wide range of electrical properties. Additionally, organic ma can be produced using cost-effective processes such as solution processing, which also opens up the possibility for large-area fabrication.

Despite these advantages, the application of organic nanomaterials in the electronics industry is still in its infancy. This is primarily due to the challenges associated stability and performance of organic materials. For instance, organic semiconductors often exhibit lower carrier mobility compared to inorganic semiconductors. Th results in slower operating speeds and lower energy efficiency for devices that employ organic semiconductors. Additionally, many organic materials are sensitive t

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