Chief Editor's Message

Advanced Materials: A Revolution for Environmental Sustainability

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In today's world, materials are fundamental to every aspect of human existence. From the homes we inhabit to the technology we use, materials shape our lives. While we often take them for granted, advanced materials are driving groundbreaking advancements across various sectors. Scientists are now able to manipulate matter at the atomic level, creating novel materials with unprecedented properties. This has led to remarkable breakthroughs in the fields like:

- **Energy:** From renewable energy sources to energy storage solutions, advanced materials are crucial for addressing global energy challenges.
- **Environmental Sustainability:** Advanced materials play a vital role in developing sustainable solutions for environmental challenges, such as water purification, pollution control, and renewable energy generation.
- Recently, a new energy material nanoporous oxygen deficient ferrite has been invented to generate green electricity & hydrogen by Hydroelectric Cell, which is most suitable to accomplish Net Zero Carbon by water splitting only. It is an alternative to Solar Cell & Fuel Cell !
- **Healthcare:** Advanced materials are revolutionizing medical treatments, enabling the development of biocompatible implants, drug delivery systems, and diagnostic tools.
- **Electronics:** The rapid advancement of electronics relies heavily on the development of new materials with superior conductivity, flexibility, and efficiency.

The development and application of advanced materials are essential for human progress. By pushing the boundaries of materials science, we can create a future where technology serves humanity and enhances our quality of life while minimizing our impact on the environment.

I feel privileged to write a preface on "Advanced Materials: A Revolution for Environmental Sustainability." For our basic living energy, environment, water, shelter and good health are of paramount importance, that is heavily dependent on different types of materials usage besides the dire need of machines, communication & transportation means are also inevitable. Advanced materials are specially engineered substances with enhanced extraordinary properties, making them integral to various high-tech industries. They are widely used in sectors such as aerospace, healthcare, nuclear science, electronics, energy, and transportation. The rapid technological innovations and latest breakthroughs in material science lead to scientific advancements that are essential to keep pace with the human mind. Surprisingly, the recent revolutionary invention of a new energy material nanoporous oxygen deficient ferrite based Hydroelectric Cell that generates green electricity and hydrogen and it has been well taken globally as an invaluable gateway into the forefront of materials science. However, certain advanced functional materials for sustainable environment also play a big role in the welfare of humanity towards a greener and more ecologically balanced world. The role of radioisotopes is vital for our healthcare besides their applications as radio tracer techniques, agriculture and industries.

The sixth issue of CNS&E journal comprises of handpicked manuscripts that are highlighting an elaborative exploration of the most current material science research in the realm of the functional materials, with a specific focus on their applications in Wireless Communication Channels, Cobalt diselenide ternary Composite-based Supercapacitor, AlGaN/GaN High Electron Mobility Transistors (HEMTs), Radiation Dose Estimation from Uranium Mill Tailings Bricks, Disease Detection using Artificial Neural Network, Numerical Approximation Methods, and environmental monitoring. The phenomenal progress in science and technology has propelled us to innovate new materials frontier in this era of nanomaterials designed for extraordinary properties and ultimately CNS&E Journal is striving hard to support this cause.