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EDITORIAL

Welcome to Energy & Environment Advances

Dear Esteemed Authors, Readers, and Contributors,

It is with immense pride and heartfelt enthusiasm that we welcome you to the inaugural issue of *Energy & Environment Advances*. This journal is a bold new platform dedicated to fostering innovation and bridging the gap between groundbreaking research and practical applications in the interconnected realms of energy and environmental science. At a time when the global community faces unprecedented challenges tied to climate change, resource scarcity, and the urgent need for sustainable solutions, this journal aspires to be a beacon of knowledge, a catalyst for innovation, and a hub for collaborative problem-solving.

The conception of *Energy & Environment Advances* stems from our collective recognition of the critical role that interdisciplinary research plays in addressing most pressing challenges of today. Energy and the environment are inextricably linked, and progress in one field often depends on advancements in the other. This synergy forms the core of our mission: to disseminate pioneering research that not only deepens our understanding of these domains but also inspires practical, scalable solutions that drive global progress toward a sustainable future.

Our journal is envisioned as a dynamic forum for scientists, engineers, policymakers, and industry professionals who are united by a shared commitment to sustainability. Whether it is the development of next-generation renewable energy technologies, the exploration of innovative materials for environmental remediation, or the study of socio-economic impacts of sustainable practices, *Energy & Environment Advances* welcomes contributions that push the boundaries of knowledge and challenge conventional paradigms.

We believe that the most impactful solutions emerge from collaboration and the integration of diverse perspectives. To this end, our editorial policy is guided by inclusivity and interdisciplinary, encouraging contributions that span fundamental research, applied studies, and translational science. By fostering dialogue between academia, industry, and policy sectors, we aim to create a holistic platform that accelerates the transition to a sustainable and energy-efficient world.

In this debut issue, we are proud to present five exceptional articles that exemplify the vision and scope of *Energy & Environment Advances*. These contributions represent a rich tapestry of scientific exploration, each addressing critical challenges and paving the way for transformative solutions in energy and environmental domains. Allow us to provide a brief overview of these groundbreaking studies.

A research article entitled, *'Significant Enhancement in Surface Passivation Property of Micro–Textured Silicon Surface with Thin Hydrogenated Intrinsic Amorphous Layer'* highlights a low-cost method for enhancing the efficiency of hetero-junction solar cells through superior passivation and light-harvesting properties. This study underscores the importance of material innovation in advancing solar energy technologies, making renewable energy more accessible and efficient. Other article entitled, *'Study on the Numerical Modeling of CdTe/CdS/SnO_2 Based Thin Film Solar Cells Using SCAPS–1D'* explores computational modeling to optimize thin-film solar cells, achieving remarkable efficiency improvements through innovative design approaches. The insights provided in this study not only advance the field of solar energy but also highlight the potential of computational tools in driving innovation. The article, *'Enhanced Electrical Conductivity and Photocatalytic Activity of Iron–Doped $CuAlO_2$ Nanoparticles for Sustainable Energy Applications'* introduces a multifunctional material with promising applications in solar energy harvesting and environmental remediation. By addressing dual challenges of energy and environmental sustainability, this research exemplifies the interdisciplinary approach that Energy & Environment Advances seeks to promote. The article, *'Vibrational Spectroscopic Insights into Capsaicin Doped Organic–Inorganic Hybrid Perovskite Single Crystals'* underscores the potential of organic dopants to enhance the stability and performance of hybrid perovskite materials for advanced optoelectronics. This study offers a glimpse into the future of materials science, where organic-inorganic hybrids play a pivotal role in revolutionizing electronic and optoelectronic devices. The last article in the issue entitled, *'Dynamic Performance Analysis of CNTFETs with Zinc Oxide Gate Dielectrics of Varying Thickness'* showcases innovations in nanoscale devices, leveraging novel material combinations for high-speed, energy-efficient electronic applications. The findings of this study have far-reaching implications for the development of next-generation

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electronic devices that are both energy-efficient and environmentally friendly.

Each of these contributions underscores the ingenuity and dedication of the scientific community in tackling complex challenges. We extend our deepest gratitude to the authors, whose hard work and creativity have brought these studies to fruition, as well as to the reviewers and editorial board members whose expertise and diligence have been instrumental in shaping this issue.

As we embark on this exciting journey, we invite researchers, practitioners, and industry professionals from around the world to join us in building a vibrant and impactful community within the pages of *Energy & Environment Advances*. This journal is not merely a repository of knowledge; it is a call to action. Together, we can accelerate the transition to a sustainable, energy-efficient, and environmentally conscious world. Whether through the submission of innovative research, participation in collaborative projects, or engagement with our published content, your involvement is vital to the success of this endeavor.

The launch of *Energy & Environment Advances* is a testament to what can be achieved through collaboration and shared vision. It is a collective achievement made possible by the unwavering support of our editorial board, the dedication of our contributors, and the enthusiasm of our readers. We are particularly grateful to the members of our editorial team, whose expertise spans a broad array of disciplines and whose commitment to excellence ensures the highest standards of academic rigor and integrity.

Our vision extends beyond the pages of this journal. We aspire to be a driving force in the global dialogue on sustainability, leveraging our platform to amplify voices, disseminate knowledge, and inspire action. We believe that the challenges of energy and environmental sustainability are not confined to the scientific community but are shared by humanity as a whole. By fostering interdisciplinary collaboration and engaging with stakeholders from all sectors of society, we aim to make *Energy & Environment Advances* a cornerstone of the sustainable development movement.

The inaugural issue of *Energy & Environment Advances* marks the beginning of a journey—one that we hope will be as impactful as it is inspiring. The road ahead is both challenging and filled with opportunity. As we navigate this path, our guiding principle will remain steadfast: to champion research that drives progress, inspires innovation, and contributes to the betterment of our world.

We envision a future where the boundaries between disciplines blur, where scientific discoveries seamlessly translate into real-world solutions, and where the collective efforts of the global community converge to create a sustainable and prosperous future. *Energy & Environment Advances* is committed to being at the forefront of this movement, serving as a conduit for ideas, a platform for dialogue, and a catalyst for change.

We encourage you to explore the articles in this inaugural issue, each of which offers a unique perspective on the challenges and opportunities within the fields of energy and environmental science. We hope that the insights and innovations presented here will spark new ideas, inspire further research, and foster meaningful collaborations.

As you delve into the pages of *Energy & Environment Advances*, we invite you to reflect on the role that each of us plays in shaping the future. Whether you are a researcher, educator, policymaker, or industry professional, your contributions are essential to the advancement of knowledge and the realization of sustainable solutions. Together, we can build a brighter future for generations to come.

In closing, we extend our heartfelt thanks to everyone who has contributed to the launch of *Energy & Environment Advances*. Your support, dedication, and enthusiasm have been instrumental in bringing this vision to life. As we look to the future, we remain committed to upholding the highest standards of excellence and to fostering a spirit of innovation and collaboration.

Welcome to *Energy & Environment Advances*—where science meets sustainability, and where every discovery brings us closer to a better tomorrow.

Dr. Faheem Ahmed
Prof. Zishan Husain Khan

Editors-in-Chief

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ABOUT THE EDITORS-IN-CHIEF



Dr. Faheem Ahmed is a distinguished academician and researcher with a rich background in physics and nanotechnology. He completed his B.Sc. (2003) and M.Sc. (2007) in Physics from the esteemed Aligarh Muslim University, Aligarh, India. Pursuing his passion for advanced materials, he earned a Ph.D. in Nanotechnology in 2013 from the School of Advanced Materials and Engineering, Changwon National University, South Korea. Currently, Dr. Ahmed serves as an Associate Professor of Physics at Jamia Millia Islamia, New Delhi, where he continues to make significant contributions to the field of nanoscience and nanotechnology.

Dr. Ahmed's research expertise lies in the synthesis and applications of nanostructures with varying dimensions, including 0D, 1D, and 2D materials, primarily for energy storage and environmental remediation. His work has garnered international recognition, with over 250 research articles published in reputed journals such as *Journal of Hazardous Materials, Sensors and Actuators B, Applied Materials and Interface, RSC, Nature Scientific Reports,* and *Acta Materialia.* He has also delivered numerous invited presentations and contributed extensively to book chapters in his domain.

A pioneer in the development of nanomaterials for advanced devices, Dr. Ahmed's innovations span Li-ion batteries, supercapacitors, and solar cells. His groundbreaking research has led to over 15 U.S. patents, underscoring his impact on both academia and industry. Through his extensive research and academic endeavors, Dr. Ahmed continues to inspire advancements in nanotechnology for a sustainable future.



Prof. Zishan Husain Khan is a prominent Professor in the Department of Applied Sciences and Humanities at the Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi. He has a strong academic foundation, having completed his B.Sc., M.Sc., and Ph.D. degrees from the same institution. To further enhance his expertise, Dr. Khan pursued postdoctoral research at National Tsing Hua University, Hsinchu, Taiwan, where he gained valuable international exposure and advanced knowledge in his field.

Prof. Khan's research interests are diverse and cutting-edge, reflecting his deep engagement with nanotechnology and material science. His work spans various domains, including nano-chalcogenides, amorphous semiconductors, carbonaceous nanomaterials, and organic semiconducting nanostructures and devices. He is particularly focused on developing innovative solutions in nanosensors, nano-biosensors, and nanotechnology-based optoelectronic devices, which have significant implications for advanced technological applications.

With a strong emphasis on interdisciplinary research, Prof. Khan has made remarkable contributions to the development of nanomaterials and their applications in sensing, biosensing, and optoelectronics. His work not only advances fundamental science but also drives practical innovations in nano-enabled technologies. Through his academic and research pursuits, Prof. Khan continues to play a vital role in fostering the growth of nanotechnology and its transformative impact on science and engineering.

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