



Inaugural Editorial of the *Journal of Advanced Electronic Materials*

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Dear Readers,

We are delighted to welcome you to the inaugural issue of the *Journal of Advanced Electronic Materials* (JAEM). As we stand at the precipice of a technological revolution driven by quantum computing, flexible electronics, and sustainable energy solutions, the field of electronic materials has never been more critical to shaping our future. The JAEM emerges at a pivotal moment when the convergence of materials science, quantum physics, and electronic engineering is yielding unprecedented opportunities for innovation and discovery.

The JAEM is dedicated to publishing cutting-edge research that explores the fundamental properties, synthesis, characterisation, and applications of materials that define the next generation of electronic devices. Our mission is to provide a premier platform for researchers, engineers, and practitioners from academia, industry, and government institutions to share their groundbreaking work and collaborative insights in this rapidly evolving field.

1 Purpose of the Journal

The primary aim of the JAEM is to advance the understanding and development of electronic materials through the dissemination of high-quality, peer-reviewed research. We seek to bridge the gap between fundamental materials science and practical electronic applications, driving innovation that addresses the most pressing technological challenges of our time. The JAEM is committed to promoting interdisciplinary collaboration amongst materials scientists, physicists, chemists, and engineers to accelerate the translation of novel materials from laboratory discovery to commercial application.

Electronic materials represent the foundation upon which modern technology is built, from the silicon semiconductors that power our computers to the quantum dots that enable next-generation displays [1]. The field has witnessed remarkable advances in recent years, including the development of two-dimensional materials such as graphene and transition metal dichalcogenides, which exhibit extraordinary electronic, optical, and mechanical properties [2]. These materials, alongside emerging perovskites, organic semiconductors, and topological insulators are revolutionising applications ranging from flexible electronics to quantum computing [3, 4].



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2 Content and Directions

The *JAEM* covers a comprehensive range of topics, including but not limited to:

- **Two-Dimensional and Layered Materials:** Research on graphene, transition metal dichalcogenides, MXenes, and other layered materials with exceptional electronic properties and potential applications in nanoelectronics, energy storage, and sensing devices.
- **Quantum Materials and Devices:** Investigation of materials exhibiting quantum phenomena, including topological insulators, superconductors, and quantum dots, with applications in quantum computing, spintronics, and quantum sensing technologies.
- **Organic and Hybrid Electronic Materials:** Development of organic semiconductors, conducting polymers, and organic-inorganic hybrid materials for flexible electronics, organic photovoltaics, and bioelectronics applications.
- **Perovskites and Emerging Photovoltaic Materials:** Research on metal halide perovskites, chalcogenides, and other emerging materials for high-efficiency solar cells, light-emitting devices, and optoelectronic applications.
- **Nanomaterials and Nanostructures:** Synthesis, characterisation, and application of nanoscale electronic materials, including quantum dots, nanowires, and nanotubes, for advanced electronic and photonic devices.
- **Energy Storage and Conversion Materials:** Development of materials for fuel cells, batteries, supercapacitors, dielectric capacitors, and other energy technologies, with focus on electronic properties and device integration.
- **Flexible and Wearable Electronics:** Materials and fabrication techniques for stretchable, bendable, and conformable electronic devices, including electronic textiles.
- **Computational Materials Science:** Theoretical and computational studies of electronic materials, including density functional theory calculations, machine learning approaches, and materials design methodologies.

The current landscape of electronic materials research is characterised by several transformative trends. The emergence of two-dimensional materials has opened

new avenues for ultra-thin electronics and novel device architectures [5]. The development of perovskite semiconductors has revolutionised photovoltaic research, achieving efficiencies exceeding 25% in laboratory conditions whilst offering the potential for low-cost, solution-processable manufacturing [6]. Furthermore, the growing interest in quantum technologies has driven intensive research into materials with exotic electronic properties, such as topological insulators and superconductors [7].

3 Academic Standards

The *JAEM* adheres to the highest standards of academic excellence and research integrity. All submissions undergo a rigorous peer-review process conducted by leading experts in their respective fields to ensure the publication of impactful, methodologically sound research. We encourage original contributions that advance theoretical understanding, present innovative synthesis and characterisation methodologies, and demonstrate practical applications with clear technological relevance.

The editorial board comprises distinguished researchers and professionals from leading institutions worldwide, committed to maintaining the journal's reputation for quality and innovation. We uphold strict ethical guidelines to ensure the authenticity, reproducibility, and reliability of published content, including adherence to international standards for data sharing and research transparency.

4 Openness and Collaboration

The journal promotes openness and collaboration within the global scientific community. We actively encourage submissions from diverse geographical regions, institutions, and career stages, fostering an inclusive environment for knowledge exchange and innovation. The *JAEM* is committed to supporting open access initiatives, providing pathways for free and unrestricted access to published research to maximise the dissemination and impact of scientific discoveries.

We particularly welcome interdisciplinary collaborations that bridge traditional boundaries between materials science, physics, chemistry, and engineering. These partnerships are essential for addressing complex challenges in electronic materials development and for accelerating the translation of research into real-world applications. We also

encourage industry-academia collaborations that can provide valuable insights into manufacturing scalability, commercial viability, and market requirements.

5 Future Prospects

As the field of electronic materials continues to evolve at an unprecedented pace, the *JAEM* is positioned to play a crucial role in shaping its future direction. Our strategic vision includes:

- **Expanding Scope:** Continuously broadening the journal's coverage to include emerging areas such as neuromorphic materials, bio-inspired electronics, and materials for extreme environments, ensuring we remain at the forefront of technological advancement.
- **Special Issues:** Publishing thematic special issues on cutting-edge topics and emerging trends, curated by guest editors who are recognised leaders in their respective fields, providing focused coverage of rapidly developing areas.
- **Early Career Support:** Providing dedicated opportunities and support for early career researchers through mentorship programmes, awards, and special sections within the journal, recognising that the next generation of scientists will drive future innovations.
- **Industry Engagement:** Strengthening partnerships with industrial organisations to ensure research published in *JAEM* addresses real-world challenges and maintains relevance to commercial applications and manufacturing requirements.
- **Global Outreach:** Expanding our international presence through partnerships with research institutions and scientific societies worldwide, facilitating knowledge transfer and collaborative research initiatives.

As we launch this inaugural issue, we extend our sincere gratitude to the authors, reviewers, editorial board members, and readers who have contributed to making the *JAEM* a reality. The *JAEM* represents more than a publication venue; it embodies our collective commitment to advancing human knowledge and technological capability through materials innovation. We invite researchers, engineers, and innovators worldwide to join us in this exciting endeavour. Together, we can push the boundaries of what is possible with electronic materials and contribute

to solving some of the most pressing challenges facing humanity, from sustainable energy and climate change to quantum technologies and beyond. We look forward to your valuable contributions and to witnessing the transformative impact of the research published in these pages. Thank you for joining us on this journey, and we hope you find the content of this journal both inspiring and impactful.

Yours sincerely,

Zhilun Lu

Founding Editor-in-Chief

Journal of Advanced Electronic Materials

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Conflicts of Interest

The author declares no conflicts of interest.

Ethical Approval and Consent to Participate

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