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Journal launch: Welcome to *Opto-Electronic Technology*

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Opto-electronics is rooted in the effects and principles of light, photons, and even photonic quasiparticles interaction with matter such as electronics systems, focusing on the generation, transmission, detection, and manipulation of energy and information. This field drives innovation across diverse technological domains, including advanced materials, devices, methods, instruments, and equipment that empower humanity to overcome significant challenges in observation, communication, computing, data storage, display technologies, and sustainable energy solutions.

Since the inception of the First Industrial Revolution in the 1760s, rapid advancements in science and technology have dramatically reshaped historical trajectories, significantly enhancing productivity, transforming social structures, redefining lifestyles, and reshaping social interactions. These advancements have enriched human life, offering greater convenience, diversity, and depth. Typically, the journey from theoretical inception to societal application involves several critical phases, including theoretical exploration, innovative invention, technological iteration, engineering practice, and industrial optimization. This trajectory of scientific progress and technological translation is vividly exemplified in the development of opto-electronics.

Opto-electronic technology, a discipline that epitomizes the bridge between scientific discovery and engineering innovation, merges the fundamental science of light with the transformative power of electronic technology. For over a century, it has served as a cornerstone of progress — from Maxwell's foundational electromagnetic theory to contemporary breakthroughs in quantum computing, renewable energy, and advanced communication systems. Its impact spans critical domains like information technology, energy, healthcare, and space exploration, underpinning the advancement of modern society. The field's legacy is marked by paradigm-shifting breakthroughs, many honored with accolades such as the Nobel Prizes. From lasers and fiber optics to LEDs and topological photonics, opto-electronics has continually redefined the interplay of light and matter, unlocking revolutionary applications that shape our world.

The past few decades have witnessed remarkable progress in opto-electronic technologies. Breakthroughs in nanophotonics, metamaterials, and quantum optics have opened up new possibilities to control light at unprecedented scales. Advances in opto-electronic materials, such as perovskites and 2D materials, have enabled the development of highly efficient solar cells, LEDs, and photodetectors. Meanwhile, the integration of photonics with electronics has paved the way for next-generation computing, sensing, and imaging technologies, enabling the creation of smart lighting and display technologies. Additionally, the integration of opto-electronics with artificial intelligence and machine learning is unlocking unprecedented capabilities in data processing and autonomous systems.

Despite these remarkable achievements, the field of opto-electronic technologies continues to face significant challenges. The quest for faster, smaller, and more energy-efficient devices demands innovative solutions to overcome fundamental limitations, such as the diffraction limit of light and the thermal management of opto-electronic systems. Furthermore, the exploration of new materials, such as 2D materials and perovskites, and the study of novel phenomena, such as topological photonics and non-linear optics, require interdisciplinary collaboration and a platform for sharing cutting-edge research. Issues such as the integration of photonics and electronic systems, the development of novel opto-electronic materials, and the exploration of quantum opto-electronic phenomena remain at the forefront of scientific inquiry. These challenges demand innovative solutions, interdisciplinary collaboration, and a platform for the dissemination of pioneering research.

To address these critical challenges and foster global collaboration, we are proud to announce the launch of *Opto-Electronic Technology* (OET), which aims to provide a dedicated platform for the dissemination of key technology research in the broad and dynamic field of opto-electronics. OET will focus on both theoretical and technological innovations, covering a wide range of topics from fundamental science to practical applications. OET is an open-access journal, committed to the rapid dissemination of peer-

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reviewed research in the form of Articles, Letters, Reviews, and Perspectives. As a flagship publication in the field, OET is supported by leading experts from around the world, who form our distinguished editorial board. These renowned scientists bring their expertise and vision to ensure the highest standards of quality and relevance in the research we publish.

Initiated in 2016 by the Institute of Optics and Electronics (IOE), Chinese Academy of Sciences, the Opto-Electronic Journals Group has established phase-specific publications that align with the distinct stages of scientific and technological progression: *Opto-Electronic Science* (OES) for fundamental theoretical exploration, *Opto-Electronic Advances* (OEA) for cutting-edge innovations, and *Opto-Electronic Engineering* (OEE) for engineering applications. Given that technology forms the critical bridge between foundational research and engineering implementations, OET has been specifically launched to accelerate the creative translation of cutting-edge technological achievements. We invite researchers from all corners of the globe to contribute their innovative work to OET. Join us in advancing the frontiers of opto-electronic technology, unlocking the full potential of opto-electronics and shaping a brighter future.

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