



A Special Issue on

Optoelectronic Neuromorphic Devices

Call for Papers

As integrated circuits approach their physical limits, neuromorphic computing has emerged as a promising computing paradigm beyond conventional von Neumann architecture-based computing, with significant application prospects in artificial intelligence, neural networks, brain-machine interfaces, and other fields. Compared to electrical signals, optical signals have potential advantages such as high speed, high bandwidth, immunity to crosstalk, and sensitivity to environmental changes. Drawing on research achievements in neurobiology such as optogenetics, introducing light into synaptic/neuronal devices enables optoelectronic signal sensing and conversion, significantly improving the performance of neuromorphic devices and neural networks formed by their integration. The development of optoelectronic neuromorphic devices will provide strong support for integrated sensing, memory and computing, which is of great significance for building efficient new computing systems.

In recent years, the development of optoelectronic neuromorphic devices has progressed rapidly, with scientists and engineers worldwide making series of research advances in materials, structures, functionalities, and integration. In order to summarize important research achievements in this field and showcase prospective work, the Journal of Semiconductors has specially planned a special issue on "Optoelectronic Neuromorphic Devices". Contributions of review articles and research papers are welcome.

This special issue focuses but not limited to the following topics:

1. Materials for novel optoelectronic neuromorphic devices;
2. Innovative structural designs of optoelectronic neuromorphic devices;
3. Implementation of novel functionalities of optoelectronic neuromorphic devices;

4. Integration and systems based on optoelectronic neuromorphic devices.

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Manuscript Submission:

Manuscripts must be prepared according to the Journal's guidelines, available at http://www.jos.ac.cn/news/Preparing_Your_Manuscript.htm.

Submit your manuscripts via the online submission address at <https://mc03.manuscriptcentral.com/jos-iop>. Or directly submit to the listing guest editors via the e-mail addresses above.

Please notify well in advance for your intention to submit a research paper.

Key Timetable Dates:

Manuscript Submission Deadline: **Sep 30, 2024**

Manuscript Acceptance Date: **Oct 30, 2024**

Publication Date: **Jan 30, 2025**



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