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Low Dimensional Materials for Neuromorphic Computing

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Message from the Guest Editors

Dear Colleagues,

With the development of the Internet of Things, the exponential growth of data has imposed a critical requirement on energy efficiency and processing speed. The power demanded by AI or deep learning computing now doubles every two months. In the past few decades, computing performance has made remarkable improvements through a combination of device size scaling and smart architecture. However, nowadays, they are meeting bottlenecks. On the device level, leakage currents and induced power consumption become an issue as channel length and thickness are approaching the scaling limit. On the architecture level, data shuttling between the information processing and memory units significantly limits the speed and energy efficiency. New materials and computing paradigms were introduced to address these issues associated with data-abundant computing driven by AI. This Special Issue seeks to showcase research papers and review articles that focus on the application of low-dimensional materials in neuromorphic computing, i.e., novel concepts of neuromorphic devices and architecture innovations.

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