

Energy-Efficient Integrated Nano-Optoelectronics for Real World Applications

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Abstract

It is speculated that energy consumption represents the biggest barrier for emerging computation and sensing technologies, including advanced machine learning, large-scale quantum computing, and broadband brain-machine interface. This limitation is already evident for large and small scale systems, from data centers to wearables and IoT. We theoretically show the fundamental advantage of nano-structured optoelectronics, and experimentally present results from nano-optoelectronic devices integrated into systems with record energy efficiencies.