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New Oxide Thin Film Materials for Low Power Electronics

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In 2016, 90% of the world's data ever created was in the two previous years. AI and data analytics are further increasing the growth. The power demand is huge. There are predictions that within just a few years, ICT will use 1/5 of the world's electricity. New materials and devices related to both data processing and memory are urgently needed. In this talk, I will discuss new materials engineering approaches to achieving reliable and efficient non-volatile memory (NVM) technology for memory and neuromorphic computing. I will cover both resistive and magnetoelectric memory, presenting new materials and new combinations thereof, as well as novel self-assembled nanostructured thin film concepts. Overall, I will demonstrate low power, reliable and uniform systems with strong scaling potential.