# Phase change materials for data storage and neuromorphic computing

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Phase-change materials (PCMs) are an important family of alloys employed in non-volatile memories and neuromorphic devices. These devices exploit the ability of PCMs to undergo rapid and reversible transitions between crystalline and amorphous states showing resistivity contrast. In this talk, I will provide an introduction to PCMs and then discuss phase-change heterostructures, which consist of alternately stacked ultrathin layers of PCMs and transition-metal dichalcogenides (TMDs). These heterostructures are promising candidates for high-performance neuro-inspired computing, in that the TMD layers act as confinement materials and diffusion and thermal barriers, thus reducing energy consumption, long-range atomic migration and drift of the amorphous state of PCMs.