



Phase Change Memory -from the Present to the Future

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Phase-change memory was first commercialized as optical storage discs (DVD-RAM and DVD-RW) in the late 1990s. Now the technology has been taken over to electric non-volatile memory, PRAM. In both optical and electric phase-change memory, Ge-Sb-Te alloy has been used as recording material. The alloy was invented in the late 1980s, and has long been used for the core of the memories. In the last year, Intel & Micron Technology press-released “3D-XPoint” storage class memory. Thanks to the long R&D history of the phase-change memory, the high potential and reliability have been established. This is the most different point from the other ReRAM and MRAM. Very recently, a new physical feature was discovered in Ge-Sb-Te superlattice. It is called topological insulator (TI). By generating TI functionality together, electron spin will be controlled on PRAM in future, besides MRAM devices. Now, phase-change memory is standing on a new starting point.

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