

Moments in Materials Presentation: ***Phase-change memory***

Speaker: Ying Wu

When: Thursday, July 25th 2013, 4:30 p.m.

Where: NWC, 7th floor meeting room, RM 703



Phase-change memory (PCM) is one of the leading candidates for next-generation data-storage devices. PCM stores information based on the organization of atoms in a material, typically those made of germanium, antimony, and tellurium ($\text{Ge}_2\text{Sb}_2\text{Te}_5$ or GST). By applying an electrical pulse, GST can be switched reversibly between the amorphous and crystalline states, corresponding to "0" and "1" states. Moreover, the electrical resistance of the two states is substantially different, allowing the information to be read. The PCM-based chips are now moving towards the mainstream consumer market.

Selected references

1. Breaking the speed limit of phase-change memory, D. Loke, S.R. Elliott. *Science* 336, 1566 (2012)
2. Phase-change materials: towards a universal memory? M. Wuttig *Nature Materials*, 4, 265 (2005)

