# Materials for Next-generation Electric Memories

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A solid can have ordered (crystalline) or disordered (amorphous) phases, which correspond to “0” and “1” in the binary system.

Phase-change memory (PCM) is based on the differences in material properties between the crystalline and amorphous phases to store digital information.

Researchers from Ohio University and Argonne National Laboratory are working together to develop better PCM materials with smaller size and faster switching speed for use in next-generation handheld devices such as smartphones.

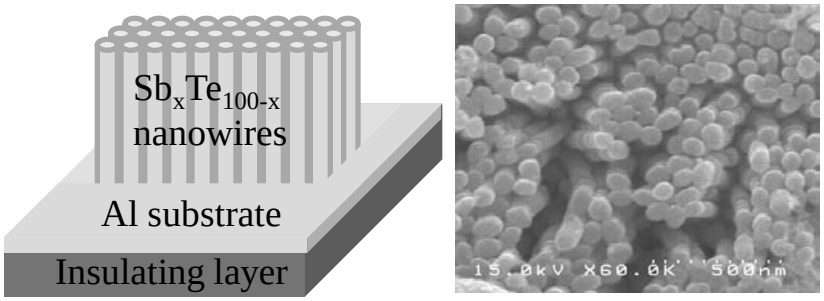


Figure 1: Amorphous Sb-Te nanowire arrays with tunable compositions and morphology were fabricated through a templated electrodeposition method.

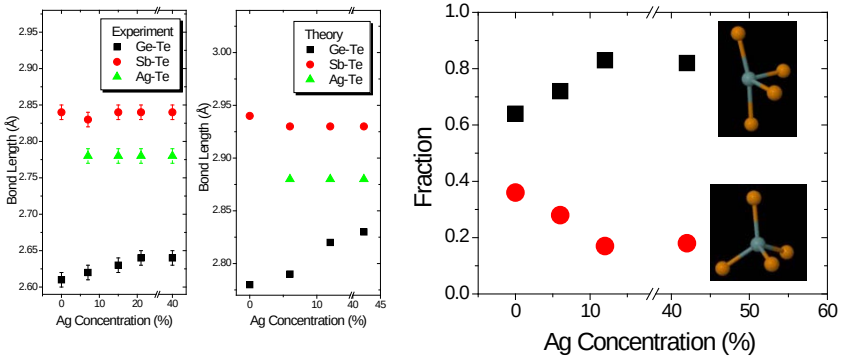


Figure 2: Combined experimental and theoretical studies unveil why doping $Ge_1Sb_2Te_4$ with Ag can enhance the phase change (switching) speed.