

IMPACT Center SAB/Liaison meetings

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Abstract

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High-throughput screening of novel phase change memory materials

We have developed a protocol to screen new compositions of phase change memory materials using thin film composition spreads. Composition spreads are fabricated by co-sputtering in the amorphous state. As a key figure of merit, we look for compositions with large bandgap difference between amorphous and crystalline states. We can also map the crystallization temperature as a function of composition. Using this approach we have identified a new composition GST467 whose optical contrast is consistently much larger than that of the well-known GST225. Efforts to develop other screening techniques and benchmarks as well as targets of new studies will be discussed.