Carbon-based Materials as Key-Enabler for "More-than-Moore" Devices

The talk will assess carbon-based materials like nanotubes and graphene in possible “More-than-Moore” applications. The requirements for the use in future transistor devices and interconnects is reviewed and the discussion is extended to applications which are not ultimately scaled to the smallest size. We show the application of graphenic carbon, which requires a high temperature budget for the deposition, in capacitors, diodes, through-silicon vias, novel non-volatile memories and sensors. The use of graphenic carbon as a hermitically tight x-ray transmission window is facilitated by its high mechanical resilience and has been demonstrated recently for the first time.

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