

Challenges and progress in two-dimensional materials for industrial applications

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Abstract

Graphene has been studied intensively since 2004, yet the path to integration in standard semiconductor flows remains elusive. The many benefits of two-dimensional materials have been extensively investigated. While the specific benefits of the fundamental materials properties such as electron mobility, thermal conductivity and ambipolar behavior, for many applications have been presented, these materials are still to some degree in the incipient stage of development. Before these materials can be introduced in real device flows not only do the materials growth issues will have to be addressed but also the integration issues before any real use can be achieved in real device flows. The objective of this presentation is to discuss the potential for graphene and other two-dimensional materials for analog device applications as well as thermal dissipation.