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2D AND LAYERED STRUCTURES III

POSTER SESSION

A two-dimensional semiconductor (also known as 2D semiconductor) is a type of natural semiconductor with thicknesses on the atomic scale. The rising research attention towards 2D semiconductors started with a discovery by Geim and Novoselov et al. in 2004,[1] when they reported a new semiconducting material graphene, a flat monolayer of carbon atoms arranged in a 2D honeycomb lattice.Â Some devices applications include electronic devices, photonic and energy harvesting devices, and flexible and transparent substrates. Electronic Devices[edit].Â The atomically thin structure allows for lower surface recombination velocity, which leads to better photocurrent conduction. Low dimensional materials refer to those systems in which electronic state wavefunction is confined, at least in one of the three dimensions. Electronic confinament generally appears in the range from 1 nm to 100 nm. In these materials, spatial constraints give rise to quantum size effects, which can significantly alter their electronic properties and deeply modify their behavior, as compared to their bulk counterparts.Â The primary goals of Lowdim are the synthesis of novel 2D materials and the fundamental understanding of their properties. Current work-areas of the Unit include: The development of preparation techniques which may produce large-area crystalline 2D layered materials exhibiting tunable band gaps. Above all, the multi-dimensional vibration mitigation devices and materials are found to be effective for reducing multi-dimensional vibrations. However, enhancing the mitigation performance of the devices in each direction, including improving the mitigation capability of materials, is still a challenging issue.Â Key Laboratory of C&PC Structures of the Ministry of Education, Southeast University, Nanjing, China.