

2D Materials: science and technology

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Abstract: "Over the last five years the physics of two-dimensional (2D) materials and heterostructures based on such crystals has been developing extremely fast. From one hand, with new 2D materials, more and more truly 2D physics started to appear (Kosterlitz-Thouless (KT) behaviour, 2D excitons, commensurate-incommensurate transition, etc). From another - we see the appearance of novel heterostructure devices - tunnelling transistors, resonant tunnelling diodes, light emitting diodes, etc. Composed from individual 2D crystals, such devices utilise the unique properties of those crystals to create functionalities which were not accessible to us in other heterostructures. In this talk I will review the properties of novel 2D crystals and how those properties are used in new heterostructure devices