

Perspectives of applications of 2D materials: Moore's and beyond CMOS view.

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Abstract

This contribution deals with the applications of 2D materials for applications dealing with energy, information storage and EMS and will present the vision on the next gen of applications in the field of Beyond CMOS. We have been working for around ten years on the implementation of Graphene and CNTs based mixtures to increase the power delivered by supercapacitors exploiting a deposition method based on spray-gun. We used the same technique to implement flexible ReRAM memories based on Graphene Oxide. Finally we developed new Electro-Magnetic Shielding layers based on thin Graphene layers able to reflect nearly 100% of electromagnetic wavelength. Now it is the time to move to Beyond CMOS applications with the new generation of 2D materials such as topological insulators, e.g. Stanene and Plumbene, which allow achieving devices reducing dramatically the energy consumption and thinking about a new generation of electronic circuits not based on transistors. We will introduce also the magic angle physics and the potential applications in industry.