2D Materials-Based Electronics: Where Do we go from Here?

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In this presentation, I will try to provide perspectives and challenges of 2D materials (2DMs) technology, which aims, in the best previsions, at becoming the benchmark technology for electronic applications [1]. In particular, I will first focus on digital applications, discussing the main figures of merit against technology requirements, showing the point of strength and of weakness, when exploiting 2DMs as channel material for next-generation devices. With respect to this, 2DMs heterostructures [2,3] will be also addressed, while proposing new device architectures. Radio frequency applications will be discussed [4,5], focusing on the performance expected in the THz regime, and graphene transparent electrode as possible substitute for Indium Tin Oxide in organic solar cell will be investigated through numerical simulations.