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ABSTRACT:

Roadmapping for New 2D Materials and their Exotic Properties Implementation: Some use-Cases and Focus on Topology Phenomena

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There are a lot of new interesting topics in 2D materials field. However it is necessary to highlight which are potential implementable topics and which will stay simply a sort of trendy topic. In order to envision and to prepare Beyond CMOS realm we need to understand which is the right scientific direction to follow. Indeed, 2D materials when discovered have been implemented in Moore's approach as in case of 2D used for transistors. This is not the right approach in order to achieve real advances in physics and in defining the implementation of the new roadmaps for new devices based on innovative concepts. In this contribution, we will analyse the main phenomena recently discovered such as magic angle, valleytronics and 2D topological insulators in order to understand which are the potential applications of these devices. We will analyse in a completely objective way which are the main potential implementations of these phenomena. We will perform a roadmap identifying the major turning point in each case. This analysis will allow to have a precise idea of what could be only a hype phenomenon and what could be a real game changer for specific applications.

References

[1] 2D Materials: And Their Exotic Properties (De Gruyter Stem) Planned Publication: July 4, 2022, ISBN: 9783110656329