

Synthesizing high-quality 2D materials: from surface science to the industry of tomorrow

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Graphene is a material with great potential for photonic applications. To make it realistically appealing at high technology readiness levels (TRLs) a feasible way to scale-up high-quality material with bottom-up synthetic approaches has to be found. In this talk, I will present our approaches in this direction and how we adopt surface and interface science to impact science and technology of 2D materials. I will present different wafer-scale growth approaches of high-quality graphene via chemical vapor deposition (CVD) [1,2] and show how this material can be straightforwardly integrated on existing photonic platforms [3,4]. Furthermore, I will present results on the field of twistronics and van der Waals heterostacks, which are an exciting playground for fundamental studies [5-8].

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