

Abstract Submitted
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CVD growth of graphene at low temperature CHANGGAN ZENG,
Department of Physics, University of Science and Technology of China — Graphene has attracted a lot of research interest owing to its exotic properties and a wide spectrum of potential applications. Chemical vapor deposition (CVD) from gaseous hydrocarbon sources has shown great promises for large-scale graphene growth. However, high growth temperature, typically 1000°C, is required for such growth. In this talk, I will show a revised CVD route to grow graphene on Cu foils at low temperature, adopting solid and liquid hydrocarbon feedstocks. For solid PMMA and polystyrene precursors, centimeter-scale monolayer graphene films are synthesized at a growth temperature down to 400°C. When benzene is used as the hydrocarbon source, monolayer graphene flakes with excellent quality are achieved at a growth temperature as low as 300°C. I will also talk about our recent progress on low-temperature graphene growth using paraterphenyl as precursor. The successful low-temperature growth can be qualitatively understood from the first principles calculations. Our work might pave a way to economical and convenient growth route of graphene, as well as better control of the growth pattern of graphene at low temperature.

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