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NANOSCIENCE COLLOQUIUM

Growth of graphene on Ir(111) and it use as a platform for material synthesis

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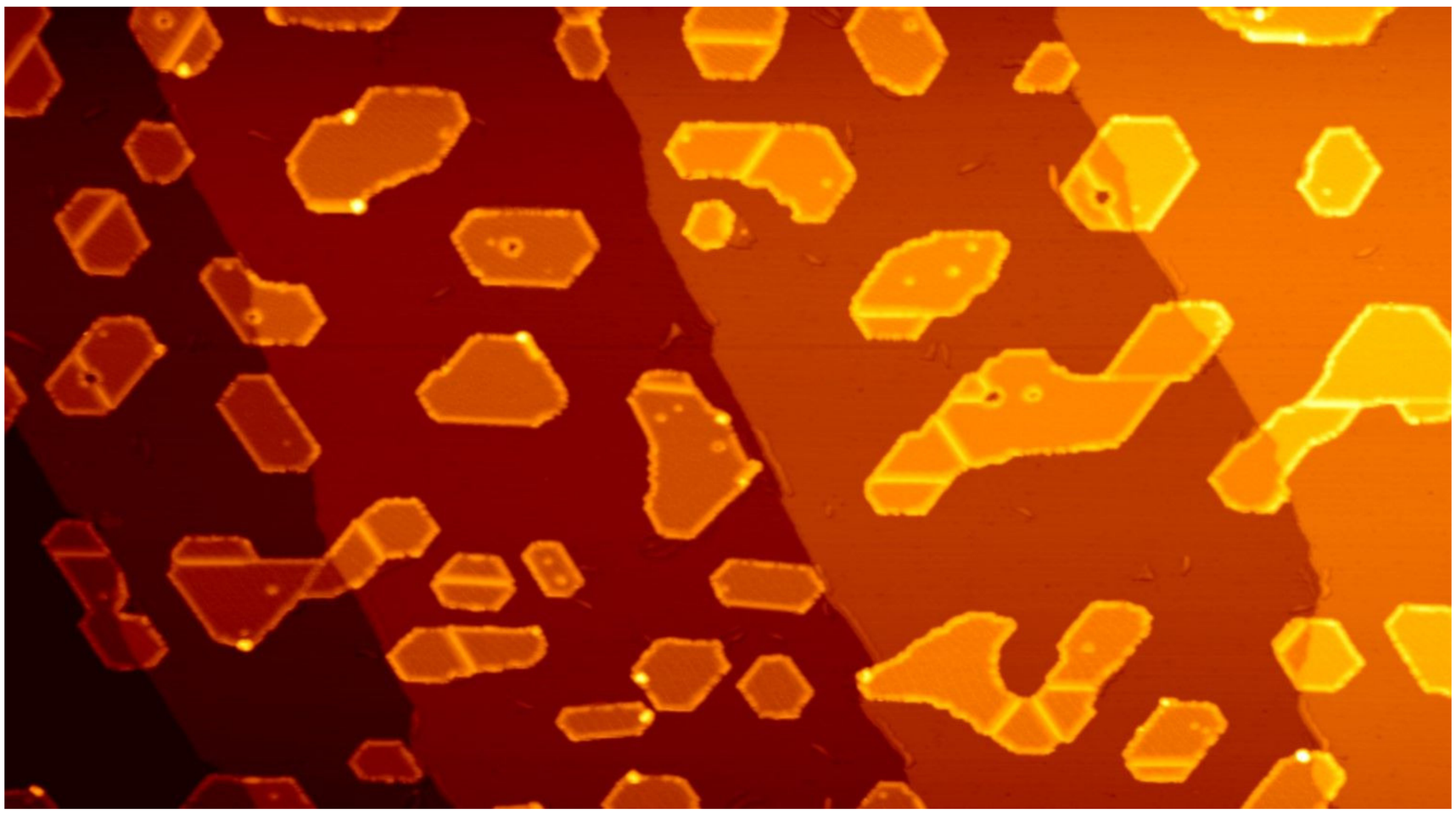
Abstract: Graphene can be fabricated on Ir(111) as a single crystal on macroscopic areas. Growth, structural and electronic properties, doping and methods to avoid the formation of wrinkles are discussed. Three examples will be outlined that demonstrate the potential of graphene on Ir(111) as a platform to create new materials. First, it is shown that graphene on Ir(111) is an excellent substrate for the molecular beam epitaxy of monolayers of transition metal disulfides under ultrahigh vacuum conditions. Second, a new on-surface synthesis method for organometallic sandwich molecular wires is reported. Here, by doping of graphene on Ir(111) the reaction pathway can be tuned. Third, graphene on Ir(111) is an excellent template for the growth of cluster superlattices that can be used in nanocatalysis.



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