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Abstract for an Invited Paper
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Chemical Vapor Deposition of Large-size Monolayer Graphene and Properties[1]

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Graphene is of interest in part due to its electronic and thermal transport, mechanical properties including high stiffness and the possibility of high strength and toughness, high specific surface area, and that it can act as an atom thick layer, barrier, or membrane. Our top-down micromechanical exfoliation approaches conceived of in 1998 [1, 2] yielded multilayer graphene. Two main areas of our research are: (i) CVD growth of large area graphene films on metal substrates, characterization and properties of such films, and (ii) The generation, study, and use of colloids containing graphene-based platelets. We present our work on CVD growth of graphene on metal substrates, including the first achievement of large area growth of monolayer graphene [3], studies on understanding growth [related references: 3-6]. Properties such as TCE [7], thermal conductivity [8], and mechanical properties [related reference: 9], will be presented. An excellent review of graphene is [10]. A history of experimental work on graphene (from its discovery in 1969 until now) will be available on our web site: http://bucky-central.me.utexas.edu/ prior to the meeting. Ruoff group publications: http://bucky-central.me.utexas.edu/publications.htm.

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