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Measurement of nanomechanical properties of suspended graphene membranes JI WON SUK, CARL W. MAGNUSON, RICHARD D. PINER, RODNEY S. RUOFF, Univ. of Texas at Austin — Since graphene was first isolated from graphite, its unique properties have been intensively investigated in various ways. Recently, a method to grow large-area, uniform monolayer graphene has been realized by chemical vapor deposition (CVD) on metal substrates. In this respect various properties of CVD-grown graphene need to be studied and compared with those measured from mechanically exfoliated graphene. In this talk we report mechanical measurement of suspended graphene membranes made by CVD on copper foils. Monolayer graphene was transferred onto through holes to make suspended graphene membranes. Bulge testing with uniform pressure was done on those membranes to extract the mechanical properties of CVD-grown monolayer graphene. Moreover, nanoindentation was performed on those suspended graphene membranes and the result is compared with that obtained by bulge testing.

Richard Piner
Univ. of Texas at Austin

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