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Nanoscale measurements of adhesion properties of graphene by nanoindentation JI WON SUK, School of Mechanical Engineering, Sungkyunkwan University (SKKU), Suwon, 440-746, Korea, SEUNG RYUL NA, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, Austin, 78712, USA, RODNEY RUOFF, Department of Mechanical Engineering and the Materials Science and Engineering Program, The University of Texas at Austin, Austin, 78712, USA, KENNETH LIECHTI, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, Austin, 78712, USA — The outstanding fundamental properties of graphene have enabled the realization of various applications including nanoelectronics and flexible devices. Measurement of interfacial properties is crucial for practical and reliable applications of graphene. In this talk, we report measurements of adhesion properties of large-area graphene transferred onto silicon oxide. Using a high sensitive nanoindentation tool, we observed nonlinear adhesive interactions of graphene with an indenter. The nanoscale measurements also provided interesting local behaviors of graphene related to wettability. The experimental results were analyzed with numerical simulation for further understanding.

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