

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Unusual electronic and magnetic responses from sulfur-decorated graphene. CHOONGYU HWANG, Materials Sciences Division, Lawrence Berkeley Natl. Lab. and Department of Physics, Pusan National University, South Korea, S. A. CYBART, S. M. WU, R. C. DYNES, Materials Sciences Division, Lawrence Berkeley Natl. Lab. and Department of Physics, University of California, San Diego, CA, S. J. SHIN, E. E. HALLER, Department of Materials Science and Engineering, University of California, Berkeley, CA and Materials Sciences Division, Lawrence Berkeley Natl. Lab., S. KIM, K. KIM, B. I. MIN, Department of Physics, Pohang University of Science and Technology, South Korea, T. G. RAPPOPORT, Instituto de Fisica, Universidade Federal do Rio de Janeiro, Brazil, C. JOZWIAK, A. V. FEDOROV, S. -K. MO, Advanced Light Source, Lawrence Berkeley Natl. Lab., A. H. CASTRO NETO, Graphene Research Centre, National University of Singapore, D. -H. LEE, A. LANZARA, Department of Physics, University of California, Berkeley, CA, and Materials Sciences Division, Lawrence Berkeley Natl. Lab. — Interactions between two different materials can produce strong electronic correlations that do not exist when each material stands alone. We search for such correlations from graphene, a non-magnetic semi-metal, decorated by sulfur, a diamagnetic insulator, using angle-resolved photoemission spectroscopy and magneto-transport measurements. Sulfur-decorated graphene exhibits unusual electronic and magnetic responses that are clearly distinguished from clean graphene. Our findings provide intriguing insights on the search for novel quantum phases in graphene-based compounds.

Choongyu Hwang
Pusan National University

Date submitted: 08 Nov 2015

Electronic form version 1.4