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**Growth of Single-Layer Graphene on Pt(111) by Thermal Decomposition of Propylene** GREGORY HODGES, HEIKE GEISLER, CARL VENTRICE, Dept. of Physics, Texas State University — Graphene, which is a one-atom-thick layer of  $sp^2$ -bonded carbon, has sparked keen interest within the scientific community because it is predicted to have a wide range of unique properties. In particular, it has one of the highest known mobilities of all the semiconducting materials. Since its discovery in 2004, there have been several studies of the growth of graphene by various techniques. We have performed studies on the growth of graphene on the catalytically active Pt(111) surface by thermal decomposition of propylene in an ultra-high vacuum (UHV) chamber. Two methods have been used: deposition of a monolayer of propylene followed by annealing in UHV and growth of graphene in an atmosphere of  $10^{-6}$  Torr of propylene at 500 °C. The crystal structure of the graphene films was monitored using low energy electron diffraction (LEED). In addition, we are currently performing high resolution electron energy loss spectroscopy (HREELS) measurements of the electronic structure of the graphene films.

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