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Mesoscale STM Study of Thermally Annealed Copper Foils[1]
OLESYA SARAJLIC, RAMESH MANI, Georgia State University — The growth of high quality graphene has become a topic of significance. There have been utilized several methods of material growth including the epitaxial growth on SiC, method of exfoliation of graphite, and chemical vapor deposition (CVD). The CVD approach typically utilizes foils of copper or nickel that are exposed to organic compounds at a high temperature. The purpose of the study is to investigate the role of the metal surface morphology during the growth process, relative grain size before and after thermal treatment, and relative flatness of the substrate after annealing. We investigated the effects of thermal annealing of polycrystalline Cu foil at the mesoscale using an ultrahigh vacuum (UHV) scanning tunneling microscope (STM). Prolonged low-temperature and rapid high-temperature annealing of the samples is being carried out and the resulting surface morphology will be reported. The STM observations reveal that the film quality is limited by grain boundaries.

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