Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Magnetic-moment-induced local superstructure on a graphite surface observed by SP-STM KATSUMI NAGAOKA, TOMONOBU NAKAYAMA, Nanomaterial Laboratory, NIMS — Magnetic properties of carbon materials such as graphite, fullerenes and carbon nanotubes are of great interest for new device materials. We have investigated local magnetic characteristic on graphite surfaces by spin-polarized (SP) STM. The SP measurements were performed with magnetized Ni tips at 77K. In order to extract the magnetic property from the electronic property we referred STM data obtained with W and non-magnetized Ni tips. The SP-STM image showed coexistence of a typical graphite structure and a local superstructure which had not been observed with the W or non-magnetized Ni tips. The SP-STM spectra exhibited 40meV shift to the higher energies, and in the superstructure region a characteristic peak appeared near Fermi level. Plausibly the superstructure corresponds to spatial distribution of the local magnetic moment induced by adsorbates.

Katsumi Nagaoka
Nanomaterial Laboratory, NIMS

Date submitted: 29 Nov 2004 Electronic form version 1.4