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**Electron Standing Waves in Semiconducting Carbon Nanotubes:
Spatially-Resolved Scanning Tunneling Spectroscopy** SE-JONG KAHNG,
Department of Physics, Korea University, HAJIN KIM, SUNGJUN LEE, YOUNG
KUK, School of Physics and Center for Science in Nanometer Scale, Seoul National
University — Electronic modulation patterns were observed, from the gap states
of semiconducting single-wall carbon nanotubes, using spatially-resolved scanning
tunneling spectroscopy. Some modulations show single peaks, with the period twice
of the lattice constants, while others show double peaks.. Both modulations are
localized within a few nano-meters, enclosed by exponential decay functions. The
modulation patterns are well understood in terms of the squared wavefunctions,
derived from the simple quantum mechanical potential well models. Our model can
be applied to the bound states of metallic carbon nanotubes as well.

Se-Jong Kahng
Department of Physics, Korea University, Seoul, 136-713, Korea

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