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Surface Enhanced Raman Spectroscopy (SERS) and Scanning Electron Microscopy of Individual SERS Hot Spots RAJAY KUMAR, STEPHEN CRONIN — We measure Raman spectroscopy and scanning electron microscopy before and after depositing silver nanoparticles on carbon nanotubes. Individual SERS "hot spots" are identified with respect to a lithographically defined grid using micro-Raman spectroscopy. Carbon nanotubes' extremely large aspect ratio enables subsequent imaging of the nanoparticle geometry together with the SERS active molecule. The SERS enhancement factor is determined by comparing the Raman intensity of an individual nanotube before and after nanoparticle deposition. The data, published in R. Kumar et al., Appl. Phys. Lett., 91 (2007), reports SERS enhancement factors up to 134,000 and nanoparticle heating exceeding 600C, as evidenced by the local burnout of nanotubes in SERS hot spot regions.

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