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Frequency-Modulation Imaging of Quantum Dots in Carbon Nanotubes MARKUS BRINK, J. ZHU, PAUL L. MCEUEN, LASSP, Cornell University — We use Frequency-Modulation Imaging (FM-AFM) at 4K to probe single electron charging events of quantum dots in semiconducting carbon nanotubes. This technique does not require conduction across the carbon nanotube device, thereby enabling us to image the first few charge states of the dots. The charging energy can be extracted from the amplitude of the frequency modulation signal. In addition, we observe avoided crossings in the charging spectrum of neighboring dots due to coupling.

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