

Abstract Submitted  
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**Polarized Light Emission from a Single Hot Carbon Nanotube<sup>1</sup>**

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UCLA Department of Physics and Astronomy, and CNSI — We fabricate nanoscale lamps, incandescent in the visible, which have a filament consisting of a single multiwall carbon nanotube. The radius  $r$  of the nanotube is much smaller than the wavelength  $\lambda$  of the emitted light, making it a very unusual thermal emitter. Transmission electron microscopy is used to determine the nanotube's axis as well as the parameters of the tube's geometry. We image both light polarizations on a CCD camera simultaneously and observe a degree of polarization between 70% and 85% along the tube's axis at visible wavelengths—highly polarized, yet less so than is expected for a conducting antenna. Furthermore, the polarization's variation with wavelength trends opposite to that predicted by classical models and analogy with graphene.

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