Abstract Submitted
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Bolometric Response of a Single-Wall Carbon Nanotube[1] DANIEL SANTAVICCA, JOEL CHUDOW, YAN YIN, MARKUS BRINK, ANTHONY ANNUNZIATA, LUIGI FRUNZIO, DANIEL PROBER, Dept. of Applied Physics, Yale Univ., ALAN TRUE, CHARLES SCHMUTTENMAER, Dept. of Chemistry, Yale Univ., MENINDER PUREWAL, YURI ZUEV, PHILIP KIM, Depts. of Physics and Applied Physics, Columbia Univ. — We report on the low temperature bolometric (thermal) rf response of individual metallic single-wall carbon nanotubes. This response is used to determine the thermal conductance of the nanotube. Previous work has demonstrated heterodyne mixing in individual carbon nanotubes using either an electrical I-V nonlinearity or a gate-modulated conductance. We distinguish between bolometric mixing and the response due to non-thermal electrical nonlinearities. These experiments are a precursor to proposed terahertz measurements of the frequency-dependent bolometric response of an individual single-wall nanotube.

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Daniel Santavicca
Dept. of Applied Physics, Yale University

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