Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Heat radiation from long cylindrical objects VLADYSLAV GOLYK, MATTHIAS KRUGER, MEHRAN KARDAR, Massachusetts Institute of Technology — The heat radiated by objects small or comparable to the thermal wavelength can be very different from the classical blackbody radiation as described by the laws of Planck and Stefan-Boltzmann. We derive methods based on scattering of electromagnetic waves to explore the dependence on size, shape, as well as material properties. In particular, we discuss the radiation from a long cylinder at uniform temperature, describing in detail the degree of polarization of the emitted radiation by nanowires and carbon nanotubes.

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Date submitted: 10 Nov 2011 Electronic form version 1.4