

# Physics Department Seminar

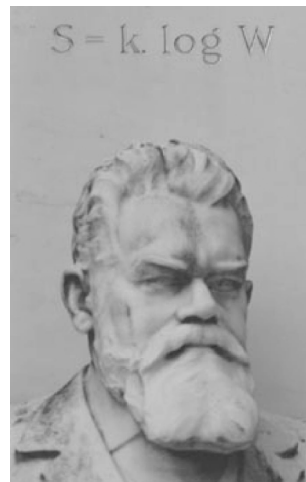
Friday April 22<sup>nd</sup>, 2005

11:00am in PhSc 105

## “Boltzmann’s Light Engine”

Dr. Chris Gaffney

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### Abstract:

In 1879 Josef Stefan established experimentally that the energy density of electromagnetic radiation within a cavity (blackbody radiation) was proportional to the fourth power of temperature of the cavity walls. In 1884 Ludwig Boltzmann proposed a theoretical model to account for this temperature dependence. While most physicists are quite familiar with the Stefan-Boltzmann law:  $R = \sigma T^4$ , its usual derivation rests on Planck’s quantum hypothesis of 1900. Hmmm... how did Boltzmann do it? This talk will focus on answering this question.