

Abstract Submitted
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Evanescent-wave heat transfer between two parallel plates of sapphire¹ RICHARD OTTENS, University of Florida, VOLKER QUETSCHKE, University of Texas at Brownsville, GUIDO MUELLER, DAVID REITZE, DAVID TANNER, University of Florida — Evanescent-wave heat transfer is the process in which near-field radiation effects are used to transfer heat from one body to another. These evanescent waves allow a thermal transmission through a small gap that is several orders of magnitude greater than the thermal transmission of far-field black-body radiation. Although heat transfer using evanescent waves was first theoretically explained in the early 1970's by Polder and Van Hove, experimental testing of this theory remains sparse. We will describe experiments to measure the heat transfer between two parallel plates due to evanescent waves. Ultimately, this method of heat transfer may be used to cool the test masses in future upgrades of the Laser Interferometer Gravitational-wave Observatories.

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