

Abstract Submitted
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Thermal conductivity measurements of amorphous HafSO_x and AlPO thin films¹ RIVER WIEDLE, MARK WARNER, Department of Physics, Oregon State University, 301 Weniger Hall, Corvallis, OR 97331, STEFAN LUCCHINI, DOUGLAS A. KESZLER, Department of Chemistry, Oregon State University, 153 Gilbert Hall, Corvallis, OR 97331, JANET TATE, Department of Physics, Oregon State University, 301 Weniger Hall, Corvallis, OR 97331 — The novel insulators HafSO_x and AlPO are useful as gate dielectrics in field effect transistors as high quality, atomically flat, dense films with low current leakage can be deposited at low temperatures. Since these materials are expected to be used in microelectronics, it is important to understand their thermal transport properties. The room temperature thermal conductivity of thin HafSO_x and AlPO films is determined by a differential 3-omega method, which uses an alternating current signal to heat a sample and a resistance temperature detector (RTD) to measure the frequency- dependent magnitude and phase of the resulting temperature oscillations. The method is modified by using two heater/RTDs of different widths deposited on a single sample to eliminate the need for a reference substrate.

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