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Low frequency all-optical thermoreflectance measurements of thin film thermal conductivities KIRBY MYERS, HANS D. ROBINSON, Virginia Tech. Physics Dept. — We present an all-optical method for measuring the in-plane and cross-plane thermal conductivities in μm-thick films on substrates with dissimilar thermal conductivities. This method relies in thermooptically induced changes in reflectivity caused by a heating beam that is modulated with frequencies of up to 100 kHz. Because the method does not rely on ultrafast lasers, it is economical and can be incorporated in an experimental setup with a small footprint. Results from bulk samples and films with thermal conductivities ranging between about 1 $\mathrm{Wm^{-1}K^{-1}}$and 100 $\mathrm{Wm^{-1}K^{-1}}$will be presented.

Kirby Myers
Virginia Tech. Physics Dept.

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