

Abstract Submitted  
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**Time domain THz studies of thin film spinel superconductor  $\text{LiTi}_2\text{O}_4$** <sup>1</sup> EVAN JASPER, M.T. WARREN, T.T. MAI, J. BRANGHAM, R. VALDÉS AGUILAR, Department of Physics, The Ohio State University. Columbus OH 43210, J. M. SHIN, I. TAKEUCHI, R.L. GREENE, University of Maryland — Recent advances in growth of high-quality crystalline thin films of the only known spinel superconductor (SC)  $\text{LiTi}_2\text{O}_4$  have allowed the discovery of an anomalous anisotropic magnetoresistance in its normal state [1]. We have used time domain terahertz spectroscopy, a contactless transport measurement, to determine the ac conductivity of  $\text{LiTi}_2\text{O}_4$  and to examine the BCS nature of the superconducting state. We obtained the temperature dependence of the SC gap as well as the London penetration depth, and also found a hint of a second gap. We will discuss and compare these results in terms of the known dc transport properties [1].

[1] K. Jin, et al. Nature Communications, 6, 7183, 2015.

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