

Abstract Submitted  
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**Infrared spectroscopy of a novel iron-based superconductor  $\text{Fe}_{1.06}\text{Te}_{0.88}\text{S}_{0.14}$**  S.V. DORDEVIC, The University of Akron, N. STOJILOVIC, University of Wisconsin Oshkosh, ADAM KONCZ, The University of Akron, RONGWEI HU, C. PETROVIC, Brookhaven National Lab — We will present the results of our infrared and optical studies of a novel iron-based superconductor  $\text{Fe}_{1.06}\text{Te}_{0.88}\text{S}_{0.14}$  with  $T_c = 8$  K. Measurements have been performed over a broad range of frequencies (50 - 50,000  $\text{cm}^{-1}$ ) and temperatures (10 - 300 K). Our results reveal that the superconducting state develops from an unconventional normal state, without well defined quasiparticles. The structural and magnetic phase transitions at  $T \simeq 23$  K do not seem to have significant effect on optical properties of  $\text{Fe}_{1.06}\text{Te}_{0.88}\text{S}_{0.14}$ . We introduce “generalized spectral weight” analysis, and use it to track the redistribution of spectral weight with temperature.

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