Abstract Submitted
for the OSF09 Meeting of
The American Physical Society

Infrared studies of novel iron-based superconductors ADAM KONCZ, S.V. DORDEVIC, The University of Akron, N. STOJILOVIC, University of Wisconsin Oshkosh, RONGWEI HU, C. PETROVIC, Brookhaven National Lab — The discovery of new iron-based superconductors last year has excited the scientific community. Besides copper oxides, this is the only other example of materials that superconduct at temperatures higher than 50 K. In this project we have used infrared spectroscopy to study the optical properties of $FeTe_{0.87}S_{0.13}$ at varies energy scales. We have also examined how the optical properties changed as a function of temperature and high magnetic fields (up to 18 Tesla). Our results show that the superconducting state in iron-based superconductors develops from unconventional normal state, without well defined quasiparticles. This demonstrates the potential of infrared spectroscopy to provide insight into the unique properties of these novel materials.

S.V. Dordevic
The University of Akron

Date submitted: 04 Sep 2009 Electronic form version 1.4