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Optical Spectroscopy of $BaFe_{1.8}Co_{0.2}As_2$ in the normal state SARAH PURDY, JING YANG[1], GREG EGAN, JULES CARBOTTE, THOMAS TIMUSK, McMaster University, ATHENA SEFAT, BRIAN SALES, DAVID MANDRUS, Oak Ridge National Laboratory, EWALD SCHACHINGER, Graz University of Technology — Sefat et al.[1] have found that electron doping of the iron arsenide $BaFe_2As_2$ by cobalt doping of the iron site induces superconductivity, as high as 38K. We will report a comprehensive optical spectroscopy study of normal state $BaFe_{1.8}Co_{0.2}As_2$ (Tc = 22K) over a wide range of frequencies from 50 to 40,000 cm^{-1} and temperatures. Measuring the reflectance of single crystal samples we acquire a spectra from which we will show the optical conductivity and the dielectric function. Using Eliashberg formalism we determine the electron boson spectral function. [1] A.S. Sefat et al., Phys. Rev.Lett. 101, 117004 (2008)

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