

Abstract Submitted
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Optical

conductivity of exfoliated $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ nanocrystals LUKE SANDILANDS, VIKTORIYA BAYDINA, ALEXANDER SU, ANJAN REIJNDERS, University of Toronto, Canada, TOR PEDERSEN, FERENC BORONDICS, Canadian Light Source, Canada, GENDA GU, Brookhaven National Laboratory, USA, SHIMPEI ONO, University of Tokyo, Japan, YOICHI ANDO, Osaka University, Japan, KENNETH BURCH, Institute for Optical Sciences, University of Toronto, Canada — We report on infrared spectromicroscopy of mechanically exfoliated under-doped and optimally-doped $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ thin crystals on SiO_2/Si substrates. The infrared reflectance and transmission was measured for samples of various thicknesses and the optical conductivity extracted in the frequency range 0.15 eV to 1 eV. Trends in the optical conductivity with thickness are discussed. In particular, we observe that the conductivity of thicker (~ 100 nm) samples is comparable to bulk while that of thinner (~ 20 nm) samples is markedly suppressed.

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