

Abstract Submitted
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Characterizing the Superconducting Properties of NbSe₂ Using Point Contact Spectroscopy JAMES HANSEN, Missouri State University, LAURA GREENE, University of Illinois at Urbana Champaign — Superconductivity has applications from MRI machines in hospitals to high energy particle accelerators like those at CERN. However to find more applications in medicine, research, and industry we must better understand superconductivity and discover higher temperature superconductors. Point Contact Spectroscopy (PCS) is an important tool for studying the electron interactions inside a material. Using PCS I studied the electronic properties of niobium diselenide (NbSe₂) which exhibits a charge density wave (CDW) below 33.5 K and superconducts below 7.2 K. The superconducting energy gap was determined by the spectroscopic data obtained being fitted to the Blonder-Tinkham-Klapwijk theory of conductance. Several temperature evolutions of the PCS conductance revealed no signatures of the CDW. The data obtained was also an important diagnostic of PCS junction quality.

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