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Magnetoresistance and Critical Current Oscillations in Superconducting $NbSe_2$ and NbN Nanowires U. PATEL, Z.L. XIAO, J. HUA, Argonne National Laboratory and Northern Illinois University, R. DIVAN, U. WELP, W.K. KWOK, Argonne National Laboratory — Magnetoresistances and critical currents of superconducting $NbSe_2$ and NbN nanowires with cross-section dimensions from 300 nm to 2 um were studied as a function of magnetic field. Sample specific oscillations were found with respect to applied magnetic field. The oscillations were completely reproducible, symmetric with respect to the direction of the field and independent of the field sweep direction. They disappeared at high fields, temperatures or currents. The oscillations were periodic in nature with superposition of more than one frequency as revealed in Fast Fourier Transform of the oscillations. The frequencies of oscillations were independent of temperature and current. Details about the transport measurements of resistance and critical current and origin of such oscillations will be discussed.

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