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Effects of charge density wave phase on free flux flow in weak-pinning single crystals of $NbSe_2$[1] P. FAVREAU, A.A. GAPUD, S. MORAES, University of South Alabama, L. DELONG, University of Kentucky, T. BESARA, E. PRETTNER, A.P. REYES, National High Magnetic Field Laboratory, J.R. THOMPSON, University of Tennessee and Oak Ridge National Laboratory, D.K. CHRISTEN, Oak Ridge National Laboratory — The co-existence of two different ordering schemes in the conduction electrons of superconductors – charge density waves (CDWs) and superconductivity, particularly in the motion of quanta of magnetic flux – is studied in high-quality samples of the compound, $NbSe_2$. Of specific interest is the magnetic-field dependence of transport critical current density J_c and that of the Lorentz-driven free flux flow (FFF) resistivity associated with the ordered motion of vortices when the CDWs are switched on and off – as effected by doping with Ta. The CDW phase is manifested as a broadening of NMR peaks and as a "knee" in the temperature dependence of normal-state resistivity. While both doped and non-doped samples show similar field dependence in FFF resistivity, $J_c(H)$ reveals a surprising double peak, probably due to sample inhomogeneity combined with the effects of crystal anisotropy.

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Albert Gapud
University of South Alabama

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