

Unusual Vortex Motion in NbSe₂ with Crossed Columnar Defects

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Transport properties of heavy-ion irradiated 2H-NbSe₂ single crystal have been investigated. Columnar defects were formed along the ion tracks and their directions are $\pm 30^\circ$ from the c axis. The angular dependence of the resistance exhibited very unusual dissipation when the magnetic fields were aligned to in-between the ab plane and the c axis. When magnetic field was aligned along one side of the quadrants between the ab plane and the c axis, we observed an extra *positive* dissipation, and when the field was aligned along the other side of the quadrants, an extra *negative* dissipation was observed. Those unusual dissipation means that some of the vortices are moving to the opposite direction of the usual Lorentz force. We suggest that a guided vortex motion along the one of the columnar defects can lead to this kind of unusual dissipation.

Keywords : guided vortex motion, columnar defects, NbSe₂