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Superconducting Properties of High-energy Ball-milled NbSe₂

NbSe₂ is a conventional type II superconductor with $T_c \sim 7$ K. It has a layered crystal structure with different values of upper critical field between *c*- and *ab*-directions. It is also well-known that high purity single crystal exhibits a very weak vortex pinning, while the introduction of disorder such as irradiation induced the occurrence of fishtail effect. In the present work, we employed high-energy ball milling to induce a lattice distortion and disordering for enhancing flux pinning. We also examined the effect of doping with third elements such as sulphur, boron and carbon. The result showed that both doping and high-energy ball-milling improved superconducting properties at high magnetic field.

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