Superconductive coupling in tailored [(SnSe)$_{1+\delta}$]$_m$ (NbSe$_2$)$_1$ multilayers


Short Abstract

Fericrystals are a new artificially layered material system in which the individual layers are stacked with monolayer precision but are turbostratically disordered. Here, we investigate the superconducting coupling of the NbSe$_2$ layers separated by $m$ number of SnSe layers. We find a systematic decrease of the transition temperature with an increasing number of SnSe layers per repeat unit and observe a decoupling with increasing distance of the NbSe$_2$ layers.

Above. Temperature-dependent resistance for different fericrystals with $m = 1, 3, 4, 6$, and 9 measured for two different sample geometries. The inset shows the transition temperature dependence on the separation of adjacent NbSe$_2$ layers.