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Molecular Dynamics of Type-1.5 Superconductors

QINGZE WANG, CHRISTOPHER VARNEY, University of Massachusetts, Amherst, HANS FANGOHR, University of Southampton, EGOR BABAEV, University of Massachusetts, Amherst — In multi-component superconductors and structures of interlaced layered type-I type-II layers there exists a range of parameters where inter-vortex interaction is repulsive at short ranges and attractive at long range. Such regimes were termed “type-1.5 superconductivity” recently. This vortex interaction leads to a microscopic phase separation in Meissner and vortex droplets. In this talk, we utilize molecular dynamics to investigate the magnetic response of such superconductors in the type-1.5 regimes.

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