

## Structural transition between disordered vortex solids

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Small-angle neutron scattering reveals the presence of an ordered vortex solid phase in high quality optimally doped single crystalline  $(\text{Ba}_{1-x}\text{K}_x)\text{Fe}_2\text{As}_2$ . Vortex solid Bragg peaks are not described by the Bragg glass prediction. Simultaneously, the vortex solid structure factor shows a sharp drop as function of magnetic field, that is correlated with the second peak feature in isothermal hysteresis loops. Hence, the vortex order-disorder transition in this material is unrelated to the presence of vortex solid dislocations.

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