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SANS study of the vortex lattice $PrOs_4Sb_{12}$ ANDREA BIANCHI, ALEXANDRE DESILETS-BENOIT, Département de physique, Université de Montréal, SIMON GERBER, NIKOLA EGETENMEYER, JORGE GAVILANO, MICHEL KENZELMANN, Paul Scherrer Institut, Villigen, Switzerland, SEBASTIAN MÜHLBAUER, CHRISTIAN PFLEIDERER, Technische Universität München, München, Germany, RYAN BAUMBACH, BRIAN MAPLE, Department of Physics, University of California at San Diego, La Jolla, CA, USA — We report on the magnetic field (H) dependence of the form factor $|F|^2$ of the vortex lattice (VL) in $PrOs_4Sb_{12}$ obtained by small angle neutron scattering for H applied along the crystallographic a-axis. $PrOs_4Sb_{12}$ is the fist Pr based heavy fermion superconductor (SC) with a critical temperature T_c of 1.85 K and a H_{c2} of 2.5 T Although $PrOs_4Sb_{12}$ crystallizes in a filled Skutterudite structure with a cubic lattice, this structure has a tetrahedral point group symmetry. In consequence with the application of a magnetic field along the c-direction, the a and b-axis are no longer equivalent. Measurements of the angular dependence of the thermal conductivity in $PrOs_4Sb_{12}$ suggest a change of the superconducting order parameter deep inside the SC phase diagram. The thermal conductivity a low fields is compatible with a SC gap structure with a two fold symmetry, while at higher field it changes to a fourfold symmetry.

Andrea Bianchi
Département de physique, Université de Montréal

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