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Vortex phase diagram in weakly pinned Rh17S15 S. RAMAKRISHNAN, H.R. NAREN, ARUMUGAM TAMIZHAVEL, ARUN GROVER, TIFR — A vortex phase diagram of the strongly correlated superconductor $Rh_{17}S_{15}$ has been constructed via exploration of the anomalous variations in critical current density extracted from ac and dc magnetization measurements. The iso-field in-phase ac susceptiblity data reveal the presence of multiple steps at different fields. The dc magnetisation hysteresis loops show the presence of a very broad fishtail commencing deep inside the mixed state and lasting upto H_{c2} . We have also analysed the scan rate dependence of the hysteresis width in the vibrating sample magnetometer data with a view to distinguish between the different possible order-disorder transformations in the flux-line lattice.

Ramakrishnan S
TIFR

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