

Abstract Submitted
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Wetting-like phase transitions in a surface-enhanced type-I superconductor¹ VLADIMIR KOZHEVNIKOV, Tulsa Community College, MARGRIET VAB BAEL, Katholieke Universiteit Leuven, Belgium, PRATAP SAHOO, Paul Scherrer Institut, Switzerland, KRISTIAAN TEMST, CHRIS VAN HAESENDONCK, ANDRE VANTOMME, JOSEPH INDEKEU, Katholieke Universiteit Leuven, Belgium — Superconductivity in single crystal Sn samples with surface enhanced order parameter was studied experimentally. Controllable surface enhancement was achieved by mechanical polishing or by ion irradiation. A first-order surface superconductivity transition was found in parallel magnetic fields close to the bulk critical field $H_c(T)$ and for temperatures above $0.8T_c$ up till a surface critical temperature T_{cs} higher than T_c , where T_c is the bulk critical temperature. The resulting phase diagram agrees with that predicted for interface delocalization or wetting transitions in type-I superconductors, based on the Ginzburg–Landau theory.

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