



# Dimensional crossover in fractal multilayered superconductors

A. Sidorenko, C. Sürgers, T. Trappmann, H. Von Löhneysen

[https://doi.org/10.1016/0921-4534\(94\)92528-3](https://doi.org/10.1016/0921-4534(94)92528-3)

## Abstract

Superconducting properties of multilayers consisting of alternating Nb and Cu layers with a fractal stacking sequence have been investigated. Dimensional crossover is observed in the temperature dependence of the parallel critical magnetic field  $B_{c2||}$  from “fractal behaviour” near  $T_c$  where  $B_{c2||} \sim (1-T/T_c)^f$  with  $0.5 < f < 1$  to twodimensional behaviour  $B_{c2||} \sim (1-T/T_c)^{1/2}$  below a crossover temperature  $T_{cr}$ .  $T_{cr}$  strongly depends on the fractal dimension  $D_f$  of the multilayered superconductor.