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*Scaling laws during the onset and destruction of the intermediate state in a type-I superconductor*

The intermediate state of type-I superconductors is a classical pattern-formation problem in physics, first studied by Landau in 1937. Here we explore the ground state energy from the point of view of rigorous scaling laws. We find precisely five parameter regimes each associated with an optimal construction and scaling law, thereby proving that exactly those five different regimes are traversed with increasing magnetic field.

This is joint work with Sergio Conti (Duisburg–Essen), Bob Kohn (Courant) and Felix Otto (Bonn).