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【183】Stability of the Q-phase of CeCoIn5 in the presents of localized magnetic impurities

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The well-known Q-phase in CeCoIn5 is a rare example of cooperative coexistence of superconducting and magnetic order. For Nd0.05Ce0.95CoIn5, a second magnetic phase is stabilized at zero magnetic field with identical symmetry of Q-phase separated by a quantum critical point [1]. We present studies on 2% and 3.5% Nd-doped CeCoIn5 which interestingly shows that the SDW phase vanishes with increasing magnetic fields before the Q-phase is stabilized. This suggests that the two phases are separated by a disordered magnetic phase for low Nd-doped CeCoIn5, representing for two magnetic instabilities and suggesting different origins of the two phases.

[1] S. Gerber et al, Nature Physics 10, 126 (2014).

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