

Abstract Submitted  
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**Kondo coherence and superconductivity in Yb doped CeCoIn<sub>5</sub>**  
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Dept. Phys. & Astro. U. of California, Irvine — We have studied the effect of Yb  
doping on superconductivity in the unconventional heavy fermion superconductor  
CeCoIn<sub>5</sub> in a doping series spanning from pure CeCoIn<sub>5</sub> to the paramagnetic metal  
YbCoIn<sub>5</sub>, which is isostructural with CeCoIn<sub>5</sub>. By replacing Ce by Yb, we are at  
the same time removing carriers as well as disrupting the Kondo lattice of CeCoIn<sub>5</sub>,  
which is thought to be responsible for superconductivity in this compound. This will  
give us insight into how the Kondo coherence and Cooper pair breaking in CeCoIn<sub>5</sub>  
are affected by Yb substitution. Our doping series shows that the unit cell volume  
stays approximately constant up to a Yb concentration of about 40 %. At higher  
Yb concentrations the unit cell volume begins to shrink gradually to the value of  
YbCoIn<sub>5</sub>. However, superconductivity in the doped system is remarkably resilient  
against Yb substitution: At low doping the superconducting transition temperature  
 $T_c$  is only gradually suppressed from the value of 2.24 K of pure CeCoIn<sub>5</sub>, and only  
with a Yb concentration of 60 %  $T_c$  is suppressed below 0.3 K.

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