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Incommensurate Magnetic Order in Ce(1-x)Yb(x)RhIn(5)STEVEN DISSELER, NIST Center for Neutron Research, S. JANG, B.D. WHITE, University of California, San Diego, YANG ZHAO, JEFF LYNN, NIST Center for Neutron Research, M.B. MAPLE, University of California, San Diego — We present a detailed study of a series of Yb-doped CeRhIn5 single crystals through measurements of the bulk magnetic properties and elastic neutron scattering. We find that all samples up to x = 0.8 undergo a magnetic ordering transition below 4 K, despite observations that the Yb-valence rapidly decreases toward a non-magnetic state at high concentrations. Furthermore, we find that this magnetically ordered state is described by an incommensurate structure similar to the parent compound, and with a propagation wave vector that is weakly dependent on concentration. The authors acknowledge funding source US DOE DE-FG02-04-ER46105.

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