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London penetration depth in $Ce_{1-x}Yb_xCoIn_5$ ($0 \leq x \leq 0.4$) HYUNSOO KIM, MAKARIY A. TANATAR, RUSLAN PROZOROV, The Ames Laboratory, Ames, IA, BENJAMIN D. WHITE, IVY K. LUM, M. BRIAN MAPLE, Department of Physics, University of California, San Diego, CA — The London penetration depth was measured in single crystals of superconducting $Ce_{1-x}Yb_xCoIn_5$ ($0 \leq x \leq 0.4$) by means of a tunnel diode resonator technique operating at 15 MHz in a dilution refrigerator down to 100 mK. Judging from the suppression of the superconducting transition temperature, the superconductivity in $CeCoIn_5$ is relatively robust to Yb - substitution on Ce site unlike the substitution with other rare earth elements. On the other hand, the Yb substitution induces a drastic change of the Fermi surface near $x = 0.2$, from which one may expect a significant change in properties of superconducting pairing upon doping. Possible evolution of superconducting order parameter in $Ce_{1-x}Yb_xCoIn_5$ with increasing x will be discussed based on the results from penetration depth measurements.

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