Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Superconductivity and ferromagnetism in Pd doped Y_9Co_7[1]
TOMASZ KLIMCZUK, JUDYTA STRYCHALSKA, Gdansk University of Technology, JOE THOMPSON, Los Alamos National Laboratory, ROBERT CAVA, Princeton University — The ferromagnetic superconductor Y_9Co_7 was chemically doped with Pd in an attempt to form $Y_9Co_{7-x}Pd_x$ for $0<x<0.4$. The lattice parameter a does not depend on x; whereas, c increases with increasing Pd content up to x = 0.2, which turned out to be the palladium solubility limit. Superconductivity (T_{sc} = 2.4 K) and ferromagnetism (T_C = 4.5 K) were observed only for the parent Y_9Co_7 compound. For the lowest tested Pd doping level (x=0.05), strong enhancement of ferromagnetism is observed (T_C = 9.35 K), but superconductivity is not seen above 1.8K. The Curie temperature rapidly increases from 4.5 K to about 10 K for a Pd concentration x=0.1 and remains almost unchanged for $Y_9Co_{6.8}Pd_{0.2}$.

[1]Project was financially supported by the National Science Centre (Poland) grant (DEC-2012/07/E/ST3/00584).

Tomasz Klimczuk
Gdansk University of Technology

Date submitted: 05 Nov 2015 Electronic form version 1.4