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NMR study of the AF-SC-SC-AF phased transition in a pnictide superconductor $LaFeAsO_{1-x}H_x$[1] NAOKI FUJIWARA, RYOSUKE SAKURAI, Graduate School of Human & Environmental Studies, Kyoto University, Japan, SOUSHI IIMURA, SATORU MATSUISHI, HIDEO HOSONO, Material and Structures Laboratory (MSL), Tokyo Institute of Technology, Japan, YOUICHI YAMAKAWA, HIROSHI KONTANI, Department of Physics, Nagoya University, Japan
— We have performed ^{75}As and ^{1}H NMR measurements in $LaFeAsO_{1x}H_x$, an isomorphic compound of $LaFeAsO_{1x}F_x$. $LaFeAsO_{1x}H_x$ is an electron doped system, and O2- can be replaced with H^- up to x =0.5. $LaFeAsO_{1x}H_x$ is known for having double superconducting (SC) domes on H doping. Recently, we discovered that a new antiferromagnetic (AF) phase follows the double SC domes on further H doping, forming a symmetric AF-SC-SC-AF phase alignment in the electronic phase diagram [1] Unlike the AF ordering in the lightly H-doped regime, the AF ordering in the highly H-doped regime is attributed to the nesting between electron pockets. In the conference, we will show the data of both NMR spectra and the relaxation rate $1/T_1$ in the whole doping region. We will discuss the difference of electronic states between the lightly H-doped AF-SC phases and highly H-doped SC-AF phases.

[1] N. Fujiwara, et al., PRL **111** 097002 (2013)
[2] Y. Yamakawa, et al., PRB **88** 041106 (R) (2013)

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