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Emergence of high mobility hole-like carrier in $\text{Ba}(\text{Fe}_{1-x}\text{Mn}_x\text{As})_2$ ¹

YOICHI TANABE, TAKAHIRO URATA, Department of physics, Graduate school of science, Tohoku University, KHUONG HUYNH, SATOSHI HEGURI, WPI-Advanced Institutes of Materials Research, Tohoku University, HIDETOSHI OGURO, KAZUO WATANABE, High Field Laboratory for Superconducting Materials, Institute for Materials Research, Tohoku University, KATSUMI TANIGAKI, WPI-Advanced Institutes of Materials Research, Tohoku University — An evolution of electronic states through impurity substitutions is one of key issues for understanding the electronic ground state of iron pnictides. In this talk, we will report the emergence of the hole-like carrier with high mobility in $\text{Ba}(\text{Fe}_{1-x}\text{Mn}_x\text{As})_2$. A clear sign change of the Hall resistivity at low magnetic fields indicated that the electron-like high mobility carrier changes to the hole-like one through Mn substitution [1], although the nuclear magnetic resonance revealed that the Mn substitution does not introduce any carrier doping [2]. The evolution of p-type carrier will be discussed based on results of conductive tensor analyses.

[1] T. Urata et al., arxiv1307.2813.

[2] Y. Texier et al., EPL, 99, 17002 (2012).

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