Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Perpendicularly magnetized Mn-based binary films compatible with semiconductor in structure and technique[1] LIJUN ZHU, SHUAIHUA NIE, XUPENG ZHAO, SIWEI MAO, JIAXING XIAO, JUN LU, JIANHUA ZHAO, Institute of Semiconductors, Chinese Academy of Sciences — Ferromagnetic films with both high perpendicular anisotropy and good compatibility with semiconductors have great potential not only in semiconductor spintronic devices, but also in high-density integration of metallic spintronic functional devices like nonvolatile MRAM on semiconductor circuits [1]. Recently, we have grown the high-quality $L1_0$-MnGa and $L1_0$-MnAl films on GaAs by MBE, which show giant perpendicular magnetic anisotropy [2-5]. Moreover, annealing studies revealed the thermal stability of them up to at least 350C, indicating its compatible with current semiconductor industry technique [3]. Here, we will present the orbital two-channel Kondo (2CK) effect observed in ferromagnetic $L1_0$-MnAl and $L1_0$-MnGa, which provide the first evidence for the presence of 2CK effect in a ferromagnet [6-8]. The tunneling magnetic resistivity of $L1_0$-MnGa-based perpendicularly magnetic tunnel junctions will also be mentioned. **References:** [1] *Appl. Phys.* A 111 (2013) 379; [2] *Adv. Mater.* 24 (2012) 4547; [3] *Appl. Phys. Lett.* 102 (2013) 132403; [4] *Appl. Phys. Lett.* 102 (2013) 152405; [5] *Phys. Rev.* B 89 (2014) 220406(R); [6] *Nature Commun.* 7 (2016) 10817; [7] *Phys. Rev.* B 93 (2016) 195112; [8] *Sci. Rep.* 6 (2016) 34549

[1]This work was supported partly by MOST of China (grant no. 2015CB921503) and NSFC (grant no. 61334006)

Jianhua Zhao
Institute of Semiconductors, Chinese Academy of Sciences

Date submitted: 09 Nov 2016 Electronic form version 1.4