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**Landau level crossing and enhanced g-factor of a 2-dimentional hole gas in Ge/SiGe quantum well** RAI MORIYA, IIS, University of Tokyo, YUSUKE HOSHI, ARL, Tokyo City University, YOSHIHISA INOUE, SATORU MASUBUCHI, IIS, University of Tokyo, KENTARO SAWANO, YASUHIRO SHIRAKI, ARL, Tokyo City University, NORITAKA USAMI, IMR, Tohoku University, TOMOKI MACHIDA, IIS, University of Tokyo — Strained Ge has been received much attention due to its small effective mass and large hole mobility. Moreover, two-dimetional hole gas (2DHG) provide additional band-structure effects such as mixing and non-parabolicity, thus makes this system fascinating for studying quantum transport. On the other hand, the detail study on the quantum Hall effect (QHE) on this system is still missing. We measured angular dependence of QHE in the single layer (SL) and bi-layer (BL) 2DHG in the strained Ge/SiGe quantum well (QW). Clear Landau level (LL) crossing and anti-crossing have been observed in BL 2DHG system. We extracted hole g-factor g$\sim$38 almost independent of Landau filling factor. This g-factor is largest among all the reported value for Ge. Interestingly, observed behavior is distinct form SL 2DHG. LL crossing is not observed on SL QW in our measurement, and estimated g-factor for the single layer 2DHG is g$\sim$1, order of magnitude smaller than BL sample. We think this giant enhancement of effective g-factor in BL 2DHG attribute to the interlayer interaction between the two layers. Our finding reveals the possibility of large g-factor modulation by tuning interlayer coupling in bi-layer 2DHG system.

Rai Moriya
IIS, University of Tokyo

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