

External Awards

IEEE VTS Tokyo/Japan Chapter 2023 Student Paper Award

Winner: Ei Tanaka, Tohoku University (Co-authors: Yuichi Kawamoto, Tohoku University; Nei Kato, Tohoku University; Masashi Iwabuchi, NTT Access Network Service Systems Laboratories; Riku Ohmiya, NTT Access Network Service Systems Laboratories; Tomoki Murakami, NTT Access Network Service Systems Laboratories)

Date: June 21, 2023

Organization: Institute of Electrical and Electronics Engineers Vehicular Technology Society (IEEE VTS) Tokyo/Japan Chapter

For “Exploiting Reflection Direction Variation for Phase Control in Multiple Simultaneous IRS Links.”

Published as: E. Tanaka, Y. Kawamoto, N. Kato, M. Iwabuchi, R. Ohmiya, and T. Murakami, “Exploiting Reflection Direction Variation for Phase Control in Multiple Simultaneous IRS Links,” Proc. of 2023 IEEE 97th Vehicular Technology Conference (VTC2023-Spring), Florence, Italy, Mar. 2023.

MVE Award

Winners: Motohiro Makiguchi, NTT Human Informatics Laboratories; Ayaka Sano, NTT Human Informatics Laboratories; Takahiro Matsumoto, NTT Human Informatics Laboratories; Rika Mochizuki, NTT Human Informatics Laboratories; Ryuji Yamamoto, NTT Human Informatics Laboratories

Date: July 13, 2023

Organization: The Institute of Electronics, Information and Communication Engineers (IEICE) Technical Committee on Media Experience Virtual Environment (MVE)

For “Basic Study on Pointing Methods in Mirror-Transcending Aerial imaging.”

Published as: M. Makiguchi, A. Sano, T. Matsumoto, R. Mochizuki, and R. Yamamoto, “Basic Study on Pointing Methods in Mirror-Transcending Aerial imaging,” MVE meeting, MVE2022-118, Mar. 2023.

Papers Published in Technical Journals and Conference Proceedings

Velocity and Confinement of Edge Plasmons in HgTe-based Two-dimensional Topological Insulators

A. Gourmelon, E. Frigerio, H. Kamata, L. Lunczer, A. Denis, P. Morfin, M. Rosticher, J. Berroir, G. Fève, B. Plaçais, H. Buhmann, L. W. Molenkamp, and E. Bocquillon

Physical Review B, Vol. 108, No. 3, 035405, July 2023.

High-frequency transport in the edge states of the quantum spin Hall (QSH) effect has rarely been explored, though it could cast light on the scattering mechanisms taking place therein. Here we report on the measurement of the plasmon velocity in topological HgTe quantum wells both in the QSH and quantum Hall (QH) regimes, using

harmonic GHz excitations and phase-resolved detection. We observe low plasmon velocities in both regimes, with, in particular, large transverse widths in the QH regime despite a sharp edge confinement profile. We ascribe these observations to the prominent influence of charge puddles forming in the vicinity of edge channels. Together with other recent works, it suggests that puddles play an essential role in the edge state physics and probably constitute a main hurdle on the way to clean and robust edge transport.