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Force balance on two-dimensional superconductors with a single moving vortex CHUN KIT CHUNG, The University of Tokyo, EMIKO ARAHATA, Research Institute of Industry, the University of Tokyo, YUSUKE KATO, Department of Basic Science, the University of Tokyo — We study forces on two-dimensional superconductors with a single moving vortex based on a recent fully self-consistent calculation of DC conductivity in an *s*-wave superconductor (E. Arahata and Y. Kato, arXiv:1310.0566). By considering momentum balance of the whole liquid, we attempt to identify various contributions to the total transverse force on the vortex. This provides an estimation of the effective Magnus force based on the quasiclassical theory generalized by Kita [T. Kita, Phys. Rev. B, **64**, 054503 (2001)], which allows for the Hall effect in vortex states.

Chun Kit Chung
Department of Physics, the University of Tokyo

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