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Spin filtering for various geometries of inhomogeneous magnetic field¹ NAMMEE KIM, HEESANG KIM, Department of physics, Soongsil University, JINWOO KIM, Institute for Integrative Basic Sciences, Soongsil University — Based upon a hybrid superconductor/semiconductor structure consisting of two-dimensional electron gas and a surface superconducting mask on top, we investigate the properties of the spin-dependent ballistic transport, theoretically. Landau approach is adopted for the calculation of spin transport properties for various geometries of inhomogeneous magnetic field. In this study, we mainly concentrate on the difference in their efficiency of spin filtering with spin-orbit interaction known as the Rashba effect considered.

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Namme Kim
Department of physics, Soongsil University

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