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Giant magnetoresistance in the junction of two ferromagnets on the surface of diffusive topological insulators KATSUHISA TAGUCHI, Department of Applied Physics, Nagoya University, TAKEHITO YOKOYAMA, Department of Physics, Tokyo Institute of Technology, YUKIO TANAKA, Department of Applied Physics, Nagoya University — We reveal the giant magnetoresistance induced by the spin-polarized current in the ferromagnet (F_1)/topological insulator (TI)/ferromagnet (F_2) junction, where two ferromagnets are deposited on the diffusive surface of the TI. We can increase and reduce the value of the giant magnetoresistance by tuning the spin-polarized current, which is controlled by the magnetization configurations. The property is intuitively understood by the non-equilibrium spin-polarized current, which plays the role of an effective electrochemical potential on the surface of the TI.

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