

Abstract Submitted  
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**Observation of nonreciprocal electric transport in bulk Rashba system** KOSHIKAWA SHOTA, TOSHIYA IDEUE, KEITA HAMAMOTO, MOTOHICO EZAWA, The University of Tokyo, SUNAO SHIMIZU, YOSHIO KANEKO, RIKEN CEMS, YOSHINORI TOKURA, NAOTO NAGAOSA, YOSHIHIRO IWASA, The University of Tokyo, RIKEN CEMS — BiTeBr is a bulk polar semiconductor, in which Rashba-type band structure confirmed by the angle resolved photoemission spectroscopy and quantum oscillations reflecting the split Fermi surface have been reported. However, characteristic transport originating from the spin-polarization of electronic band or polarity of the crystal has been elusive except for the photocurrent experiments. Here, we report the nonreciprocal electric transport, one of the manifestations of spin polarization in Rashba-type band structure. Observed nonreciprocal resistance can be quantitatively explained by the theoretical calculation of nonlinear electric response considering the giant Rashba spin-orbit coupling, offering a simple electrical means to estimate the spin-orbit parameter in noncentrosymmetric systems.

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