

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Renormalization of spin-rotation coupling MAMORU MATSUO, JUN'ICHI IEDA, SADAMICHI MAEKAWA, Japan Atomic Energy Agency — We show the enhancement of the spin-rotation coupling due to the interband mixing[1]. The Bloch wave functions in the presence of mechanical rotation are constructed with the generalized crystal momentum which includes a gauge potential originating from the rotation. Using the Kane model, the renormalized spin-rotation coupling is explicitly derived. As a result of the renormalization, the rotational Doppler shift in electron spin resonance, the mechanical torque on an electron spin, and the spin current generation due to elastic deformation[2] will be strongly enhanced. [1] M. Matsuo, J. Ieda and M. Maekawa, Phys. Rev. B87, 115301 (2013). [2] M. Matsuo, J. Ieda, K. Harii, E. Saitoh and M. Maekawa, Phys. Rev. B87, 180402(R) (2013).

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Date submitted: 14 Nov 2013

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