Abstract Submitted for the NWS07 Meeting of The American Physical Society

Tunneling between 2D electron layers with correlated disorder: anomalous sensitivity to spin-orbit coupling VLADIMIR ZYUZIN, EUGENE MISHCHENKO, MIKHAIL RAIKH, University of Utah — Tunneling between twodimensional electron layers with mutually correlated disorder potentials is studied theoretically. Due to this correlation, the diffusive eigenstates in different layers are almost orthogonal to each other. As a result, a peak in the tunnel I-V characteristics shifts towards small bias, V. If the correlation in disorder potentials is complete, the peak position and width are governed by the spin-orbit coupling in the layers; this coupling lifts the orthogonality of the eigenstates. Possibility to use inter-layer tunneling for experimental determination of weak *intrinsic* spin-orbit splitting of the Fermi surface is discussed.

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Date submitted: 20 Apr 2007

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