

Abstract Submitted  
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**Bell pair creation in current of Kondo-correlated dot**<sup>1</sup> RUI SAKANO, Institute for solid state physics, the university of Tokyo, AKIRA OGURI, YUNORI NISHIKAWA, Department of physics, Osaka city university, EISUKE ABE, Spintronics research center, Keio university — Recently, local-Fermi-liquid properties in non-linear currents and shot noises through the Kondo dot have been investigated both theoretically and experimentally.<sup>2</sup> We suggest a new entangled-electron-pair generator utilizing mechanism of quasiparticle-pair creation which has been observed as enhancement of shot noise in the quantum dot. Using the renormalized perturbation theory for an orbital-degenerate impurity Anderson model and the full counting statistics, we calculate the Clauser-Horne-Shimony-Holt type Bells correlator for currents<sup>3</sup> through correlated two different channels of a Kondo correlated dot. It is shown that residual exchange-interactions of the local-Fermi-liquid create spin-entangled quasiparticle-pairs in nonlinear current and this results in violation of the Bells inequality.

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<sup>2</sup>RS *et al.*, Phys. Rev. Lett. **108**, 266401 (2012); M. Ferrier *et al.*, Nat. Phys., Nature Physics **12**, 230235 (2016).

<sup>3</sup>N. M. Chtchelkatchev *et al.*, Phys. Rev. B **66**, 161320(R) (2002).

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