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Numerical simulations of the 2-dimensional Robin-Hood model GABRIEL CWILICH, PERRY FOX, FREDY ZYPMAN, SERGEY BULDYREV, Yeshiva University, Physics Department — The Robin Hood, or Zaitsev model [1] has been successfully used to model depinning of interfaces, friction, dislocation motion and flux creep, because it is one of the simplest extremal models for self-organized criticallity Until now, its properties have been well understood theoretically in one dimension and its scaling laws numerically verified. It is important to extend the range of validity of these laws into higher dimensions, to find precise values for the scaling exponents, and to investigate how they depend on the details of the model (like anisotropy). The case of two dimensions is of particular importance when studying surface friction [2]. Here, we numerically evaluate high precision scaling exponents for the avalanche size distribution, the avalanche fractal dimension, and the Levy flight-like distribution of the jumps between extremal active sites. [1] S.I. Zaitsev , Physica **A 189**, 411 (1992). [2] S. Buldyrev, J. Ferrante and F. Zypman Phys. Rev E (accepted)

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