1108-37-146 **Hongkun Zhang*** (`hongkunz@gmail.com`), Department of Mathematics, University of Houston, Houston, TX 77004, and **Luke Mohr**. *Superdiffusion constants for certain nonuniformly hyperbolic systems.* Preliminary report.

We investigate deterministic superdiffusion in nonuniformly hyperbolic system models, which following the abnormal central limit theorem. We construct a martingale approximation, following the idea of Doob's decomposition theorem; and we obtain a pronounced formula for the superdiffusion constant, in terms of fine structure that originated in the phase transitions as well as the geometry of the configuration domains of the systems. The main models satisfying our main assumptions including chaotic Lorentz gas, Bunimovich stadia, billiard with cusps and other nonuniformly hyperbolic systems with slow decay rates of correlations of order $O(1/n)$. This is a joint work with Luke Mohr. (Received January 08, 2015)