

Abstract Submitted  
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**Non-ergodic diffusion on quenched, scale-free disorder in two dimensions**<sup>1</sup> GERALD J. LAPEYRE, JR., PIETRO MASSIGNAN, CARLO MANZO, JUAN A. TORRENO-PINA, MARIA F. GARCÍA-PARAJO, MACIEJ LEWENSTEIN, ICFO-The Institute of Photonic Sciences — We discuss our recently introduced models of diffusion on media with random diffusivity [1] and their application to transport in cell membranes [2]. We find that the diffusion shows weak ergodicity breaking, and compute the anomalous exponents as a function of model parameters. We also report recent results on criteria for predicting weak ergodicity breaking in random walks on specific models of quenched, scale-free, random media.

[1] P. Massignan, C. Manzo, J. A. Torreno-Pina, M. F. García-Parajo, M. Lewenstein, G. J. Lapeyre, Jr., *Phys. Rev. Lett.* *112* (2014)

[2] C. Manzo, J.A. Torreno-Pina, P. Massignan, G.J. Lapeyre Jr., M. Lewenstein, M. F. Garcia-Parájo, arXiv:1407.2552

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