LOCALIZATION AND SPECTRAL STATISTICS FOR SCHRÖDINGER OPERATORS WITH RANDOM POINT INTERACTIONS

PETER D. HISLOP

ABSTRACT. We discuss localization and local eigenvalue statistics for Schrödinger operators with random point interactions on R^d, for $d = 1, 2, 3$. The results rely on probabilistic estimates, such as the Wegner and Minami estimate, for the eigenvalues of the Schrödinger operator restricted to cubes. The special structure of the point interactions facilitates the proofs of these eigenvalue correlation estimates. One of the main results is that the local eigenvalue statistics is given by a Poisson point process in the localization regime, one of the first examples of Poisson eigenvalue statistics for multi-dimensional random Schrödinger operators in the continuum. This is joint work with M. Krishna and W. Kirsch.

DEPARTMENT OF MATHEMATICS, UNIVERSITY OF KENTUCKY, LEXINGTON, KENTUCKY 40506-0027, USA

E-mail address: `peter.hislop@uky.edu`