

AN INTRODUCTION TO THE THEORY OF HOMOGENIZATION
FOR FIRST AND SECOND ORDER ELLIPTIC PDE IN RANDOM
ENVIRONMENTS

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I will discuss the recently developed theory of homogenization for first and second order elliptic pde in random environments. I will begin reviewing the classical theory, then I will discuss the main difficulties one faces when going from periodic to random environment and I will present the basic results for Hamilton-Jacobi and fully nonlinear second order equations. I will conclude with some results about rates of convergence.