On the Stochastic Homogenization of Parabolic Equations

Jessica Lin[*1] and Charles Smart[†2]

[1]University of Wisconsin-Madison [Madison] – 480 Lincoln Dr. Madison, WI 53706, United States
[2]Cornell University – 91709 – Cornell University – Ithaca, New York 14853 US, United States

Abstract

We will present an overview of the study of stochastic homogenization of fully nonlinear uniformly parabolic equations in spatio-temporal media. This model includes the stochastic homogenization of linear nondivergence form equations with coefficients varying in space and time. We will discuss the qualitative theory, the associated regularity theory for parabolic equations, and error estimates for this problem. In particular, we obtain quenched error estimates which are algebraic in the rate of decay.

[*]Speaker
[†]Corresponding author: smart@math.cornell.edu