

"Malliavin Calculus for Regularity Structures: the case of gPAM"

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The theory of Regularity Structures allowed to solve a number of ill-posed stochastic partial differential equations. In this presentation, after recalling the main aspects of Hairer's work, we will show how it is possible to introduce Malliavin Calculus tools in this context in order to investigate probabilistic properties of the solutions to such equations. We will focus on one standard example of the theory, namely the generalized Parabolic Anderson Model (gPAM), and prove that its solution, when evaluated at a space-time point, admits a density with respect to the Lebesgue measure.