A CENTRAL LIMIT THEOREM FOR THE KPZ EQUATION

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We show that the KPZ equation driven by non-Gaussian smooth mixing random field converges to the solution to the KPZ equation driven by space-time Gaussian white noise, in the large scale limit (or more precisely, in the weakly asymmetric scaling regime). The reference frame in which one observes the KPZ limit depends explicitly on the higher order moments of the smooth random field. Based on the work [1] by the speaker with M. Hairer.

This work developed general techniques to analyze “non-Gaussian Feynman diagrams” for moment bounds in regularity structures. The techniques also yield central limit theorems for other singular SPDEs. We will also take the opportunity to overview the subsequent developments in moment methods in regularity structures, such as [2][3][4].

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References