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Ivan Corwin*, Columbia University, Mathematics Department, 2990 Broadway, New York, NY 10027. *KPZ fluctuations in exactly solvable models, I.*

Some random growth models admit concise and exact formulas describing expectations of various observables of interest. These models and their solvability spring from certain algebraic structures such as representation theory and quantum integrable systems. By studying these examples, we are able to gain predictions for the universal behaviors of a much wider class of random growth models – the so-called Kardar-Parisi-Zhang (KPZ) universality class.

We will touch on some of the models discussed earlier in the short course and on some new ones, such as directed last-passage percolation, positive temperature directed polymers, the (totally) asymmetric simple exclusion process, the KPZ stochastic partial differential equation, and some others. We sketch a proof of the asymptotic fluctuation scaling and statistics for one of these models and indicate how this generalizes to the broader class. (Received September 21, 2016)