Exact formulas for random growth off a flat interface

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Abstract:
We will describe formulas for the asymmetric simple exclusion process (ASEP) starting from half-flat and flat initial data. The formulas are for the exponential moments of the height function associated with ASEP. They lead to explicit formulas for certain generating functions of the model, which in the flat case can be expressed as a Fredholm Pfaffian. We will explain also how these formulas can be used to provide formal derivations of the conjectured limiting fluctuations, and discuss some related models. This is joint work with Janosch Ortmann and Jeremy Quastel.