

Kardar, Mehran; Parisi, Giorgio; Zhang, Yi-Cheng

Dynamic scaling of growing interfaces. (English) Zbl 1101.82329
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Summary: A model is proposed for the evolution of the profile of a growing interface. The deterministic growth is solved exactly, and exhibits nontrivial relaxation patterns. The stochastic version is studied by dynamic renormalization-group techniques and by mappings to Burgers's equation and to a random directed-polymer problem. The exact dynamic scaling form obtained for a one-dimensional interface is in excellent agreement with previous numerical simulations. Predictions are made for more dimensions.

MSC:

82C28 Dynamic renormalization group methods applied to problems in time-dependent statistical mechanics
82D60 Statistical mechanics of polymers

Cited in **5** Reviews
Cited in **573** Documents

Full Text: [DOI](#)

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