

Abstract Submitted
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Universal scaling function in discrete time asymmetric exclusion processes¹ NICHOLAS CHIA, The Ohio State University, RALF BUNDSCHUH, The Ohio State University — In the universality class of the one dimensional Kardar-Parisi-Zhang surface growth, Derrida and Lebowitz conjectured the universality of not only the scaling exponents, but of an entire scaling function. Since Derrida and Lebowitz' original publication this universality has been verified for a variety of continuous time systems in the KPZ universality class. We study the Derrida-Lebowitz scaling function for multi-particle versions of the discrete time Asymmetric Exclusion Process. We find that in this discrete time system the Derrida-Lebowitz scaling function not only properly characterizes the large system size limit, but even accurately describes surprisingly small systems. These results have immediate applications in searching biological sequence databases.

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