

## DRIVEN DIFFUSIVE SYSTEMS AT HIGH CURRENT

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Macroscopic fluctuation theory has emerged as a powerful tool in the study of interacting particle systems far from thermal equilibrium, in particular on optimal density profiles that realize a large deviation of the particle current. However, one obtains only coarse-grained macroscopic information. We use a microscopic approach to large deviations that allows (a) for the study of space-time correlations in the optimal state, and (b) for the computation of an effective interaction that makes the large deviation typical. We present exact results for the asymmetric simple exclusion process conditioned on a high current. The results shown to agree with predictions from conformal field theory and which are thus expected to be universal. We comment on applications to the optimization of vehicular traffic flow.