results. It is clear that both these symmetries are recovered when taking the continuum limit of any reasonable discretization scheme. And thus, an accurate enough partition must yield suitable results.

The fluctuation–dissipation relation essentially tells us that the nonlinearity is not operative in 1D and for long times. Our analysis indicates that the problem with the fluctuation–dissipation theorem in $1+1$ can be circumvented by improving the numerical accuracy. Or this is at least what would happen if the interface were smooth enough. We are not completely free of surprises coming from the irregular nature of rough interfaces (as we already mentioned we expect a Hölder exponent strictly smaller than $1/2$ for d–dimensional KPZ interfaces). In any case, our simulations have indicated that our strategy of improving the numerical accuracy yields operative results.

Galilean invariance has been always associated with the exactness of the 1D KPZ exponents, and with a relation that connects the critical exponents in higher dimensions. However, it is worth remarking that this interpretation has been recently criticized [24]. Our analysis indicates that if the numerical solution obtained with a finite differences scheme that is not Galilean invariant yields the well known critical exponents, that would strongly suggests that Galilean invariance is not a fundamental symmetry as usually considered. It is worth commenting that the results presented here for different *consistent* discretization schemes show all the same critical exponents as the standard one, Eq. (42).

Here we remark that in the present work we have only emphasized the existing constraints introduced by the local transformation on the discrete versions of the differential equations. No attempt is made here of choosing the most suitable spatial discretization scheme with regard to a given KPZ feature, nor to present a deep analysis of results regarding the violation of Galilean invariance. The study of such aspects, together with the evaluation of the effects of the relations obtained among the discrete operators on different relevant quantities as well as other problems will be the subject of further work.

Acknowledgments

The authors thank R. Cuerno, H. Fogedby, J.M. López and M.A. Rodríguez for fruitful discussions and/or valuable comments, as well as financial support from the Spanish Government: Project CGL2007-64387/CLI from MEC (HSW and JAR), Projects MTM2008-03754