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Numerical Studies of the Edwards-Wilkinson interface equation: the influence of short-range time-correlated noise MIKA SAUKKONEN, TEEMU LAURILA, TAPIO ALA-NISSILA, Helsinki University of Technology, COMP TEAM — We study the properties of the Edwards-Wilkinson equation with finite temporal correlations of duration t_d. Two limiting cases can be calculated analytically, namely, the thermal white noise limit, where $t_d \to 0$, and the purely columnar limit, when $t_d \to \infty$. The surface growth exponents are $\beta = 1/4$ for the thermal white noise case and $\beta = 3/4$ for the columnar noise case. Correspondingly, the rougness exponents are $\chi = 1/2$ and $\chi = 3/2$. We study the crossover scaling of the surface width and the dynamical structure factor between these two limits by introducing a scaling ansatz and numerically verifying it. Furthermore, we present results from a comparison between the time correlated case and the case with quenched noise, which has the same effective correlation length. The scaling behavior in these two cases is similar exept close to the pinning transition for the quenched noise case.

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