Abstract Submitted
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Distinctive Fluctuations of Facet Edges[1] M. DEGAWA[2], T. J. STASEVICH[3], W. G. CULLEN, ALBERTO PIMPINELLI[4], T. L. EINSTEIN, E. D. WILLIAMS, U. of Maryland, College Park — Spurred by theoretical predictions of distinctive static scaling of the step bounding a facet,[5] we extend the results to dynamic scaling, also rederiving the static results heuristically[6] and we measure this behavior using STM line scans.[7] The correlation functions go as $t^{0.15\pm0.03}$ decidedly different from the $t^{0.26\pm0.02}$ behavior for fluctuations of isolated steps. From the exponents, we categorize the universality, confirming the prediction that the non-linear term of the KPZ equation, long known to play a central role in non-equilibrium phenomena, can also arise from the curvature or potential-asymmetry contribution to the step free energy. We study a simple model with Monte Carlo simulations to illustrate the novel scaling of fluctuations in an asymmetric potential.

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