Roughness Exponent Measurements for the Central Force Model

JAN Ø. BAKKE, ALEX HANSEN, Department of Physics, NTNU, Trondheim, Norway — We study the roughness properties of fracture profiles from the two-dimensional central force lattice model for a wide range of disorders. The intrinsic and the extrinsic roughness exponent have been measured together with the step size distribution \( p(\Delta h) \) and the height difference distribution \( p(\Delta h, l) \). We find that the profiles are self-affine for systems with narrow disorders and that broader disorders introduces overhangs in the fracture surface leading to deviation from self-affinity for small length scales and to non-trivial finite size scaling.