

Abstract Submitted
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Grain boundary roughening transitions S.T. CHUI, University of Delaware — We consider the roughening of small angle grain boundaries consisting of arrays of dislocations and found two transitions, corresponding to fluctuations of the dislocations along and perpendicular to the boundaries. The latter contributes to a large scale fluctuation of the orientation of the crystal but the former does not. The transition temperatures of these transitions are very different, with the latter occurring at a much higher temperature. Order of magnitude estimates of these temperatures are consistent with recent experimental results from elasticity and X-ray measurements in solid ^4He .

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