

Abstract Submitted
for the OSS08 Meeting of
The American Physical Society

Ensemble Approach to Vicinal Crystal Surfaces HOWARD L. RICHARDS, Physics, Marshall University; Physics, Texas A & M University-Commerce, RYAN P. JACOB, Physics, Texas A & M University-Commerce — Recent studies of the Step Position Distribution (SPD) have made it clear that there exists a characteristic length L_W (along the y -axis, parallel to the average step direction) at which the variance of the SPD is correctly predicted by the Pairwise Einstein Model. We extend this to the case when neighboring steps have different stiffnesses, in particular to the limiting case in which one set of steps has infinite stiffness. A similar characteristic length along y must be introduced to calculate average properties from an ensemble of Gruber-Mullins models, subject to the constraint that the variance of the Terrace Width Distribution (TWD) is as given by the Pairwise Einstein Model. We discuss the relationship between these length scales for a range of step interactions, using TWDs calculated for the restricted terrace-step-kink model using numerical transfer matrix techniques.

Howard L. Richards
Physics, Marshall University

Date submitted: 03 Mar 2008

Electronic form version 1.4