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Numerical simulations of evolutionary surface morphology including fractal geometry and dynamic composition changes K.A. LINDQUIST, D. CURRELI, D.N. RUZIC, University of Illinois at Urbana Champaign — The TRIM code [Biersack and Haggmark, 1980] is a widely used Monte Carlo algorithm for the computer simulations of the interaction of an energetic beam with a solid material. A number of subsequent improvements have been developed after the release of TRIM. As a part of the SciDAC effort, the present work focuses on merging the TRIDYN code [Moller and Eckstein, 1984] with the Fractal Geometry method [Ruzic and Chiu, 1989]. TRIDYN is a TRIM simulation code including dynamic composition changes. From the merging of this code with the fractal method, a more realistic atomic-scale treatment of surface modifications and plasma-material interactions can be obtained. Numerical tests are oriented toward tungsten and lithium-covered PFCs.

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