

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Fractal-TRIM and TRYDYN simulations of D-Be and Ar-W, and extrapolation to He-W KYLE LINDQUIST, DAVIDE CURRELI, DAVID RUZIC, CPMI, Nuclear, Plasma and Radiological Engineering Department, University of Illinois at Urbana-Champaign, IL 61801 USA — Simulations using the codes TRIDYN and Fractal-TRIM have been done for irradiation of deuterium on beryllium and argon on tungsten, at energies ranging from the sputtering threshold (few tens of eV's) up to hundreds of eV's. The sputtering yield has been calculated for these cases and for different concentrations of gas implanted into the metal target. The simulations have been compared with recent experimental measurements of sputtering yield for similar combinations of projectile/targets. The sputtering yield measured by Doerner [Doerner, Nishijima, Schwarz-Selinger, 2012] of D on Be, 6 times less than a pure beryllium target, is compatible with a deuterated beryllium target at concentrations of Be[60%]D[40%]. Sputtering yields for Ar on W have been compared with Nishijima [Nishijima, Baldwin, Doerner, 2011] experimental results and simulations for smooth surfaces. Efforts have also been made to incorporate rough and fuzzy tungsten surfaces. Similar calculations of helium irradiation on a flat and rough tungsten surface have been done, and preliminarily compared to the Yamamura semi-empirical relations.

Kyle Lindquist
CPMI, Nuclear, Plasma and Radiological Engineering Department,
University of Illinois at Urbana-Champaign, IL 61801 USA

Date submitted: 12 Jul 2013

Electronic form version 1.4