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Sputtering by Carbon Impact at Deuterated Carbon Surfaces¹ PREDRAG S. KRSTIC, CARLOS C. REINHOLD, Oak Ridge National Laboratory, STEVEN J. STUART, Clemson University — We study chemical and physical sputtering by carbon impact at deuterated amorphous carbon and graphite surfaces, surrounded by the divertor deuterium plasma at various temperatures. The energy of C was varied from eV to keV range, while the interacting potentials used in molecular dynamics modeling are bond-order REBO and AIREBO [S. J. Stuart et al, J. Chem. Phys. 112, 6472-6486 (2000)] potentials. The consequences of the obtained large total yields of the sputtered deuterium and carbon, as well as the yields of various hydrocarbons are discussed with respect to the erosion of the carbon surfaces and to the divertor plasma chemistry.

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