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Reactions of atomic oxygen with the D-covered Si(100) surfaces. ARIFUR R. KHAN, FAUZIA KHANOM, FARIDUR RAHMAN, AKIRA TAKEO, HIDETAKA GOTO, AKIRA NAMIKI, AB-1 TEAM — We have studied D abstraction by O on the D/Si(100) surfaces using a continuous as well as a modulated O-beam. Both D_2 and D_2O molecules are desorbed during the O-exposure. The D_2 desorption takes places more efficiently on the saturated dideuteride surface containing dideuterides than on the 1.0 ML monodeuteride surface. The modulated beam experiments exhibit occurrence of both slow and a fast desorptions. The reaction order of D_2 desorption is found to be a second-order on the monodeuteride surface and 3.5-th order on the dideuteride surface. Possible mechanisms for the O-induced desorption from the D/Si(100) surface are discussed.

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