

Abstract Submitted
for the GEC08 Meeting of
The American Physical Society

Surface Control as a Function of Processing Conditions in an FC Plasma Environment CALEB NELSON, SANKET SANT, LAWRENCE OVERZET, MATTHEW GOECKNER, University of Texas at Dallas — Many factors are known to affect surface conditions in a plasma environment, including radical and ion fluxes, ion energy, surface temperatures, and surface materials. However, the complex nature of highly polymerizing plasmas often prohibits the isolation of individual control and variable processing conditions. A novel approach using a combination of the flexible modified GEC reference cell and a simplified surface model founded on the assumption that most surface processes occur at open bond sites yields sticking and etch coefficients of radicals and ions. The modified GEC reference cell allows the option of changing chamber dimension, wall material, and wall temperature. Such control is required to develop an understanding of plasma-wall and subsequent wall-to-wall interactions. Of particular importance is the variable electrode gap and the combination of various feed gas mixtures. This allows radical densities to be controlled almost independently of ions and etching radical densities. The isolation of these parameters permits the partial deconvolution of the film growth rate model and the quantification of sticking and etch yield coefficients.

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Date submitted: 13 Jun 2008

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