Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

Hydrocarbons Global Model Using MATLAB[1] ROBERT L. BATES, LAWRENCE OVERZET, MATTHEW GOECKNER, DAVID URRABAZO JR., University of Texas at Dallas — We are developing a Global Model written in MATLAB which utilizes a built in nonlinear numeric solver (FSOLVE) to estimate the densities of the various (dominant) species and the electron temperature as a function of power. We are comparing our output to the published model results of Kokkoris et al. in c-C4F8 and SF6 for validation [1,2]. The purpose is to allow us to develop a global model of discharge chemistry in hydrocarbon plasmas. As a result, we are also acquiring a rate constant set for Methanol (CH3OH) and Ethanol (C2H5OH) discharges. These models are desired for comparison to both deep silicon etch studies and to studies of misty plasmas (wherein liquid droplets of various solvents are injected into low pressure plasmas). Discussion of the model results for c-C4F8, SF6 and CH3OH will be presented. We expect to compare to FTIR measurements made in the mGEC reactor. We will also include discussion of computational techniques discovered during the development of the model.

[1] G. Kokkoris, et al., 2008, J. Phys D, 42, 055209.
[2] G. Kokkoris, et al., 2008, J. Phys D, 41, 195211.

[1]This material is based upon work supported by the Department of Energy under award number DE-SC0001355.

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Date submitted: 18 Jul 2011 Electronic form version 1.4