Abstract Submitted
for the GEC16 Meeting of
The American Physical Society

A Global PLASIMO Model for H2O Chemistry SAMANEH TADAYON MOUSAVI, PETER KOELMAN, PhD candidate, Eindhoven University of Technology, WOUTER GRAEF, DIANA MIHAILOVA, Plasma Matters B. V., JAN VAN DIJK, Assistant Professor, Eindhoven University of Technology, EPG/ APPLIED PHYSICS/ EINDHOVEN UNIVERSITY OF TECHNOLOGY TEAM, PLASMA MATTERS B.V. TEAM — Global warming is one of the critical contemporary problems for mankind. Transformation of CO_2 into fuels, like CH_4, that are transportable with the current infrastructure seems a promising idea to solve this threatening issue. The final aim of this research is to produce CH_4 by using microwave plasma in CO_2-$_2$O mixture and follow-up catalytic processes. In this contribution we present a global model for H_2O chemistry that is based on the PLASIMO plasma modeling toolkit. The time variation of the electron energy and the species densities are calculated based on the source and loss terms in plasma due to chemical reactions. The short simulation times of such models allow an efficient assessment and chemical reduction of the H_2O chemistry, which is required for full spatially resolved simulations.

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Date submitted: 10 Jun 2016 Electronic form version 1.4