Abstract Submitted
for the GEC09 Meeting of
The American Physical Society

Ar glow discharge – benchmark for state-of-art modeling NICOLAI DYATKO, TRINITI, Troitsk, Russia, IGOR KOCHETOV, Kintech Lab, Moscow, Russia, ANATOLII NAPARTOVICH, TRINITI, Troitsk, Russia, TIMOTHY SOMMERER, GE Research Laboratory, US — Ar glow discharge is well studied and can serve as a reference for modeling of discharges in chemically inert gases. Paper reviews experimental works and summarizes progress in the theoretical investigation of the discharge. Special attention is focused on the new theoretical and experimental data of the elementary processes and sensitivity of the calculated plasma parameters to the uncertainty of the elementary processes and type of the chosen model. It was shown that such effects as gas rarefication and nonuniform distribution of the plasma species affect essentially on the plasma parameters and should be taken into account for correct description of discharge constriction.

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Date submitted: 11 Jun 2009 Electronic form version 1.4