

Abstract Submitted
for the GEC18 Meeting of
The American Physical Society

Comparison of PIC-MCC and fluid simulations for the description of ccrf discharges HANNO KAEHLERT, MICHAEL BONITZ, Kiel University, ITAP, 24098 Kiel, Germany, MARKUS BECKER, DETLEF LOFFHAGEN, Leibniz Institute for Plasma Science and Technology, 17489 Greifswald, Germany — We compare the results of Particle-in-Cell simulations with Monte-Carlo collisions (PIC-MCC) with different fluid models for the description of capacitively coupled radio-frequency (ccrf) discharges. Fluid models have the advantage of being computationally much less expensive than PIC-MCC simulations but are potentially less accurate in their predictions for the discharge physics. Compared to the classical fluid model, a novel fluid description with an improved drift-diffusion approximation for the electrons yields results that are in good agreement with the PIC-MCC data [1]. Here, the applicability range of the fluid models is explored for an extended parameter regime.

[1] M. M. Becker, H. Kählert, A. Sun, M. Bonitz, and D. Loffhagen, PSST **26**, 044001 (2017)

Hanno Kaehlert
Univ Kiel

Date submitted: 18 Jun 2018

Electronic form version 1.4