

Bachelorarbeit

Development of a 0-D fluid description with a lumped circuit model

Lehrstuhl für Theoretische Elektrotechnik

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- **Content:** Process plasmas play major role on modern microchip devices. They differ in many aspects from the noble gases both physically and chemically. In addition to the complex experimental techniques, physical modelling and simulations have to be performed for a basic understanding of such a plasma. At a first step, such a model has to implement a large set of distinct species and chemical rates in accordance with the physical model. This also includes the details of the electron phase space and especially the electron energy distribution function. The lumped circuit description defines the plasma power deposition. The subject of this thesis is to create a simulation code adapting a 0-D modelling approach. The details of the study include algorithms of model implementation and numerical integration techniques in the phase space as well as an implementation of a Boltzmann solver.
- **Objective:**
 - Investigating the composition and phase space of process plasma
 - Constructing a 0-D approach coupled to the lumped circuit model
- **Requirements:**
 - Fundamental knowledge of programming
 - Fundamental knowledge of plasma physics