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A two-dimensional plasma model for a coaxial microwave discharge[1] SARA RAHIMI, MANUEL JIMENEZ-DIAZ, SIMON HÜBNER, EFE H. KEMANECI, JOOST J.J.A VAN DER MULLEN, JAN VAN DIJK, Department of Applied Physics, Eindhoven University of Technology — We present a two-dimensional plasma model for a coaxial microwave discharge. The microwave energy at driving frequency of 2.45 GHz is fed into a coaxial configuration in which the plasma acts as an outer conductor in such a way that a spatially extended surface wave is created. This geometry permits large surface treatment especially if a set of such coaxial lines is used. The 2D model based on the Plasimo toolkit describes the coaxial discharge self consistently. The model for argon as working gas is validated with experimental results for the electron density and temperature obtained by Thomson Scattering. The model is implemented for SiH4/H2 and is used to study the influence of various working conditions.

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