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**Analytical Model for the Microwave Driven Double ICP Plasma Jet**[1] ALI ARSHADI, DENIS EREMIN, THOMAS MUSSENBROCK, RALF PETER BRINKMANN, Theoretical Electrical Engineering, Ruhr University Bochum, D-44780 Bochum, Germany, PETER AWAKOWICZ, General Electrical Engineering and Plasma Technology, Ruhr-University Bochum, D-44780 Bochum, Germany, HORIA-EUGEN PORTEANU, ROLAND GESCHE, Ferdinand-Braun-Institut, Berlin, Germany, KLAUS WANDEL, SENTECH Instruments GmbH, Berlin, Germany — For many technical applications, microwave driven plasma jets are possible alternatives to conventional RF plasma sources. Their construction is uncomplicated and they have the advantages of small size and large electrical efficiency. The microwave driven double ICP plasma jet is a recently developed variant. The core of the device is a cavity resonator with a resonance frequency close to 2 GHz. In good approximation, the resonator can be described as a circuit of two cylindrical one-turn coils parallel to a planar capacitor. Inside the coils are ceramic tubes which contain the plasma. Electromagnetic fields in the bulk and sheath reagion can be computed based on Maxwell's equations and the cold plasma model considering boundary conditions and the electric field due to the source on metalic cavity. A comparison of the simulation results with experimental data is performed.

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