Design and Implementation of an Inductively Coupled Plasma Source and Comparison the simulation Results with the Measurements

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In order to plasma generators and its parameter importance, in this paper firstly an inductively type plasma generators has been defined in COMSOL[6] software, then by changing plasma inputs such as Pressure, Coil Current and Working Frequency, plasma parameters have been simulated. Finally with these results, Total Electron Density Rate for various conditions has been investigated and compared with the made model. In both simulation and measurement results, electron density and output current increased by increasing pressure from 0.4 - 1.6 Torr but after this pressure output current falls. Then optimum pressure of this ICP must choose between 0.4 - 2 Torr for constant coil current and working frequency.