

Langmuir Probe System L2P



Fig. 1: L2P

Plasma parameters of an oxygen microwave discharge obtained by probe diagnostics: II. Radial distributions

June 2007

The work described below was performed using a PlasmaConsult Langmuir probe system L2P.

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Plasma parameters of an oxygen microwave discharge obtained by probe diagnostics: II. Radial distributions

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Abstract

Radial distributions of the parameters in oxygen plasmas generated by the slot antenna (μ SLAN) type microwave

plasma source ($P = 1000$ W at frequency 2.45 GHz) are obtained by the single Langmuir probe technique at a neutral gas pressure of 100 Pa. Results show that the electron temperature and the plasma potential have a weak dependence on the radius, except in the region close to the wall. The electron concentration strongly depends on the microwave electric field strength and it increases with the radius. Radial distributions of the plasma parameters are discussed on the basis of the numerical simulations of the electromagnetic field distribution in the discharge. A new type of filter system for a passive compensation of the effect of the microwave field on the probe characteristics is applied.

Plasma Sources Science and Technology,
Volume 16, Number 3, August 2007, pp. 523-528(6)
DOI: 10.1088/0963-0252/16/3/011
Institute of Physics Publishing

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