

Abstract Submitted
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Measurement of effective electron collision frequency in low pressure RF plasmas by the microwave resonator¹ VIKTOR ZHELTUKHIN², Retired, ILDAR GAFAROV, Scientific-Development Company Renarisorb Ltd, VADIM GALEEV, ANASTASIA GOLYAEVA, ALEXANDER TOVSTOPYAT, M.F.Stelmachs Scientific Institute POLUS — Results of the experimental studying of effective electron collision frequency ν_c with heavy particles in RF plasmas at pressure range from 13.3 up to 332.5 Pa is presented. The plasmas were created in a cylindrical quartz tubes from 20 up to 40 mm by the diameter. The discharge power was varying from 100 up to 1000 W. RF frequency f_{RF} was varying from 1 up to 18 MHz. Diagnostics of the discharge was carried out by microwave resonators in UHF and microwave ranges. The probing signal frequency was varying from 5 to 12 GHz. The wave of *oso* type was excited in a cylindrical resonator. Average collision frequency and electron density n_e in the discharge gap were measured. The collision frequency varies almost linearly in full range of f_{RF} varying. The collision frequency exceeds 10^{10} s^{-1} when $p > 150 - 180 \text{ Pa}$. Electron density n_e is increased depending on voltage by linear law at low-power mode, and is increased approximately by square-law at high current mode.

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