MICROWAVE DISCHARGES AT REDUCED PRESSURES AND PECULIARITIES OF THE PROCESSES IN STRONGLY nonuniform plasma

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Microwave discharges are widely used for generation of non-equilibrium low pressure plasma for different applications. This paper reviews the methods of microwave plasma generation and general properties of microwave plasma (waveguide and cavity, surface and slow wave plasma generators, plasma generators with distributed energy input, initiated microwave discharges, wave beams discharges, ECR discharges). Plasma chemical activity of non-equilibrium microwave discharges is analyzed. Non-uniformity is the inherent property of majority of electrical discharges and microwave discharges are no exception. Reasons of non-uniformity of microwave discharges are analyzed. Peculiarities of physical-chemical processes in strongly non-uniform microwave discharges are demonstrated placing high emphasis on the influence of small gas additions to the main plasma gas. This problem is directly related to the possibility of using actinometry-method.

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