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Theory of Gas Discharge Plasma

This book presents the theory of gas discharge plasmas in a didactical way. It explains the processes in gas discharge plasmas. A gas discharge plasma is an ionized gas which is supported by an external electric field. Therefore its parameters are determined by processes in it. The properties of a gas discharge plasma depend on its gas component, types of external fields, their geometry and regimes of gas discharge. Fundamentals of a gas discharge plasma include elementary, radiative and transport processes which are included in its kinetics influence. They are represented in this book together with the analysis of simple gas discharges. These general principles are applied to stationary gas discharge plasmas of helium and argon. The analysis of such plasmas under certain conditions is theoretically determined by numerical plasma parameters for given regimes and conditions.

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