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**Review**

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The educational-methodical manual is intended for students of higher educational institutions as an instruction for doing nine experimental works containing selected topics on the basic methods of studying the properties of the plasma state of matter. Each text of the work is interpreted in a simple language, which reveals the physical processes and patterns, which, in turn, contributes to deeper understanding of the topic.

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## FOREWORD

The educational-methodical manual "Plasma diagnostics" was developed for students of the Faculty of Physics and Technology with specialties 6B05304 – "Physics" and 6B05307 – "Nuclear Physics".

The works included in the manual have been fully tested and published in the form of scientific articles, approved at various local and international conferences.

The educational-methodical manual was developed in the form of a methodological version for laboratory works, consisting of selected topics on the basic methods for studying the plasma medium. Practical works include the following important topics of plasma research: determining the current and conductivity of a plasma using a Rogowski coil, determining the density and spatial distribution of the energy of a pulsed plasma flow using solid and wire type calorimeters, studying the parameters of a low-temperature plasma by the method of an electric probe (temperature and density of plasma charges, distribution of the velocities and energy of plasma electrons), determination of the distribution of pulsed plasma by time and space with a magnetic probe, study of temperature and plasma density by the method based on the comparison of the spectral line intensity, determination of energy and spatial distribution of charges using Faraday cup.

The main goal of this educational-methodical manual for the Faculty of Physics and Technology students is to help in deepening theoretical knowledge gained in studying gas discharges and plasma physics based on specific experiments.

Each work consists of a brief theoretical introduction, a brief technical description of the instruments and installations, the procedure for performing the work, questions for self-control, and a list of references necessary to obtain additional information.