

**NEW TYPE OF CHARGE-EXCHANGE PARTICLE ANALYZER**

Yu.V. Gott<sup>1</sup>, A.A. Kadyrgulov<sup>1,2</sup>

<sup>1</sup>*NRC «Kurchatov Institute», Moscow, Russia*

<sup>2</sup>*Research Institute «Moscow Power Engineering Institute», Moscow, Russia*

The application of effective methods of charge-exchange neutral particle diagnostics for determination of the plasma ion temperature on modern plasma installations is of great practical interest. In this paper, a new type of analyzer is proposed, in which ionization of charge-exchange particles occurs when they are reflected from a metallic surface. As an ionizer used a set of parallel installed plates of tantalum - an ionizer such as "jalousie"

Experimental results of using the analyzer on the T-10 facility are presented and an estimate of the ion plasma temperature in ohmic plasma heating is performed.

It is shown that the sensitivity of the proposed analyzer increased by almost 10 times in comparison with the analyzer, in which ionization of the charge-exchange particles was carried out on carbon foil 50 Å thick. The replacement in the device of the detector - the secondary electron multiplier on the microchannel plates by the channeltron multiplier allowed to significantly reduce the noise from hard X-rays.