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Compact ECR Ion Source for ${}^3\text{He}_2^+$ Ion Beam Generation

The simulation experiments for investigation of reactor material resistance are ongoing at heavy ion linear accelerator HIPr in Institute for theoretical and experimental physics (ITEP –NRC “Kurchatov institute”). The helium accumulation in reactor materials can be simulated by implantation helium ions in the location of damages generated by the heavy ion beam. The ${}^3\text{He}_2^+$ beam from one hand minimize the voltage required for the helium implantation in the sample area of interest and from other hand can be separated from the molecular hydrogen ions that presents which usually presents into the ion beam. The compact ion source for the helium ion beam production was developed in ITEP –NRC “Kurchatov institute”. The ion source description is presented and discussed as well as the result of successful generation of ${}^3\text{He}_2^+$ ion beam.

E-mail for contact person

kulevoy@itep.ru

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Primary authors: Dr KOZLOV, A. (ITEP –“Kurchatov institute”); Dr ZARUBIN, A. (ITEP –“Kurchatov institute”); Dr SELEZNEV, D. (ITEP –“Kurchatov institute”); PRYANISHNIKOV, K. (ITEP - “Kurchatov institute”); KULEVOY, Timur (ITEP); Dr KUZMICHEV, V. (ITEP –“Kurchatov institute”)

Presenter: KULEVOY, Timur (ITEP)

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