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Improvement of Diagnostics for Measurement of Multi-MeV Ions Produced in Deuterium Gas-Puff Z-Pinch[1] KAREL REZAC, D. KLIR, J. CIKHARDT, P. KUBES, J. KRAVARIK, B. CIKHARDTOVA, V. MUNZAR, FEE CTU in Prague, A.V. SHISHLOV, V.A. KOKSHENEV, R.K. CHERDIZOV, N.A. RATAKHIN, IHCE in Tomsk, K. TUREK, NPI ASCR — The investigation of the deuterium gas-puff z-pinch as a source of high energetic ions (>40 MeV) is still in progress on the GIT-12 generator (600 kV output voltage, 3 MA current level). The previously used ion diagnostics (3-pinhole system, linear multi-pinhole with five pinholes, beam detectors) were improved for a better description of the ion source, and a better understanding of the ion acceleration mechanism. During the recent campaign in 2019, (i) the obstacles between the ion source and diagnostic were placed, (ii) the array of collimators was used together with beam detectors, and (iii) new type of ring beam detector was installed. The ion diagnostics contained stacks with various absorbers, CR-39 track detectors, and several types of radio-chromic films (HD-V2, EBT-3, FWT-60, XR-QA2). The conclusions based on measured results were supported by numerical simulation of the ion trajectories in z-pinch plasma.

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