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Deuterium Gas-Puff Z-Pinch on GIT-12 Generator[1] DANIEL KLIR, JOZEF KRAVARIK, PAVEL KUBES, KAREL REZAC, Czech Technical University in Prague, ALEXANDER SHISHLOV, VLADIMIR KOKSHENEV, NICOLAI RATAKHIN, BORIS KOVALCHUK, ALEKSEY LABETSKY, NIKOLAY KURMAEV, FEDOR FURSOV, HCEI in Tomsk — Deuterium gas-puff experiments have been carried out on the GIT-12 generator at the High Current Electronics Institute in Tomsk. During the initial experiment in May 2011, we used mainly double shell gas puffs with the outer and inner diameter of 100 and 30 mm, respectively. Single shell and shell-on-solid fill gas puffs were, however, also tested. The linear mass density of deuterium varied between 50 and 80 μg/cm. When a plasma-opening-switch (POS) was used, the current reached the peak of above 2.5 MA within 300 ns. The peak neutron yield from D(d,n)^{3}He reactions exceeded 10^{11}. In all shots, the neutron emission started during the stagnation. At the beginning of the neutron production, there was the correlation between the neutron emission and soft X-rays. Nevertheless, the peak of the neutron emission occurred 50 ns after the soft X-ray peak. At this very moment, hard X-rays above 1 MeV were detected. In the case of POS, $>$ 800 keV widths of side-on neutron spectra implied $>$ 200 keV deuterons moving in the radial direction.

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