Phase Transformations of Graphite at Shock-Wave Loading in Steel Targets with Conic Cavities\textsuperscript{1} ANDREY ZHUK, JIHT RAS, ALEXANDER CHARAKHCHYAN, Dorodnicyn Computing Center RAS, VLADIMIR MLYAVSKIY, KONSTANTIN KHISHCHENKO, DMITRIY ZHERNOKLETOV, TATIANA BORODINA, GEORGIY VALIANO, IHED of JIHT RAS — Phase transformations of graphite with various densities and microstructure at shock-wave loading in steel targets with conic cavities were studied. Graphite GMZ ($\rho=1.70$ g/cc), MPG-7 ($\rho=1.91$ g/cc) and MF-307 ($\rho=2.01$ g/cc) were used in the experiments. The recovered specimens were studied by means X-ray phase analysis. The maximal degree of graphite-diamond transformation having a place in the experiments was estimated. Experimental data were compared to results of 2D numerical modeling. The detailed description of the numerical methods is presented in [1]. We have found that with growth of a degree of three-dimensional regularity and a size of crystal grains of graphite, transition onset pressure and speed of phase transformation falls. [1] V.V. Milyavskii, V.E. Fortov, A.A. Frolova, K.V. Khishchenko, A.A. Charakhchyan, L.V. Shurshalov, Comp. Math. & Math. Phys. 46 (2006) 873.

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