ON THE ISSUE OF CHANGING THE DENSITY OF ALUMINUM SHAPED-CHARGE JET

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Abstract: X-ray registration of shaped jets formed by cumulative charges with aluminum cladding has been carried out. The calibration of the registration system using the inverse Abel transformation was performed for both static objects and shaped-charge cladding during the jet formation process. An increase in the density of the shock-compressed matter in the shaped-charge jet relative to the density of the initial material of the liner has been recorded. The features of pulsed X-ray registration have been revealed which make it possible to improve the quality and accuracy of density distribution both in the jet material and in the expanding detonation products.

Keywords: shaped-charge jet; Abel transformation; density of substance in a shaped-charge jet

DOI: 10.30826/CE24170111 **EDN:** XTNHZW

Figure Captions

Figure 1 Image of the liner (*a*) and a graph of the density distribution in the transverse direction (*b*)

Figure 2 Image of a set of Abel wedges

Figure 3 Image of a set of Abel wedges in pseudocolors after the Abel transformation

Figure 4 Image of the shaped-charge jet after the Abel transformation at time instants 17 (*a*) and 19 μs (*b*) from the moment of initiation

Figure 5 Image of the shaped-charge jet after the Abel transformation (*a*) and a graph of the change in grayscale along the length of the jet in the direction from the aft end to the top of the jet (*b*)

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Received January 18, 2024

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