# Proton radiography of explosively driven targets and static objects

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We report experimental results on proton radiography of explosively driven targets and static objects. The experiments were conducted at the proton microscope with use of magnetic optics PUMA [1] equipped with a small blasting chamber. The PUMA microscope was developed for nondestructive investigation of static and dynamic objects with areal density up to 20 g/cm$^2$. Proton beams with energy of 800 MeV were provided by the TWAC-ITEP terawatt accelerator facility. The field of view of the microscope was about 20 mm. A typical beam was composed of three or four bunches with intensity about $10^{10}$ protons per bunch. A set of compact explosive generators [2] for investigation of gas-dynamic processes at high pressures and temperatures was developed to fulfill conditions of proton radiography experiments at PUMA. Experimental results on shock-compressed non-ideal plasma of argon and xenon, detonation of condensed explosives are presented. Results on proton radiography of static objects are discussed also.

[1] A.V. Kantsyrev et al., *Instrum.Exp. Tech.* **2014**, *57*, pp. 1-10.

[2] V.B. Mintsev et al., *Contrib. Plasma Phys.* **2018**, *58*, pp. 93-98.