

Abstract Submitted  
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**Spatially resolved X-ray emission of heavy ion beam interaction with solid matter.** SERGEY PIKUZ JR., OLGA ROSMEJ, ANATOLY FAENOV, VLADIMIR P. EFREMOV, SVITLANA KOROSTIY, ABEL BLAZEVIC, ALEXANDER FERTMAN, IGOR SKOBELEV, HENRY E. NORMAN, DIETER H.H. HOFFMANN — We have been investigated K-shell radiation of projectile ions and solid media during its interaction. The main advantage of the method consists in that the media is transparent for radiation applied for diagnostics, which provides the data acquisition directly from the interaction volume. The projectile and target spectra in the energy range of 1.5–8 keV were registered by means of spherically bend crystal spectrometers (FSSR) with a high spatial resolution along the beam propagation. The Ni, Ca and Mg ions accelerated in GSI UNILAC facility to the energies of 11.4 and 5.9 MeV/u were slowed down in solid quartz, quartz aerogels and aluminum media. Low-density (up to 0.02 g/cc) aerogel targets allowed expanding the interaction volume up to 100 times and, accordingly, to resolve the evolution of ion beam velocity and charge states inside the media. Simultaneously, the wavelengths and relative intensities of  $K_\alpha$  satellite lines radiated by Si and Al target ions with different charges were measured. This has been provided us to investigate the excited media of the heavy ion track on a timescale of radiation transitions lifetimes ( $\sim 20$  fs after excitation). Low beam current of 1 uA allowed us to consider the excitation process as a number of statistically independent acts of single heavy ion energy deposition to the media.

Sergey Pikuz Jr.  
Institute for High Energy Densities RAS, Moscow

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