

Experimental study of aluminium K-line generation using planar multi-wire arrays

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The results of a series of experiments on powering planar aluminum arrays with a current pulse of 2 MA with a rise time of 1.1 mks are given. The number and the diameter of aluminum microwires were varied in the experiments. The height and the width of the array plane were unchanged. A control experiment was carried out with a planar array made of tungsten microwires. X-ray diodes and bolometers with filters made of various materials were used to record parameters of the generated X-ray pulses. Powerful X-ray pulses with quantum energy above 1 keV were recorded in experiments with aluminum microwires (the maximum energy measured by a bolometer behind a lavsan filter is 2 kJ/cm), which indicates the presence of an aluminum K-line in the resulting radiation spectrum.