

The project station “Fast Processes” based on the Siberian Ring Source of Photons

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Within the framework of the Center for Collective Use (CCP) of the Siberian Ring Source of Photons (SKIF), a station “Fast Processes” is created. The experimental station is designed to study high-speed processes in functional materials, as well as the behavior of matter and materials under conditions of powerful pulsed effects of laser radiation, explosion, shock waves, plasma and directional particle fluxes, and in the synthesis of new high-temperature composite materials and catalysts.

The project of the station is aimed at developing methods for using synchrotron radiation (SR) for the study of fast processes (including using energy materials—EM) and obtaining direct experimental data in new materials (EM, catalysts) with various shock-wave effects on them (including powerful EM). The measuring equipment will be optimized for x-ray, spectral and diffraction measurements with high temporal resolution, up to the registration of a signal from each bunch (less than 5 ns).

A distinctive feature of this project is the complexity of the use of different methods for measuring compression parameters.

The structure of the station “Fast Processes” includes the following experimental sections: 1—“Dynamic Processes”; 2—“Plasma”; 3—“Extremely High Temperatures”.