

Development of beam diagnostic systems for applied research stations at VBLHEP JINR

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Within the framework of NICA project an Innovation block based on three applied research stations is being constructed. The first station includes the research and testing of perspective products of semiconductor microcircuits with package for radiation resistance of heavy charged particles such as ions up to the Au with the energy range of 150-500 MeV/nucleon covering LET range 30-60 MeV/(mg/cm²).

The second station is associated with research and modeling of the effects of heavy charged particles on biological objects. The ions up to the Au with energy range of 400-800 MeV/nucleon with an absorbed dose of 1 Gy will be available for experiments.

For irradiation testing of decapsulated microcircuits with energy of ions up to 3.2 MeV/nucleon, accelerated in HILAC, a short-range ion irradiation station is being constructed. The specificity of this station associated with the low energy ions which cannot pass through the microcircuit package; therefore the package is decapsulated before irradiation.

Diagnostic systems of ion beams in the research stations mentioned above are being designed to measure such beam characteristics as ion flux density, intensity, fluence, beam profile.

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