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Features of non-destructive beam instrumentation at the INR RAS high-intensity hydrogen ions linac

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The linac of INR RAS is a high-intensity accelerator of protons and H-minus ions, which is used for a complex of neutron sources, isotope production, proton irradiation and investigations in proton flash therapy. A non-destructive beam instrumentation plays a key role in the linac tuning. The general peculiarity of this multi-component system is that all detectors are home-made devices with a wide operation range and can be used at different ion linacs with a minimum adaptation to beam parameters. Beam current transformers for standard and in-air measurements, resonance and capacitive position and phase monitors, BIF-monitor for 1D and beam cross-section monitor for 2D non-destructive profile diagnostics. Different operation features and manufacturing peculiarities are presented in this paper. Results of implementation, operation and continuous upgrade are described. Also easily scalable typical designs of some detectors are discussed.

Footnotes

Funding Agency

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Yes

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