

# Beam diagnostics developments for the HIE-ISOLDE linac

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A silicon detector monitor has been developed and tested in the frame of the beam diagnostics development program for the HIE-ISOLDE superconducting upgrade of the REX-ISOLDE heavy-ion linac at CERN. The monitor is intended for beam energy and timing measurements as well as for phase scanning of the superconducting cavities. Tests have been performed with a stable ion beam, composed of carbon, oxygen and neon ions accelerated to energies from 300 keV/u to 2.85 MeV/u. The energy measurements performed allowed for beam spectroscopy and ion identification with a resolution of 1.3 % rms. The achieved resolution is suited for cavity phase scanning, which was demonstrated with the REX 7-gap resonator. The time structure of the beam, characterized by a bunch period of 9.87 ns, was measured with a resolution better than 200 ps.

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