

THE ACCULINNA AND ACCULINNA-2 RADIOACTIVE ION BEAM FACILITY AT DUBNA: STATUS AND PERSPECTIVES

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During the last two decades, the ACCULINNA separator at FLNR, JINR was successfully providing radioactive ion beams (RIBs) to study nuclear reactions and properties of light unstable nuclei. Initially, ACCULINNA was aimed to study of light neutron-rich nuclei. Despite of simple construction and a modest size, the facility gains on the high-intensity primary beams of the U-400M cyclotron. RIBs energies of 20–40 AMeV are well situated for direct reaction studies, as well as the low energy reaction experiments and ‘stopped beam experiments’. Recent results at ACCULINNA will be reported.

To extent possibilities for studies with RIBs, a project of new in-flight facility for low energy 35-60 AMeV primary beams with $3 \leq Z \leq 36$ has been started in 2011. The contract to build the complete ACCULINNA-2 (including power supplies) has been signed with SIGMAPHI. In this report we describe the evolution of the project, from functional needs to final working solutions and status of ACCULINNA-2 commissioning. The next steps are installation of a zero-angle spectrometer (2016 year) and RF-kicker (2016-2017 years). Moreover, unique instrumentation as a cryogenic tritium target system and a variety of detector setups, which are actively being developed at FLNR with ACCULINNA collaborators opens a new possibilities for low-energy nuclear-reaction studies. The RIBs program at new facility will be discussed.