

The software development for data processing from the heavy ion beam loss diagnostics system for the DC-280 accelerator

Thursday, 12 November 2020 15:15 (15 minutes)

Abstract

The subject/topic.

The article describes in detail the key parameters and the principle of the heavy ion beam loss diagnostic system operation. The article also provides a detailed description of the software required for collecting, storing and online visualization of data from this system.

Goals/Objectives.

The aim of the work is the development of the software for collecting, storing and online visualization of data for a non-destructive method for diagnosing the loss of a heavy ion beam, based on the registration of neutrons formed as a result of the interaction of an accelerated heavy ion beam with structural materials of the ion duct.

The Results.

The NI LabView development environment was chosen to organize the development of software for the heavy ion beam loss diagnostics system (BLDS) for the base unit of the superheavy elements factory - DC-280. The National Instruments products were used for the implementation of the SDPP software.

Conclusions / Relevance.

Beam diagnostics is one of the most actively developing disciplines at the crossroads of various fields: accelerators, physics, electronics, and programming. Usually the basic instruments are sufficient for the routine operation of the accelerator, but new instruments and methods are needed due to constantly arising problems.

Application.

The software considered in the article can be used in the field of diagnostics of high-intensity beams and the nuclear radiation detectors.

Primary author: Mr TIMOSHENKO, Konstantin

Co-author: Mr ISATOV, Askar

Presenter: Mr TIMOSHENKO, Konstantin

Session Classification: Particle accelerators and nuclear reactors

Track Classification: Particle Accelerators and Nuclear Reactors