

REVIEW OF THE PROJECT

"Creation of test benches for testing individual systems of the MSC230 cyclotron".

For a successful launch of the MSC230 cyclotron, it is important to test some of the accelerator systems, such as the ion source and deflector on a test bench, which will allow to design a source that emits a current sufficient for flash therapy, and minimize the probability of breakdowns on the deflector while ensuring the required electric field strength. Only with a thorough experimental study of the operation of such systems is it possible to create an optimal cyclotron for proton therapy.

I confirm that it is important to have the following test benches in the experimental hall:

1. A test bench of the internal source. Testing of the internal source, deflector.
2. Calibration test bench. Calibration of Hall probes.
3. A test bench for winding coils from high temperature superconducting (HTS) tape.
4. A test bench for winding copper windings.
5. Cryogenic test bench for practicing the cooling method.

The need for a calibration magnet for a strong magnetic field is beyond doubt. The study of the possibilities of using HTS for medical cyclotrons is very promising. An equally important area of the project is related to the development and improvement of the design of medical cyclotrons. The proposed research program for the project "Creation of test benches for testing individual systems of the MSC230 cyclotron" for 2026-2027 is a continuation of the research conducted in 2024-2025 to optimize the cyclotron systems.

Based on all of the above, I recommend continuation of the project "Creation of test benches for testing individual systems of the MSC230 cyclotron" for a period of 2 years with the first priority.

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