

Report on the Project

“Construction of a Complex of Cryogenic moderators at the IBR-2 facility”

A “Cold Moderator” is an essential facility at neutron reactors. This item produces low energy neutrons with long wavelength. The team at Frank Laboratory at JINR proposed some ten years ago a new and unique technical approach for the practical realization. The proposal to build a moderator from mesitylene and m xylene pellets has been patented in 2013, presented in several conferences and published in international journals. Detailed progress reports were given at consecutive PAC-meetings.

Part A

The present document lists the achievements. However recent publications are scarce. The document does present only little details on the state of the project. I therefore consulted the material presented in 2019 to the PAC by A. Vinogradov. Detailed studies are mentioned:

- Development of a new mass flow rate meter
- Studies of additives to reduce viscosity. Naphthalene has been added but no definite conclusion is given “reduces viscosity but complicates the technological process”
- Installation of Cold Moderator CM 201 (beamlines 1,4,5,9) What are the results
- CM-203 suspended. What is the reason? When will the installation start?

Part B

Installation of a new refrigerator was foreseen for 2020. The planning states: “in view of the purchase” Why is the refrigerator still in the budget for 2020?

The budget figures are “copy and paste” from an earlier document, but not updated.

Conclusion

The realization seems still in a testing stage. It does not seem clear whether the new system is reliable. The project is behind schedule.

Recommendation

A detailed progress report is needed with precise documentation of the status: What problems still exist? What plans are foreseen? Precise milestones have to be given for future work.

Due to the importance of the cold source and the lack of experimental progress I state **B**