

INSTRUMENTS CONTROL SOFTWARE AT THE IBR-2 REACTOR: EXPERIENCE AND PROSPECTS

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The Sonix+ package [1] is the main instrument control software at the IBR-2 reactor. It was developed in the beginning of the 1990s for the NSHR texture diffractometer (beamline 6a of IBR-2). Later, the complex was transferred to other instruments, including those located outside FLNP. For all the time, about 20 package installations were performed. When developing the complex, we were guided both by the world trends [2] as well as by the specificity of our laboratory. Many important requirements were formulated by our users, therefore they can be considered as real co-authors of the project.

The modular organization of the software and use of the Python language for describing the experimental script make it relatively easy to adapt it to the specific features of various instruments.

The universal GUI based on the set of PyQt widgets can be used to control the experiment without further refinement. It provides all the necessary functions, including, preparation of a task for the experiment, its launch, monitoring of current values of parameters, and spectrum visualization. In addition, there are some instrument tuning programs and other useful tools.

Besides the instrument control itself, the complex also includes remote measurement supervising subsystem (WebSonix service) and the central repository for measurement results.

The Journal system provides automatic data logging of measurements.

The Microsoft Windows is used as the operating system on control computers.

Long-term experience in the complex operation without significant changes in its structure has proved the correctness of the basic principles underlying it. However, the complex is constantly developing in accordance with new requirements. The presentation is supposed to analyze the experience gained and to outline the main directions of the nearest changes.

[1] A.S.Kirilov et al (2020). Instrument control software at the IBR-2 reactor: features and prospects. *Journal of Surface Investigation*. 14, Suppl. 1, S93–S98.

[2] <https://www.nobugsconference.org/>