

## Center for Collective Use "Structural Diagnostics of Materials"

The **Center for Collective Use (CCU) "Structural Diagnostics of Materials"** was established at the A.V. Shubnikov Institute of Crystallography of the Russian Academy of Sciences (currently the Federal Research Center "Crystallography and Photonics" of the Russian Academy of Sciences) in 2002. Since its foundation, the Center has been equipped with a large number of modern X-ray, electron microscopic, optical and other measuring instruments and installations on which it is possible to conduct research on the structure, composition and properties of a wide range of materials. On more than 25 analytical instruments, the highly qualified employees perform work both for the divisions of the Federal Research Center "Crystallography and Photonics" of the Russian Academy of Sciences, and for third-party organizations. One of the most important aspects of the activities of the CPC is the metrological support of equipment: all devices of the center for collective use undergo periodic verification or calibration. Using the equipment of the CCU, a large number of search operations are carried out within the framework of grants, R&D, state contracts, contracts, works on the topics of budget financing, and the results obtained are published annually in large quantities in highly rated Russian and foreign publications.

The main activity of the CCU is the structural diagnostics of various materials:

- organic and inorganic crystals, including crystal films and multilayer structures;
- composite crystalline materials;
- thin films and multilayer structures, including track membranes, interfaces;
- biologically active substances, biomacromolecules, including proteins and their associates, viruses and their components;
- nanomaterials (nanocomposites, organic and inorganic nanostructures).

Specialisations:

Biomaterials; New functional crystalline materials; Biomedicine; Functional aspects of the formation of crystalline systems and materials; Space materials technology; Nanotechnology and Nanomaterials; Minerology;



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Instrument groups	details
X-Ray Analysis Group	<ul style="list-style-type: none"> <li>• Single crystal X-Ray diffraction;</li> <li>• Powder, protein X-Ray diffraction;</li> <li>• Small angle X-Ray diffraction;</li> </ul>
Microscopy Analysis Group	<ul style="list-style-type: none"> <li>• Scanning;</li> <li>• Dual beam;</li> <li>• Atomic probe;</li> <li>• Transmission;</li> <li>• Cryoelectron microscopy;</li> <li>• Electronography;</li> <li>• Sample preparation equipment;</li> </ul>
Optical and other Methods group	<ul style="list-style-type: none"> <li>• Spectrophotometry and elipsometry, Raman microscopy;</li> <li>• Optical and confocal laser microscopy;</li> <li>• Complex of clean rooms;</li> <li>• Instruments for measuring chemical composition and physical properties of different materials;</li> </ul>