

## Core Facility Center "Arktika"

The CFC "Arktika", research division of the Lomonosov Northern (Arctic) Federal University, is a unique object of research infrastructure in the field of modern analytical chemistry capable to meet the most difficult challenges in analysis of extremely complex objects:

- Ultra-sensitive quantification of target compounds in environmental objects, biological tissues and fluids, raw materials, technological media etc.;
- Identification of unknown compounds and revealing their structure;
- Untargeted screening (known unknown and unknown unknown) of compounds of various classes in complex matrices;
- Development of novel analytical methods for screening, identification and quantification;
- Development of novel methods for extraction and separation of compounds from complex matrices;

The most important feature of the Center is the combination "under one roof" of a number of analytical techniques covering all directions of modern instrumental chemical analysis ( more than 70 instruments available).



### CONTACTS:

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Instruments/Applications:	Brief description :
Elementar Analysis	<ul style="list-style-type: none"> <li>• Atomic absorption and emission spectroscopy;</li> <li>• X-ray fluorescence spectroscopy (energy dispersive, wavelength dispersive, total reflection);</li> <li>• Inductively coupled plasma spectrometry (optical and mass spectrometry detection);</li> <li>• Light element analysis (CHNSO) and sum parameters (TOC, TN, AOX etc.) determination;</li> </ul>
Organic analysis:	<ul style="list-style-type: none"> <li>• High-performance liquid chromatography and gas chromatography;</li> <li>• Mass spectrometry, tandem mass spectrometry, high-resolution and ultrahigh-resolution mass spectrometry, matrix-assisted laser desorption-ionization (MALDI) mass spectrometry;</li> <li>• Pyrolysis gas chromatography – mass spectrometry;</li> </ul>
Extraction and concentration:	<ul style="list-style-type: none"> <li>• Supercritical fluid extraction;</li> <li>• Pressurized liquid extraction</li> </ul>
Structural Analysis:	<ul style="list-style-type: none"> <li>• X-ray diffractometry;</li> <li>• High-resolution NMR spectroscopy;</li> <li>• FTIR and Raman spectroscopy;</li> <li>• Optical fluorescence spectroscopy;</li> </ul>
Materials characterization:	<ul style="list-style-type: none"> <li>• Scanning electron microscopy;</li> <li>• Atomic force microscopy;</li> <li>• Differential scanning calorimetry;</li> <li>• Isothermal calorimetry;</li> <li>• Synchronous thermal analysis;</li> <li>• Antioxidant activity measurement;</li> <li>• Analytical ultracentrifugation;</li> </ul>