

Institute of Analytical Chemistry CAS, v. v. i.

Veveří 97, 602 00 Brno
<http://www.iach.cz>
Phone: +420 532 290 182
Fax: +420 541 212 113
E-mail: uiach@iach.cz



The Institute of Analytical Chemistry is headquartered at Veveří 97, Brno.

Overview

The institute is focused on the development of advanced methods and analytical chemistry instrumentation to detect type and amount of chemicals in solid, liquid and gaseous samples for medical research, clinical analysis, environmental protection, industrial manufacturing, food and pharmaceutical industries. Electromigration, chromatographic, spectroscopic and separation of compressed fluids methods are developed. The latest research trend is system miniaturization and nanotechnology, the research focuses on environmental monitoring, proteomics, genomics and drug analysis. Since 2004, the institute organizes the Central European Capillary Electrophoresis (CECE) international conference every year.

Organizational structure

Department of environmental analytical chemistry
Department of bioanalytical instrumentation
Department of separation by compressed fluids
Department of separation in the liquid phase
Department of electromigration methods
Department of proteomics and glycomics
Department of trace elements and speciation analysis, branch office in Prague

Orientation of research, projects, grants

Basic research is focused on the issues of separation and spectral methods. Spectral methods utilize electric field, sorption, fluid flow and density dependence of its solvating ability, force field or chemical reactions as their driving power. Spectroscopic methods include mass and atomic spectroscopy and optical detection techniques including new chemical marking for increasing the specificity and limit of detection. Instrumentation effort is also aimed at miniaturization of separation and detection devices („laboratory on a chip“) and the use of nanomaterials and nanotechnologies.

The institute is an investigator of research projects supported by Czech grant agencies and European funding. For all projects being implemented we could mention the „Study of transport of inhaled nanoparticles (Pb, Cd) and their localization in the body,“ „Quick decision-making systems for food safety,“ „Development of instrumental methodologies for rapid detection and identification of biological agents in real samples,“ „New methods for the analysis of proteins and their glycosylation in cancer - a combination of electrochemistry, microfluidic biosensors and mass spectrometry“, „Centre for Advanced Biotechnologies“ and also „Protection of book and document collections by application of essential oils“.

International cooperation

International cooperation in research and development is implemented through projects based on international agreements. Staffers lecture abroad at conferences and in scientific institutions, they are members of editorial boards of international journals and non-governmental international research and development organizations. The institute participates in international conferences and it is often visited by top foreign researchers. It provides scientific assessments, consulting and advisory services.

Cooperation with universities and research institutions

The institute participates in teaching and education of graduate and postgraduate students, in cooperation with universities in Brno, Olomouc, Prague and Pardubice. The institute collaborates with other research institutions and enterprises.

Public services

The institute regularly organizes *Open Days* with demonstrations and laboratory excursions for the general public. Within the popularization event called *Science and Technology Week*, the staff gives lectures for the public.



Open Day at the Department of separation with compressed fluids at the subcritical water extraction device designed by the Institute of Analytical Chemistry.