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# Mass Spectrometry – an Essential Tool in Analytical Chemistry

Antrittsvorlesung

Freitag, 17. März 2017, 14:30 Uhr

Carl Auer von Welsbach Hörsaal, Boltzmannngasse 1, 1090 Wien



Gunda  
Köllensperger

# Mass Spectrometry – an Essential Tool in Analytical Chemistry

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Measurements are at the core of modern science with applications ranging from omics-disciplines in life science to the topic of emerging pollutants in environmental science. As a consequence, many fields of research being of high impact for our societies and hence being relevant beyond science are embracing advanced technologies such as mass spectrometry. The lecture will critically discuss how mass spectrometric assays advanced the interdisciplinary application fields of metabolomics and metallomics. Latest developments regarding standardization, non-targeted screening analysis using high resolution electrospray mass spectrometry and spatially resolved measurements by inorganic mass spectrometry aiming at single cell analysis will be covered.

## Gunda Köllensperger

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Since 2014 Gunda Köllensperger holds the Professorship of Environmental Chemistry at the Faculty of Chemistry.

### Main areas of research

**Metallomics:** investigation of metallobiomolecules, metallodrugs or biomolecules containing heteroelements (e.g. sulfur, phosphorous, selenium) in complex biological matrices by inductively coupled plasma mass spectrometry combined to chromatographic separations and laser ablation  
**Metabolomics:** LC-MS based methods for targeted metabolic profiling, non-targeted fingerprinting and flux analysis; development of workflows based on multidimensional chromatographic separations, in vivo synthesis of stable isotopically labeled metabolite standards.

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# Gunda Köllensperger

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## Academic Credentials

- 2003 Habilitation in Analytical Chemistry, BOKU – University of Natural Resources and Life Sciences, (“Inductively Coupled Plasma Mass Spectrometry in Environmental and Life Sciences – Elemental Trace Analysis and Speciation”)
- 1998 Dr. techn., Technical University of Vienna, Institute of Analytical Chemistry; (“Investigation of Small Particles by Scanning Force Microscopy”)
- 1995 Dipl. Ing., Technical University of Vienna, Institute of Analytical Chemistry, (“Matrix-Assisted Laser Desorption and Ionization in Fourier Transform Laser Microprobe Mass Spectrometry with External Source”)

## Previous and Current Positions

- since 2016 Head of the Institute of Analytical Chemistry, University of Vienna
- since 2015 Deputy head of the core facility Mass Spectrometry Center, Faculty of Chemistry, University of Vienna
- since 2015 Vice Chair of the Vienna Metabolomics Center (ViMe), University of Vienna
- since 2014 Univ. Professor (Institute of Analytical Chemistry, Faculty of Chemistry, University of Vienna)
- 2011–2014 Key researcher, head of core facility of metabolomics, Austrian Centre for Industrial biotechnology, ACIB
- 2011 Guest professor for Analytical Chemistry (Humboldt University, Berlin)
- 2003–2014 Associate Professor at Division of Analytical Chemistry, Department of Chemistry, BOKU
- 1998–2003 Assistant Professor at the Department of Chemistry, BOKU

## Awards

- 2017 Prize Lipidome Isotope Labeling of Yeast
- 2016 Fonds der Stadt Wien für innovative interdisziplinäre Krebsforschung Award (Metabolomics in 3D tumor models)
- 2015 Fellingner Krebsforschung Award (together W. Berger)
- 2010 Fritz Feigl Award (Austrian Society of Analytical Chemistry)
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