

**Workshop on**  
***Mass Spectrometry of Large Biomolecules and Nanobioparticles***

**Guenter Allmaier**

Institute of Chemical Technology und Analytics

Vienna University of Technology

Getreidemarkt 9/164, A-1060 Vienna, Austria

An array of mass spectrometric techniques play since the introduction of the first, so-called “soft ionization” techniques (fast atom bombardment, liquid secondary ion mass spectrometry and plasma desorption) in combination with sophisticated analyzer as linear time-of-flight, reflectron or ion mobility devices, a growing role in the characterization of large biopolymers and bionanoparticles, particular due its unsurpassed sensitivity. The determination of the exact molecular mass and size of proteins, polynucleotides and polysaccharides without mass spectrometry is not anymore *state-of-the-art*. Even in case of secondary, tertiary and quaternary structure establishment of various biopolymers this technology array plays an increasing role.

The content of the workshop will be divided into three main sections: I. Electrospray ionization (ESI or ES) as a technique to transfer large biopolymers and bionanoparticles in intact form from the liquid phase into the gas phase at atmospheric pressure, II. Vacuum und intermediate vacuum Matrix-assisted laser desorption ionization (v/i MALDI) as a technique to transfer large biopolymers as well as synthetic polymers and bionanoparticles from the solid phase into the gas phase at different pressure regimes, III. Analyzer for separating ionized species of this type in the gas-phase as linear time-of-flight with ultra high mass detector, reflectron, ion mobility and quadrupole-reflectron analyzer, and IV. In the last part of the workshop successful examples from large glycoproteins (beyond 200 kDa) to PEGylated proteins and noncovalent functional protein complexes to intact viruses and virus like particles will be presented and evaluated in terms of suitability for biopolymer characterization in biotechnology and medicine as well as biology.