**Polymer Characterization**

**Objective**

Characterization of polymers, copolymers and nanoparticles with regard to size, molar mass, molar mass distribution and chemical heterogeneity (e.g. end group distribution, copolymer composition, topology) by two-dimensional coupling of various liquid chromatographic separation techniques respectively coupling of a specific separation technique with spectrometric or spectroscopic methods.

**LC / MALDI-TOF-MS coupling (ESAirD®interface)**

Copolymer composition (PEO-b-PPO) by coupling of LAC /MALDI ESAirD®-Electro/Airspray deposition interface

**Two-dimensional chromatography**

Coupling of interaction chromatography (LAC, LCCC, GELC) (1st dimension; separation regard to end groups) with size exclusion chromatography (2nd dimension; molar mass distribution of fractions)

**MALDI-TOF-MS Imaging**

Analysis of sample spots of MALDI-TOF mass spectrometry Investigation of segregation effects results in higher reproducibility of the method

**Asymmetric Flow Field Flow fractionation (A4F)**

Separation and identification of polymeric and metallic nanoparticles in order to identify them in organic matrices (water, food)

**Diagram**

- Two-dimensional coupling of various liquid chromatographic separation techniques
- Coupling of specific separation techniques with spectrometric or spectroscopic methods
- Analysis of sample spots of MALDI-TOF mass spectrometry
- Investigation of segregation effects results in higher reproducibility of the method
- Separation and identification of polymeric and metallic nanoparticles in organic matrices (water, food)