Preliminary characterization of a newly developed Differential Mobility Analyzer Atmospheric Pressure interface Time Of Flight Mass Spectrometer (DMA-APi-TOF-MS)

Introduction

- Atmosphere pressure sampling
- Resolution: 35,000 Th/Th
- Measuring range: 16 to 20,000 Da
  (reference: H2O: 18 Da, Au55: 10,833 Da)

DMA-MS configuration - Advantages:

1. Measure mass of size (mobility) resolved clusters
2. Identify the composition and structure of mono-mobile clusters
3. Study of fragmentation

Transmission measurement

- Max. transmission: 0.8%
  - Junninen et al, 2010: 0.46%
  - Leiminger et al., 2019: 1%

References:


Objectives:

1. Characterize API-TOF MS
2. Understand initial steps of ion induced nucleation
3. Cluster formation by a number of aerosol generators