

Supplementary Information

Preliminary Investigation of a Water-based Method for Fast Integrating Mobility Spectrometry

Description of water-FIMS movie

The attached MP4 file shows real-time images captured by the CCD camera from the water-FIMS system when sampling mobility-classified sodium chloride aerosol from a differential mobility analyzer (DMA). In this image the ground plane is on the left, and the high voltage on the right. Particles are introduced along the ground plane at the top of the mobility separator. Images are acquired after mobility separation and condensational enlargement. Initially the voltage of the upstream DMA is fixed, delivering mono-mobility particles to the water-FIMS. As the water-FIMS has a uniform voltage across the gap of its parallel plate separator, these mono-mobility particles form a straight line, parallel to the edges of the channel. As the movie proceeds, the voltage on the upstream DMA is increased, delivering larger, less mobile particles to the water-FIMS. The resulting line of particles shifts towards the ground plane, settling into a new position, and once again forming a straight line. The apparent width of the line shrinks because the the resolution is proportional to the particle mobility, which has decreased.



AMI_movie.mp4