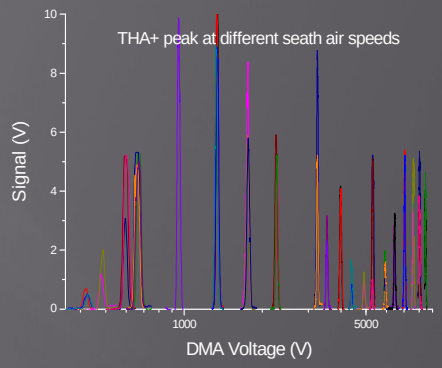
SEADM

Convert an existing mass spectrometer into a powerful hybrid Ion Mobility-Mass Spectrometry instrument

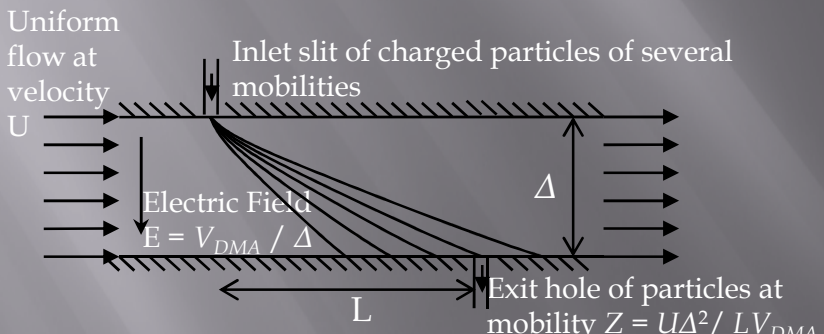
The only IMS readily coupled to an existing API-MS without modifying the MS

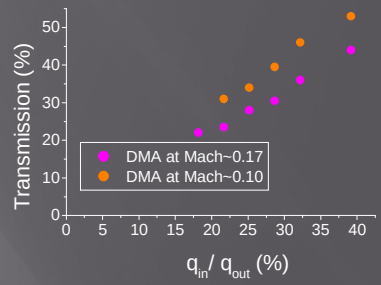
The best ion mobility spectrometer to couple to your MS

Mobility resolution > 50
Transmission > 50 %



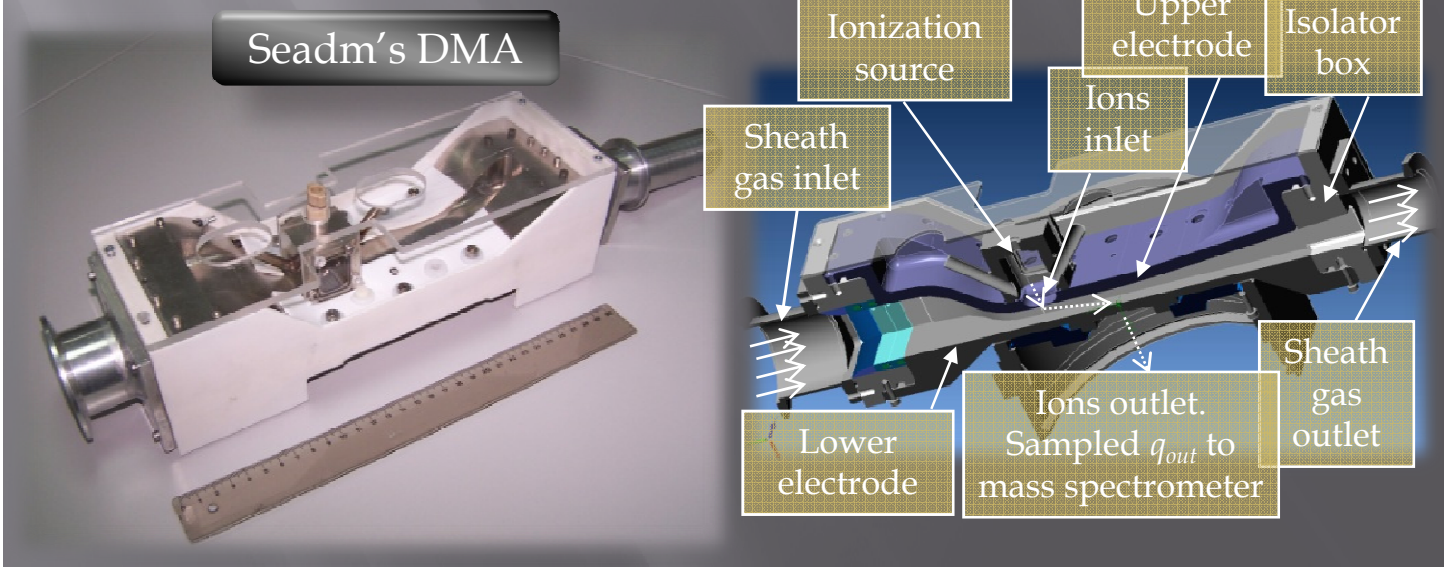
Mobility peak of the monomer (THA^+) of tetraheptylammonium bromide (THABr) at increasing DMA sheath air speeds, with resolutions increasing from 40 to 80 at the highest speeds





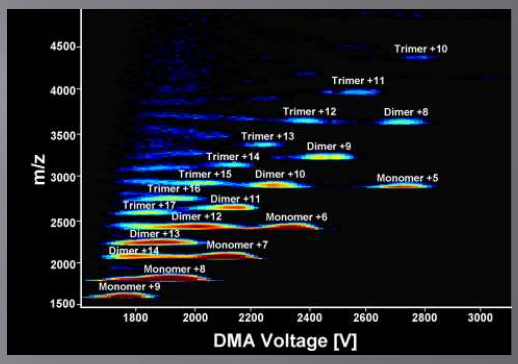
Flows per unit length. 3D effects at the outlet not considered

Seadm's DMA

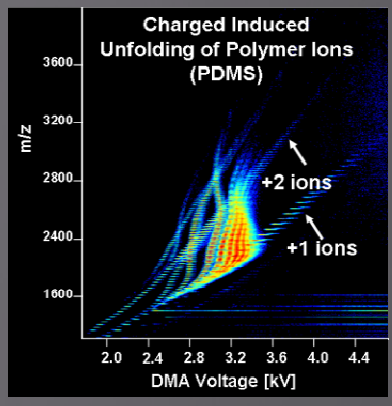


MS systems successfully upgraded with Seadm's IMS capability:

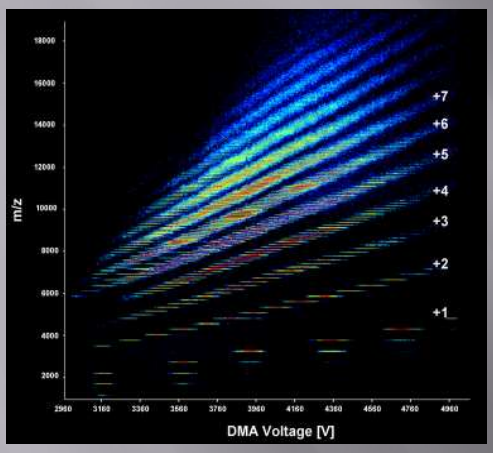
- Sciex API 365
- Sciex API 3000
- Sciex API 5000
- Sciex QStar
- Shimadzu LCMS2010EV



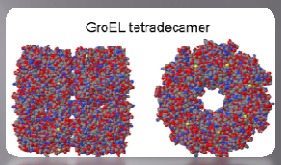
Tandem mass-mobility spectrum of Lysozyme monomer and aggregate ions formed by electrospray ionization under non-denaturing conditions. The DMA shows that these low charge state protein ions are relatively compact



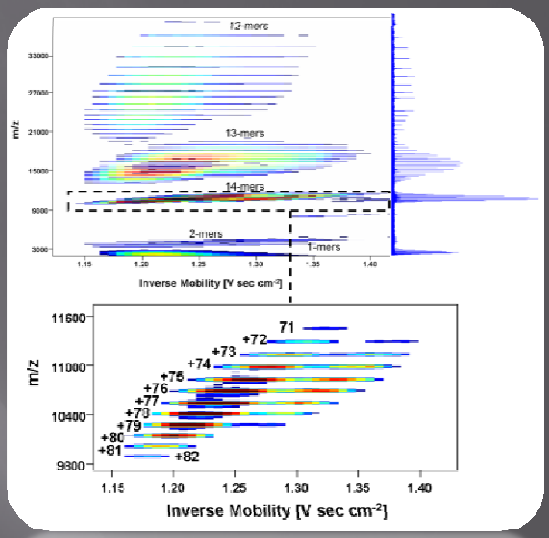
Tandem mass-mobility spectrum of electrosprayed Polydimethyl-siloxane (PDMS) ions where charged induced conformational changes in ion structure are clearly discerned. Courtesy of C. Larriba.



DMA-MS spectrum of spherical ionic liquid (Ethyl-methyl imidazolium$^+$ tris (trifluoromethylsulfonyl) methide$^-$) **nanometer sized clusters.**



DMA-MS spectrum of GroEL tetradecamers (MW~800kDa) with unprecedented resolving power (FWHM 2.6-2.9%) at m/z > 8000. Multiple tetradecamer conformers are observed.



SEADM DMA-MS instruments available at:

- MDS Sciex
- Shimadzu Research Lab. Europe Ltd.
- University of Minnesota
- US Dept. of Energy molecular-sciences lab (through Batelle)
- Yale's facility open to visitors: http://www.eng.yale.edu/DMAMSfacility/

SEADM is a Spanish SME established in 2005 with the aim of developing a new generation of analytical instruments able to detect trace elements at the subfemtogram level, both in the atmosphere or within the body fluids.
For product information & sales contact jj@nanoengineeringcorp.com
Or visit www.seadm.com

SEADM

Selected bibliography:

-Differential mobility analysis of molecular ions and nanometer particles. Fdez. de la Mora; de Juan; Eichler; Rosell. *Trends in An. Chem. 1998, 17, 328-339.*

-A planar DMA coupled to a MS for tandem IMS-MS separation at high transmission, with IMS resolution approaching 100. Juan Rus; Francisco Estévez; Juan Fernández de la Mora. *ASMS07 Session: Ion Mobility – 106.*

-Evaluation of the Analytical Characteristic of a Differential Mobility Analysis coupled to a Triple Quadrupole System (DMA-MSMS). Hassan Javaheri ; Yves Le Blanc; Bruce A. Thomson; Juan Fernández de la Mora; Juan Rus; Juan A. Sillero. *ASMS08, Session: Ion Mobility – 061.*

-Observation of Neutral Molecule (Ion-Pair) Evaporation from Ionic Liquid Nanodroplets by Tandem Differential Mobility Analysis-Mass Spectrometry (DMA-MS). Christopher J. Hogan; Juan Fernandez de la Mora. *ASMS09 Oral Session: Applications of Ion Mobility Spectrometry - 10:10 am.*

-Tandem Ion Mobility-Mass Spectrometry (IMS-MS) Study of Ion Evaporation from Ionic Liquid-Acetonitrile Nanodrops. C. J. Hogan Jr. & J. Fernández de la Mora; *Phys. Chem. Chem. Phys., 2009, 11, 8079-8090.*

-IMS-MS studies based on coupling a DMA to commercial API-MS systems. J. Rus; D. Moro; J.A. Sillero; J. Royuela, A. Casado, J. Fernández de la Mora, *submitted to Int. J. Mass Spectrom. Special IMS-MS edition, J. Scrivens and R. Yost Special Editors, Dec. 2008. Review completed, pending minor changes.*

-Ion Mobility Measurements of Non-Denatured 12-150 kDa Proteins and Protein Multimers by Tandem Differential Mobility Analysis-Mass Spectrometry (DMA-MS). C. J. Hogan Jr. & J. Fernández de la Mora, *to be submitted to J. Am. Soc. Mass Spectr., 2009.*

-True Mobility measurements of the 0.8 MDa GroEL tetradecamer show an anomalously compact gas phase structure. C. J. Hogan, B. Ruotolo, C. Robinson, J. Fernandez de la Mora; *Second draft completed.*