



# Mass Spectrometry Beyond 100 Kilodalton: A New Generation of Mass Spectrometers for a New Generation of Problems



ORNL Aerosol  
Mass Spec Group  
Bust The Dust

- Purpose:
  - In this project, we are developing a mass spectrometer with an essentially infinite mass range—1 to  $10^{14}$  Da—capable of tandem mass spectrometry over the entire range.
  - We have designed an inlet that reduces the expansion induced kinetic energy of the massive ions so that they can be effectively mass analyzed.
  - We have designed a detector that can be coupled to an ion trap or quadrupole mass spectrometer capable of detecting single ions above 100 KDa.
  - We are combining the inlet and the detector with a digital ion trap to produce the proposed mass spectrometer.
  - The first area that we will explore with this device is the identification, characterization and quantitation of viruses in complex media.
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