Developing Advanced Analytical Capabilities Based upon Ion Mobility Separations and More Complex Ion Manipulations in Conjunction with Mass Spectrometry

Dr. Richard D. Smith
Chief Scientist, Biological Sciences Division
Pacific Northwest National Laboratory

New mass spectrometry applications as well as related instrumental platform advances increasingly involve ion manipulations that are conducted between the ion source and m/z analyzer. These manipulations include: ion transport through regions of elevated pressure, trapping, reactions (both ion-molecule and ion-ion), and mobility-based separations. While performing these manipulations can extend measurement capabilities or provide new kinds of information, the practicality of such manipulations becomes increasingly constrained by the cost and inefficiency of conventional instrumental designs and ion optic approaches as their complexity or the number of steps involved increases. To address these challenges we are exploring and developing new approaches for ion manipulations based upon effectively lossless RF confinement achieved in readily fabricated structures. This presentation will describe new Structures for Lossless Ion Manipulations (SLIM) and their potential for overcoming these challenges, the initial progress in their development, and their potential broad utility for facilitating MS analysis capabilities.

Date: Friday, November 21, 2014
Time: 11:00 am to 12:00 pm
Location: Academic Health Center 3, AHC3-205 – MMC (Live)
Marine Sciences Building Room 150 (MSB-150) – BBC (via Polycom)