

Mass Spectrometry Imaging: New Developments and Applications

Chairs: Julia Laskin (Purdue), Lingjun Li (UW-Madison), Jeff Spraggins (Vanderbilt)

Mass spectrometry imaging is a vibrant, rapidly developing area of research that attracts researchers from numerous fields including instrumentation development, drug discovery, biotechnology, clinical research, forensics, and beyond. The annual ASMS meeting hosts 3-4 well-attended sessions and a workshop on imaging. In 2007, there was a Sanibel meeting on this topic and, in 2013, an ASMS workshop in this area. It would be timely to hold an Asilomar conference on mass spectrometry imaging to discuss the progress made over the last decade. This conference will bring together researchers from multiple disciplines to discuss key challenges, innovative developments, and emerging applications in mass spectrometry imaging.

Plenary Speaker: Caprioli or Sweedler

Session 1: New Developments in Instrumentation

Bernhard Spengler (high-resolution AP MALDI), Livia Eberlin (DESI Imaging + ion mobility), Ryan Kelly (proteomics imaging using nano-POTS), Greg Fisher (SIMS-TOF), Zoltan Takats.

Session 2: Single-Cell and Subcellular Imaging

Mary Kraft (applications of TOF-SIMS for subcellular imaging, membrane lipids); Akos Vertes (plant cells), Zhibo Yang (single probe), Peter Nemes, Renato Zenobi, Nick Winograd (C60-SIMS),

Session 3: Hyphenated techniques

Jacob Shelley (laser ablation, laser-induced breakdown), Olga Ovchinnikova or Matthias Lorenz (thermal desorption + chemical ionization), Kermit Murray.

Session 4: Quantitation

Ingela Lanekoff (Uppsala, nano-DESI), Rick Yost (U Florida, MALDI), David Muddiman (North Carolina State, IR-MALDESI), Josephine Bunch (NPL, UK), Jonathan Sweedler (If he doesn't do the plenary).

Session 5: Computational Approaches: Data Processing and Bioinformatics

Olga Vitek, Theodore Alexandrov, Andreas Roempp, Jonathan Stauber (Imabiotech), Raf Van de Plas (TU Delft, multimodal image fusion).

Session 6: Understanding Biological Processes

Pierre Chaurand, Kristin Burnum-Johnson; Per Andren (Neurobiology), Young-Jin Lee (plant biology); Zongwei Cai (Hongkong Baptist University), Eric Skaar (Infectious Disease, Vanderbilt).

Session 7: Biomedical Applications

Ron Heeren (M4I), Natalie Agar (Harvard Med Sch); Kristina Schwamborn (TU Munich); Amanda Hummon (OSU); Richard Drake, Martina Marchetti-Deschmann (MALDI)

Session 8: Imaging in Drug discovery

Sheerin K. Shahidi-Latham (Genetech), Steve Castellino (GSK), Bingming Chen (Merck); Pieter Dorrestein (UCSD), Richard Goodwin (AstraZeneca).