Workshop Report, ASMS Conference, St. Louis, MO

Metal ions in Mass Spectrometry Interest Group

Benjamin J. Bythell and Alexandre Shvartsburg, presiding

Monday, 5:45–7:00 pm

Approach: 7 short presentations (< 8 minutes) highlighting new and interesting data, followed by extensive time for discussions and questions.

Peak attendance 80, estimated total attendance ~80-100

After brief welcoming remarks from Ben, Alex kicked off the workshop portion of the interest group by introducing the first of 2 ASMS board members (due to their need to attend the board meeting too that evening).

Program:

1) Richard O’Hair talked about new data on DNA-bases and metal ion interactions and discussed the motivation and interest in looking at these materials.
2) Matthew Glover (Clemmer Group) talked about "Insights into Metal Binding Sites in Biomolecules by Multidimensional Ion Mobility Spectrometry".
3) Chrys Wesdemiotis (Akron University) talked about the utility of mass spectrometry and ion mobility in the analysis of synthetic polymers and related architectures.
4) Yury I. Kostyukevich (Nikolaev Group) showed data very new data on “super-metalization” of peptides and proteins; in the presence of zinc and high source temperature (450 ºC) multiple reactions occurred that eliminated 2 protons for every Zn^{2+} ion. Multiple metal ions were added without addition of net charge which opens up additional possibilities for collisional and/or electron-based structural characterization.
5) Mary Rodgers (Wayne State University) – discussed “Metal Ion Effects on Glycosidic Bond Stability” using a combination of ion-trap and Guided ion beam MS techniques in conjunction with theory. High correlation between the approaches was shown for simple reactions.
6) Philip Ferko (University of Missouri- St. Louis, Holmes Group with Bythell Group) discussed ESI-MS of Thermochromic and Photoresponsive Cyanometalate Fe/Co Self-Assembled Squares. Experiments looking at breakdown stability and ligand binding were described.
7) Cheng Lin (Boston University) discussed metal-cationized complex carbohydrates and various means of structural characterization (electron- and CID-based). In addition he showed calculations on the various fragmentation processes involved utilized to elucidate the chemistry and aid interpretation.
Finally, after much discussion (~25 minute over-run) we thanked everyone for their participation and solicited nominations for chair-elect for the interest group for 2016. Given the time we decided to do this via the workgroup web list and direct e-mail to Alex. We also solicited recommendations for oral and poster sessions for 2016, and for ideas for the workshop in the same manner.

Initial feedback:

Those audience members polled were very enthusiastic about the workshop contents and variety. A few commented that our initial title was a little misleading as it implied a more applied focus than fundamental. Our mixed approach was popular and several people commented that they wished this had been a full oral session in the conference too.

Sincerely yours,

Ben Bythell (2015-Chair) and Alexandre Shvartsburg (2016-Chair)