XXII INTERNATIONAL MASS SPECTROMETRY CONFERENCE (IMSC 2018-FLORENCE)

The International Mass Spectrometry Conference (IMSC) has been held each two years alternating between Europe, North America and Asia. However, the next IMSC will be celebrated in South America for the first time ever (Rio de Janeiro, Brazil). This year, the 22nd meeting took place in Florence (26th-31st August) under the organization of the International Mass Spectrometry Foundation (IMSF) in collaboration with the Società Chimica Italiana (Divisione di Spettrometria di Massa) and it was chaired by Professor Gianluca Giorgi, from the University of Siena (Italy). It was the IMSC conference with the highest number of attendees (around 1,800 people) and the most participative (1,246 abstracts submitted).

IMSC is generally devoted to highlight the main advances in mass spectrometry and related techniques such as chromatography and ion mobility. The conference was organized in different sessions: life sciences (proteomics, metabolomics, doping and toxicology, etc.), instrumentation and methods (hyphenated techniques, high resolution MS, ion mobility MS, ambient and new ionization methods, etc.), foods and beverages (food additives and contaminants, food integrity, authenticity and traceability, etc.), fundamental mass spectrometry (astrochemistry, ion spectroscopy and dissociation, etc.), and organic and inorganic MS: challenges and applications (environmental MS, nanomaterials, polymers, nose-space analysis, etc).

The conference started with an opening ceremony and an interesting plenary lecture *"At the intersection between chemistry and art: scientific research for the study and preservation of cultural heritage"* by Marco Leona (Metropolitan Museum of Art, NY, USA). The rest of the days, the meeting was always started by a conference on a hot topic. Richard Caprioli (Vanderbilt University, TN, USA) presented a lecture entitled "*Advances in MALDI imaging mass spectrometry: molecular microscopy in the new age of biology and medicine"*, in which he introduced new technological developments and their application in the biological and clinical field. Moreover, the first Thomson medalist, Albert Heck (Utrecht University, Netherlands), also presented the main advances in the modification of Orbitrap-based instruments in order to increase the sensitivity and mass resolution, focusing on bridging the gap between interaction proteomics and structural biology ("*Gaining weight in mass spectrometry: from analysing electrons to intact molecular machineries*"). Daniel Austin (Brigham Young University, UT, USA), who was also awarded with the Curt Brunée medal, presented the oral communication "*Lithographically patterned electrodes for miniaturized ion trap mass spectrometers and other ion optics devices"*, while the second Thomson medalist, John Yates (Scripps Research Institute, CA, USA), gave a talk about "*Driving innovation – from a protein sequence to a proteome*". The last plenary lecture of the conference ("*Mass spectrometry and theoretical chemistry in service of catalysis research: a ménage-à-trois at its best"*) was presented by Helmut Schwarz from the Technische Universität Berlin (Germany).

Everyday, five parallel sessions took place where researchers presented the latest advances on their works in a specific topic. Afterwards, long poster sessions were celebrated where people could exchange ideas and establish collaborations for future works. At the same time, different companies organized lunch symposia where they presented the latest advances on instrumentation.

During the afternoon, it was possible to attend five different parallel sessions and, finally, the committee organized several workshops on very interesting topics. The conference finished with a presentation of the next IMSC 2020 and a farewell Italian cocktail. To sum up, the scientific program included 5 short courses for students, 6 plenary lectures, 45 keynotes, 180 oral communications and more than 1,500 posters. Moreover, during the lunch time and afternoon, it was possible to attend 16 workshops and different events organized by companies.
In this conference, it should be highlighted that Susan D. Richardson (University of South Carolina, USA) presented a very interesting communication entitled "*Emerging contaminants: state of the art and new discoveries"*, where she made an overview of emerging contaminants and the strategies that have been developed in order to detect, quantify or remove these compounds (per- and polyfluoroalkyl substances, pharmaceuticals, illicit drugs, artificial sweeteners, 1,4-Dioxane, algal toxins or flame retardants among others). It was an extraordinary occasion to update the state of the art in environmental chemistry.

As conclusion, the 22nd IMSC has been a very interesting conference where the main advances on mass spectrometry and chromatography have been presented. Furthermore, the social events and the easy relationship between researchers and commercial brands made possible to exchange a great deal of ideas and to set a number of good collaborations for future projects.

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