ABC presents recent trends in (bio)analytical chemistry

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Big data, data mining, machine learning, in-line analytics, smart lab, imaging, artificial intelligence, e-health, and Analytics 4.0 have become keywords in Analytical Chemistry, and have been considered in many research articles in the journal *Analytical and Bioanalytical Chemistry* (ABC) last year. In recent issues of ABC, these concepts have also been dealt with in an editorial [1] and a spotlight [2]. Based on the increased relevance of these new developments in analytics, the Analytical Chemistry Division of the GDCh (German Chemical Society) and ABC will organize four sessions at analytica 2020, covering these concepts (and much more) on March 31 and April 1. Analytica 2020 in Munich (March 31–April 3, 2020) has a multidisciplinary future- and practice-oriented scientific program presented by renowned international scientists and experts in these fields. It offers the perfect platform to bring users, manufacturers, and researchers together to discuss future concepts in measurement techniques, data handling, metadata, and protocols for process and analytics, as well as communications protocols, such as OPC-UA (Open Platform Communications Unified Architecture). Analytica 2020 offers the opportunity to collect and provide information in areas usually presented only at specialized meetings and conferences, in order to tackle analytics issues of the next decade. Five Editors of ABC and representatives of the Analytical Chemistry Division of the GDCh will participate.

In the session “ABC: Model-based Process Design and Control” on Tuesday (March 31; chair: M. Maiwald) lectures on “Next Generation Manufacturing at Biogen—PAT as an Enabler for Enhanced Process Control in Commercial Antibody Manufacture” (O. Steinhof, D. Hill, S. Romero-Torres, G. Talreja, R. Guenard, T. Alosi), “Data fusion strategies

to combine process sensor and NIR-based multivariate model outputs for Multivariate Statistical Process Control” (R. R. de Oliveira, A. de Juan, Barcelona), “NIR spectroscopic model-based process control – from model implementation to model maintenance” (M. Brandstetter et. al), and “Significant Reduction of Out-Spec-Rates in a Large Scale Chemical Process by Advanced Modelling” (M. Abele) will be given. In the session “ABC: Digital Analytical Sciences” on Wednesday morning (April 1; chair: U. Panne), the lectures will be on “Digital Transformation of the Analytics Lab – A Key Factor to Drive Innovation” (J. Richerts), “Spectroscopic applications and data-driven bioprocess analysis—a view into a black box” (D. Solle, M. Biermann, T. Scheper), “Chemometrics or machine learning for the analysis of Raman spectroscopic related data?” (T. Bocklitz), and “Digital Detective Work: Connecting Cheminformatics, Mass Spectrometry and our Environment” (E. Schymanski, E. Bolton). In the next session “ABC: Bioanalytics I—Nanomaterials in Bioanalysis” (Chair: A. Baeumner), topics such as “Engineered nanofiber hybrids as multifunctional 3D interfaces for electrobioanalytical applications” (N. Wongkaew), “Carbon-based nanostructures: an electroanalytical and biomedical perspective” (S. Szunerits), “Janus emulsions as transducers in liquid biosensing platforms” (L. Zeininger), and “Innovative plasmonic nanostructures for vibrational biosensing” (D. Cialla-May, J. Popp) will be presented. The last session, “ABC: Bioanalytics II—Analytics Enabling the Concept of Anywhere Care,” on Wednesday afternoon (April 1; chair: G. Gauglitz) will cover “Analytical challenges of continuous metabolite monitoring — An overview on this new disruptive technology” (P. Lupp), “Mycotoxin mimotopes: exploring alternative immunosensing approaches” (M. Moreno-Bondi), “Point-of-Care Diagnostics in Low-Income Countries: The challenge of affordability” (E. Hall), and “Optical sensing with dipsticks in food and water analysis” (A. Dürkop). In addition, one can meet Luigi Mondello on Tuesday in the session “Chromatography and Mass Spectrometry: Anything new? II” (GDCh; chair: O. Schmitz) with the lecture on “Comprehensive LC coupled to PDA, MS and MS/MS for the analysis of complex samples.”

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The participation of five ABC Editors (A. Baeumner, G. Gauglitz, L. Mondello, M. Moreno-Bondi, and S. Szunerits) as chairpersons or lecturers at analytica 2020 is an excellent opportunity to present ABC as a leading journal in the area of methodological development and application in analytics. This is in line with the aim of the analytica conference series to bring together research scientists from universities, research institutes, and industry to exchange ideas and discuss future trends in analytical chemistry in a variety of fields worldwide. Among the many sessions, ABC has selected process analytics, big data management, bioanalytics, and sensing as topics of special interest, and has organized these four sessions in cooperation with the Analytical Chemistry Division of the GDCh. Many of these topics have been addressed in articles in ABC in the past, and will be covered in upcoming spotlights and topical collections (process analytics, optical biosensing, and direct optical detection). Lectures and discussions will point out urgent needs and activities in analytical chemistry for the next decade—interesting not only for analytica 2020 attendees, but also for those working in the broader fields of analytical and bioanalytical chemistry.

References

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faces, spectroscopic techniques, use of spectral interferometry to monitor changes in the optical thickness of thin layers, and the effects of Fresnel reflectivity at interfaces. He has been an Editor of *Analytical and Bioanalytical Chemistry* since 2002.