



ABC presents bioanalysis and environmental analysis

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Looking at past volumes of *Analytical and Bioanalytical Chemistry* (ABC), one can identify areas of analytics that have come into focus in recent years. Apart from miniaturization, especially microfluidics and the application of these principles in chromatographic applications, improvements in microarrays, multiparametric diagnostics, and imaging using various spectroscopic techniques have been discussed in numerous articles. The interest in bioanalytics has certainly increased in recent years, and accordingly devices using the aforementioned techniques are being applied more and more, especially in the life sciences (“anywhere care” as a new keyword), but also in environmental analysis. The increasing number of safety regulations concerning pollutants in water and food, and trace metal analyses down to nanograms or even lower are in the interest of the public. Recently, microplastics in aquatic ecosystems have come into focus as an increasing problem since they are not biodegradable. Air pollution in urban areas is also a matter of concern, increasing the interest in improving analytics for monitoring air quality through control of engine emissions and wood combustion. Use of Raman imaging during surgery is being tested in selected hospitals to speed up decision-making processes in cancer surgery compared with biopsy.

Accordingly, such topics have been discussed in Trends articles or topical collections in the past few years or will be in the next few years, such as Raman spectroscopy for clinical applications, fiber-based platforms for bioanalytics, mass spectrometry imaging, aerosols and health, microbial biosensors, and analytics in process control. ABC Spotlights have dealt with nanoparticles, paper-based analytics, and effect-oriented analytics. Not only publications but also sessions at congresses demonstrate the advancement of research in these fields. If, for

example, at congresses these presentations are combined with instrumentation demonstrations, the information can be distributed also to people not closely associated with the scientific community. This opportunity will be seized at our session at the next Analytica in Munich (10–13 April 2018), which will provide lectures on these topics and on trends in analytical chemistry. The 3D printing of sub-100- μm cross-section microfluidic devices is a new approach to improve biomarker analysis (Adam Woolley). Microfluidic systems can be integrated in chemical micro laboratories, allowing monitoring and analysis of small-volume samples (Detlev Belder). Microdroplet microfluidics in the case of single-cell analysis will have new applications in personalized medicine and drug discovery (Christoph Merten). Microarrays allow the measurement of very low concentrations by combining bioorganic trace analysis with concentration methods (Michael Seidel). Another topic is new applications on blood cells (Oliver Hayden). Imaging techniques (e.g., using Raman microscopes) provide new information even on tissues that might also be monitored during cancer surgery (Christoph Krafft). New approaches in structuring nitrocellulose strips offer applications in point-of-care and anywhere care diagnostics (Andreas Dietzel). In addition to these life science applications, trends in environmental analytics are of interest with regard to food safety regulations (Philippe Garrigues), trends in trace analysis of metals down to nanograms (Kerstin Leopold), and trends in dealing with currently very urgent problems related to microplastics in rivers, lakes, and oceans caused by a shift from glass to plastic packaging (Christian Laforsch). Finally, air pollution is a major concern all over Europe, especially in big cities. For this reason, the biological activity of emissions and the composition of the emissions of engines and wood combustion must be monitored carefully (Ralf Zimmermann).

Many of these topics will be dealt with not only in lectures but also in ABC in the few next volumes, and are certainly of common interest not only to researchers but also to visitors from industry as well. You are welcome to learn about the upcoming trends in analytical and bioanalytical chemistry!

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