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EDITORIAL

Promising Early-Career (Bio)analytical Researchers

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When was the last time that you were in the lab exploring your own ideas to answer a challenging question? If you are a senior researcher, the answer is likely a vague suggestion that it has been a few years. If you are a new graduate student, your deep-down honest answer is likely to point out that it has not happened yet, since you are busily learning everything from your peers and mentors and your lectures and classes. Yet, if you are an Early-Career Researcher (ECR), your rapid and proud answer is likely that you are doing this right now but are distracted by glancing through this Editorial, eager to read the many interesting articles of this Topical Collection.

You might, however, ask yourself if you still fall into the category of being an ECR. There is no clear definition of an ECR. An ECR is considered generally to be within three years before and after the awarding of their Ph.D. before becoming a fully independent researcher. ECRs are the bread and butter of any good research project and likely the secret sauce to most stunning publications we enjoy reading day in and day out. Today, more than ever, ECRs face many challenges. Next to the requirement of good research work, skills in the promotion of their findings are essential to further their career. To provide ECRs with a voice to talk about their research, to help them move forward and strive toward excellence, this special Topical Collection was initiated. It aims to highlight ECRs' research in analytical and bioanalytical chemistry, i.e., research from exceptional young women and men while earning their Ph.D. and doctorate degrees, or already spreading their wings as postdoctoral researchers. Hence, we asked our fellow senior colleagues across the globe to nominate their brightest for this special collection and received very many wonderful nominations.

The over 50 scientific researchers presented in this Topical Collection cover largely different areas of analytical and bioanalytical chemistry, ranging from biomarker analysis in sweat and serum by optical, electrochemical and electrical means to spatial genomics in human tissue, cryogenic infrared spectroscopy, mass spectrometry based analysis, hyphenation of analytical instruments, novel methodological developments and new materials design and synthesis for improving the analytical performance of chromatography, mass spectrometry and magnetic resonance imaging (MRI), luminescent probes for reactive species and biological ions, biofunctionalization of label-free optical sensors, signal amplification approaches, implementation of rapid biotests, single-molecule detection, inorganic nanoparticles and micromotors applied to biosensing, and so much more.

Now, we hope that their research gets deserved notice and maybe even becomes a relevant tool in furthering their careers. For sure, writing a research paper helps every scientist in defining the focus and direction of their research. We are confident that the peer-review process, with its positive and critical critiques, has not only improved the respective manuscripts submitted but helped the ECRs in best describing the innovative nature of their own research. We all know that doing research is only part of the story – succinctly

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communicating and promoting it is an important part as well.

We expect this Topical Collection will help ECRs to be noticed in this highly competitive scholarly world and will help them to carve out a successful career path for themselves in the years to come. Thanks to the participants all over the world for their excellent contributions and we wish you happy reading!

Antje J. Baeumner is Director of the Institute of Analytical Chemistry, Chemo- and Biosensors at the University of Regensburg. Prior to returning to Germany, she was Professor and Director of Graduate Studies in the Department of Biological and Environmental Engineering at Cornell University in Ithaca, NY, USA. She is Editor of the journal *Analytical and Bioanalytical Chemistry* and President of the International Association of Environmental Analytical Chemistry (IAEAC). Her research is focused on the development of biosensors and micrototal analysis systems for the detection of pathogens and toxins in food, the environment and for clinical diagnostics. Her research includes the development of novel nanomaterials, such as liposomes, nanofibers, and nanoparticles; microfluidic biosensors; sample preparation strategies; and point-of-care devices. She chaired the 2010 GRC Bioanalytical Sensors and will chair the 2022 GRC on Nanoscale Science & Engineering for Agricultural and Food Systems. She has received numerous awards for her research, including being a finalist of the Blavatnik Award, Senior Fellow of the Alexander-von-Humboldt Foundation, Mercator Professor of the German Science Foundation, and numerous teaching awards.

María C. Moreno Bondi has been Professor of Analytical Chemistry at the Complutense University of Madrid (UCM), Spain, since 2008. Her current research interests lie in the development of luminescent optical sensors and biosensors, molecularly imprinted polymers, nanomaterials, phage-display techniques, epitope-mimicking peptides, recombinant antibodies, and their applications to food, clinical, and environmental analysis.

Sabine Szunerits obtained her PhD from Queen Mary and Westfield College, University of London, UK, and since 2010 has been Full Professor of Chemistry at the University of Lille, France. Her research interests are in the area of materials science, with an emphasis on the development of novel nanostructures and approaches for nanomedical applications, as well as sensing-related issues. She is co-author of more than 380 research publications, has written 24 book chapters, and has nine patents. In 2018, she was awarded the Médaille d'argent CNRS for her contribution to sensing and nanomedicine.

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