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150 years of *Analyst* encompassing Raman and SERS development

Karen Faulds,[a] Katsumasa Fujita,[b] Pavel Matousek[c] and Zachary D. Schultz[d]

It has been a tremendous honour and privilege for us to oversee the preparation of this anniversary issue marking a remarkable 150 years of journal history that poignantly also coincides with the 50th anniversary of the discovery of the Surface Enhanced Raman Scattering (SERS). It is humbling to play a part in the celebration of the success and longevity of the journal which was founded in 1876 by the Society for Analytical Chemists, which later amalgamated with the Chemical Society, the Royal Institute of Chemistry, and the Faraday Society to become the Royal Society of Chemistry in 1980. In this era of burgeoning sciences, the journal has existed for more than 50 years longer than the discovery of the Raman phenomenon itself (in 1928) by Sir C.V. Raman FRS.

This collection evidences the tremendous journeys that both Raman spectroscopy, and the more recently discovered technique of SERS, have undergone over the years undergoing transition from niche laboratory techniques to indispensable analytical tools, deeply impacting most disciplines in the natural sciences. As technological advances have facilitated the use of Raman measurements, increased adoption is evident in diverse areas of research. The wide transition of the techniques from laboratory to the real world is in fact one of the strongest underlying themes of this collection. This process is underpinned by advances in the techniques and data processing approaches tailored to addressing real-world problems. Disciplines undergoing this strong transition and reflected in this themed collection include forensic, biomedical and clinical areas (including diagnosis of cancer and Alzheimer's disease, cell biology, ...), cultural heritage, food sciences and materials characterisation. We also note the presence of strong advances in innovative sampling approaches including in imaging, microfluidics and lateral flow assays, spatially offset Raman spectroscopy (SORS), increased use of hybrid methods (*e.g.* Raman-mass spectrometry, SERS-visible absorption spectroscopy, SESORS) and new developments in the application of nonlinear Raman spectroscopy. Innovative methods for sample mounting and control also aid in overcoming the inherent weakness of Raman scattering improving its sensitivity and robustness. This trend is expected to continue, expanding the scope of Raman applications in the future.

Specifically for SERS, we note also a strong trend to become more reproducible and applicable, not only to track and identify chemical species but also increasingly to quantify these targets in an accurate and reproducible manner and within complex matrices.

All these trends are also facilitated by recent advances in data processing methods with increasingly wider use of artificial intelligence (*e.g.* for classification, regression, clustering). These tools are not only indispensable for achieving higher accuracy, sensitivity and robustness, but also for ultimately enabling non-specialists to use these methods in the field, for example at the point of care, with limited knowledge of spectroscopy or sample intervention required.

We wish to thank all the authors who we selected from the cutting edge of the field for their topical contributions and wish you, the Reader, an enlightening and enjoyable read.

[a]*University of Strathclyde, UK*
[b]*Osaka University, Japan*
[c]*Rutherford Appleton Laboratory, UK*
[d]*Ohio State University, USA*