Surface Enhanced Raman Scattering

This collection of SERS papers has been put together to reflect the importance of the technique in modern analytical chemical research. A number of papers featuring SERS over the years have gone into understanding the phenomena and even now there are still debates about the exact mechanism of the surface enhancement depending on the nature of the system being investigated. The technique of SERS is now expanding beyond physical chemists and physicists into the hands of life scientists, engineers, biologists and clinicians in their desire to make use of the benefits of the technique in terms of its sensitivity, ability to measure vibrational signals that are indicative of particular species without separation steps and the opportunity to use highly portable instrumentation with aqueous samples for point of use applications. In terms of publication activity, in 1980 there were 12 papers published on SERS and in 2015 there were over 1700. The number of papers published each year continues to rise and for this specific collection of articles we have an excellent range of topics covered starting with two reviews introducing the use of SERS in haemoproteins and cellular applications of SERS followed by original research papers on topics such as tissue analysis for expression of receptors, pH measurements using SERS nanoparticles and tip enhanced Raman spectroscopy. We also include a personal perspective from Pat Hendra who was involved in the very early work on SERS at Southampton and he describes in a fascinating way the build up to the first published experimental results. He describes the situation at the time and the data that was obtained and the discussions on the nature of this data that followed. We believe this is the first time this account has been published and we are grateful to Pat for providing this personal recollection which was prompted by his support of the Infrared and Raman Discussion Group where he had promised to provide an account to their membership of his experiences and has produced a wonderful account as a start to this themed edition on SERS.