

RSC N.W. Region Analytical Division Christmas Lecture

Made to be measured: The revolutions in analytical science for the real time analysis of the human body

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Analytical science has made an enormous impact on the understanding of the biological and chemical processes within the human body. This has been achieved via the application of a vast range of techniques. However, many of these approaches require off-line analysis, where samples are taken from a subject, transported to a laboratory, prepared and then analysed. A vision for the future would remove the need to take a sample and analysis would be carried out on an individual in real time, to provide an immediate measurement of the level of an analyte or analytes. This presentation will describe some of the most exciting developments in real time measurement of the human body. From cancer diagnosis by mass spectrometry to real time monitoring of key clinical analytes using smart phone based devices, this incredibly exciting science will be described. However, this does raise a final question. Will we be making everybody a home analytical scientist and what could be the implications?

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*Tony Bristow is Associate Principal Scientist in mass spectrometry within Pharmaceutical Development at AstraZeneca in Macclesfield. Tony's major focus is the application and development of mass spectrometry at all stages in the development of pharmaceuticals. However, Tony has recently become involved with the identification, evaluation and development of sensing technologies to support AstraZeneca medicines. Tony was awarded a degree in Applied Chemistry by Sheffield Polytechnic in 1992. He then carried out a PhD on MALDI- ion trap mass spectrometry under the supervision of Professor Colin Creaser at Nottingham Trent University. In 1995 Tony joined Kodak Limited in Harrow, where he worked in both mass spectrometry and separation science. Following a secondment from Kodak to LGC in Teddington, Tony joined LGC in 2002. At LGC he worked on a variety of mass spectrometry based projects, mainly focussed on FT-ICRMS, accurate mass measurement and MS/MS. Tony has published many peer-reviewed articles on his research in mass spectrometry and a number of other analytical techniques (32 peer reviewed journal publications to date). Tony is a regular presenter at both national and international conferences and other events including educational outreach (100s oral presentations and posters). Tony is an Associate Fellow in the Department of Chemistry at the University of Warwick and leads the AstraZeneca collaboration with the University of Warwick EPSRC Centre for Doctoral Training in Molecular Analytical Science. Tony has been an active member of the British Mass Spectrometry Society (BMSS) Committee for many years. He currently holds the post the Immediate Past Chair, having been Chair from 2012-2014. Tony is also a member of the Royal Society of Chemistry Analytical Division Council (from 2014). In 2015 Tony delivered the prestigious 38<sup>th</sup> Dalton Lecture at the invitation of the Royal Society of Chemistry.*



