

## Laudatio of Dr. Jan Kučera

Dr. JAN KUČERA was born in Prague, Czechoslovakia. He obtained his MSc. Degree in 1969 in nuclear chemistry from the Czech Technical University in Prague. He was awarded a Ph.D. degree in 1979 by the same University for a thesis entitled "Minimizing determination limits in neutron activation analysis of biological materials". Jan started his career as an Assistant Lecturer at the Czech Technical University in 1969. He then spent a couple of years at the Geological Survey of the Czechoslovak Uranium Industry. Jan joined the Nuclear Research Institute Řež in 1973. He had been the Head of the Activation Analysis since 1977 at the institute which is now known as the Nuclear Physics Institute of The Academy of Sciences of the Czech Republic.

Dr. KUCERA has made many significant contributions to nuclear analytical chemistry. One of them is the methodology development of NAA, in particular radiochemical NAA. He was one of the first scientists to investigate the advantages of epithermal NAA with cadmium and cadmium-boron filters. Later, he developed a number of radiochemical NAA methods for single elements as well as group separations at trace to ultra-trace concentrations. He developed methods with highest possible radiochemical purity for rather difficult elements such as Si. Jan also developed radiochemical photon activation analysis methods for F, Pb and Tl. He has shown the beneficial features of fast decomposition of biological materials by alkaline-oxidative fusion suitable for radiochemical determination of short-lived radionuclides. He corrected the Au content of the IRMM-530 Al-0.1% Au alloy which is widely used in  $k_0$ -NAA technique. In co-operation with Dr. TONY BYRNE he pointed out the built-in and unique quality control features of NAA.

Jan not only developed methods but also applied them to understand processes such as the influence of sorbents and additives on the emission of elements from fluidized bed combustion. He examined the composition of aerosols in occupational settings. He used PIXE to complement INAA. The NAA control measurements helped Dr. V. HAVRÁNEK in introducing a new concept called the "equivalent layer thickness model for matrix corrections" in PIXE. In occupational health studies of workers, Jan employed NAA for both direct monitoring and biomonitoring through human blood, serum and urine analyses. He used radiochemical NAA method for measuring very low levels of V in blood, serum and urine and helped in critical evaluation of the literature data.

Jan also made significant contributions in the preparation and re-certification of reference materials (RMs). He has been active in chemical metrology. He published one of the very first papers in which special aspects of uncertainty quantification in INAA and RNAA using both relative and  $k_0$ -standardization are discussed in detail.

After working for many years in a non-university environment, Jan has recently begun his pedagogical activities at the Czech Technical University in Prague. At present, he is giving three courses. He continues to supervise B.Sc., M.Sc. and Ph.D. students. In 1979 Jan was awarded an IAEA Fellowship under late Prof. Dr. J. J. M. DE GOEIJ at the Interfaculty Reactor Institute, Delft. He never forgot how important these fellowships are. Now he supervises IAEA Fellows in his laboratory. He served as an IAEA expert to countries such as Algeria, Bangladesh, Ethiopia, Korea, Libya, Montenegro, Russia, Syria, Thailand and Tunisia. Jan is very active in promoting nuclear and radiochemistry around the world. Jan has published over 130 papers in peer-reviewed reputed journals. He gave over 96 invited and contributed papers at international conferences.

Jan is presently the Chair of the International Committee of Nuclear Analytical Methods in the Life Sciences (NAMLS-IC), and a member of the International Committee on Activation Analysis (ICAA) of the Modern Trends in Activation Analysis (MTAA). He is a member of the Editorial and Advisory Board of the Journal of Radioanalytical and Nuclear Chemistry. In addition to the IAEA Fellowship, Jan held fellowships at the J. Stefan Institute, Ljubljana, Slovenia, the IAEA Laboratories in Seibersdorf, Austria, and a NATO fellowship at NIST, Gaithersburg, MD, USA. Jan is a member of several professional organizations including the Ioannes Marcus Marci Spectroscopic Society in the Czech Republic and the Head of its Task Group on Reference Materials and Standards, a member of the Czech Chemical Society, American Society for Testing and Materials – Task Group on Nuclear Methods of Chemical Analysis, and EURACHEM – Czech Republic. Jan received several honours and awards including the Ioannes Marcus Marci Medal for outstanding achievements in the field of nuclear analytical methods, a Silver Medal of the Czech Technical University in Prague for pedagogical activities at the Faculty of Nuclear Science and Physical Engineering, 2002.

In summary, Dr. JAN KUČERA has made outstanding contributions in wide-ranging areas of radioanalytical chemistry over the last 35 years or so, and he will continue to do so for many more years to come.