

Special Symposium, BMD, (co-sponsored by IRD)
Sessions are Invited/Contributed

SA1227115739

Nuclear Analytical Methods for the 21st Century – Innovations in Activation Analysis – A Session in Honor of Dr. Rolf Zeisler

W. Dennis James

Activation analysis, in particular in its most common form, neutron activation analysis, faces competition by other techniques and difficulty in accessibility. However, innovative uses that rely on its unique performance characteristics retain the technique in many applications. The session will present distinctive developments in pre- and post-irradiation chemistry, in small and large sample analysis, as well as in highly specific and sensitive determinations, that point out how the technique will continue to play a role in today's analytical laboratories. The keynote speaker will be Dr. Rolf Zeisler in whose honor the session will be conducted upon the occasion of his retirement.

SA1227115876

Nuclear Analytical Methods for the 21st Century – Upholding Quality Assurance and Metrology

Robert R. Greenberg

The nuclear analytical methods possess unique capabilities to produce highly accurate and reliable analytical results. Over the past 35 years, these methods have made great contributions to the development of reference materials certified for chemical content. The reliability of the nuclear analytical methods has enabled them to serve as referee for many applications. In recent years, instrumental neutron activation analysis and prompt-gamma activation analysis have been used for international comparisons at the highest levels of chemical metrology. This session will focus on recent developments and applications of the nuclear analytical methods involving high-accuracy measurements, development of uncertainty budgets, certification of reference materials, and quality assurance procedures.

SA1227115999

Nuclear Analytical Methods for the 21st Century – Gamma Rays and Neutrons in Physics and Engineering

Richard M. Lindstrom

In addition to well established applications in materials analysis, innovative applications of gamma ray and neutron sources and detectors are being found in new areas. Examples include high-resolution and rapid-scan neutron imaging, and new questions in the basics of radioactive decay.

SA1227116119

Nuclear Analytical Methods for the 21st Century – Role of Neutron Sources from Non-Reactor Facilities

Sheldon Landsberger

In the past several years there have been significant advances in size reduction and increased flux of portable neutron generators. With these advances many more applications of neutron sources are being realized including homeland security, industry and in educational endeavors. The session is being organized to have an up to date assessment of the new areas non-reactor neutron sources are being applied problems in the array of areas in nuclear science and engineering.

SA1227116270

Nuclear Analytical Methods for the 21st Century – Solutions for Nuclear Forensics

Jack S. Brenizer

Detection, identification and quantification of materials of concern during transport or storage are an important aspect of part of the overall security of nations around the world. It is imperative to increase the ability to reliability detect such materials. Both passive and active interrogation methods can be utilized. While a number of existing nuclear methods exist, to be effective in accomplishing this new mission new and improved detectors, analysis systems and data fusion techniques are being developed. This session will bring together presentations that both outline the challenges involved in nuclear forensics and discuss the current efforts to address these challenges.

SA1227115001

Nuclear Analytical Methods for the 21st Century – Panel

Rolf Zeisler

Panelists will review the status and trends for development and use of nuclear analytical methods in the near and distant future. Current and possible future barriers will be discussed and opportunities for innovation and new work will be explored.

Panelists to be arranged, typically 3 to 5 persons, Program Chair's suggestions:

Peter Bode

Greg Downing

Zsolt Revay

David Robertson

Nicholas Spyrou

Elisabete Fernandes

SA1227114387

BMD General Session

Innovations in Medical Physics

Session in Young Professional Congress at ANS Winter Meeting
and Poster Session **SA1227116552**

Sponsored by BMD in cooperation with CMPWG

Session Organizers: L. Raymond Cao (NIST), Wayne D. Newhauser (Univ. of Texas M.D. Anderson Cancer Center)

The session will focus on innovative methods and applications of nuclear-based imaging techniques in research and clinical environments. Expanding imaging techniques from anatomical and functional imaging to molecular imaging is expected to deliver significant contributions to diagnosis, disease staging, and therapy. The session will explore developments in nuclear imaging technologies, molecular imaging, imaging during therapy, as well as the potentials of combining plural imaging modalities. Methods and advances in computational medical physics and informatics are included to add critical evaluation and support for advanced imaging technologies and applications.