

# CALL FOR PAPERS

## Isotopes for Medicine and Industry



Embedded Topical Meeting/2008 ANS Annual Meeting (June 8-12, 2008)

June 9-11, 2008 • Anaheim, CA

### TOPICAL MEETING PURPOSE

The continuing rapid growth of radioisotopes for both medical and industrial applications is of national and international interest. The expanding applications and associated production issues surrounding the supply of research, diagnostic, therapeutic, environmental and industrial radioisotopes will be discussed.

### CONFERENCE CHAIR

Wynn A. Volkert, University of Missouri-Columbia Curators' Professor

### TECHNICAL PROGRAM CHAIR

Ralph A. Butler, MU Research Reactor Center

### SPONSORS

American Nuclear Society Isotope and Radiation Division (IRD) and Biology and Medicine Division (BMD)

### GUIDELINES FOR SUMMARIES

Summaries are expected to contain descriptions of work that is new, significant and relevant to the conference purposes. They will undergo a review for acceptance, with selection criteria for originality of work, relevance of topic, validity of method, clarity and conciseness of communication, and adherence to the scientific method (if appropriate). Compliance with content and length guidelines (following) is also part of the acceptance requirements. Summaries must be submitted electronically to <http://www.ans.org/meetings/epst/>. All submissions must be in English. Accepted summaries will be included in the Transaction CD that will be distributed at the ANS Annual Meeting.

### ELECTRONIC SUBMISSIONS

To submit a summary electronically, please refer to the detailed instructions available on the internet at <http://www.ans.org/meetings/epst/>.

### SUBJECT CATEGORIES FOR SUMMARIES

Applications in Nuclear Medicine—Diagnostics  
Reactor Production of Medical Isotopes  
Isotopes in Environmental, Industrial and Nuclear Power Applications  
Applications in Nuclear Medicine—Therapeutics  
Reactor Production of Research and Industrial Isotopes  
Cyclotron Production of Biomedical Tracers  
Radiochemistry  
High Energy Accelerator/Cyclotron Production of Isotopes  
Distribution and Transportation Issues  
Production and Application of Alpha Emitters  
R&D and Standards Needs for Future Applications in Industry  
Manpower and Education

### INSTRUCTIONS TO AUTHORS

#### FORMAT OF SUMMARY FOR REVIEW

1. Summaries must be submitted electronically in ASCII text, HTML, Word, WordPerfect and/or PDF (Adobe Acrobat) format.
2. Use SI units (with English units following in parentheses if desired). Exceptions are made for eV and barns.
3. List references numerically at the end of the summary.
4. If using the ASCII text or HTML format, please include tables or figures in GIF or JPEG format.
5. Use the "Guidelines for TRANSACTIONS Summary Preparation" and "Template" from <http://www.ans.org/pubs/transactions/>.

#### SUMMARY LENGTH

1. Title Maximum – 10 words
2. Text Minimum – 450 words, excluding figures and tables
3. Text Maximum – 900 words, including figures and tables
4. Figures and Tables – Three figures and/or tables maximum
5. References – excluded from word count

#### CONTENT

1. Clearly state the purpose of the work and the context.
2. Include brief explanation of methods and/or analyses and results, including their significance.
3. References should be closely related published works.
4. Do not include bibliographical listing.

#### DEADLINES—NO EXCEPTIONS

SUBMISSION OF SUMMARIES November 1, 2007-February 8, 2008  
AUTHOR NOTIFICATION OF ACCEPTANCE by February 29, 2008  
REVISED SUMMARIES DUE March 14, 2008

#### AUTHOR'S ORGANIZATIONAL APPROVAL

- All internal reviews and organizational approvals must be completed prior to submittal of the final summary.
- It is the responsibility of the author to protect proprietary information.
- Authors are responsible for page charges and should include purchase order number when submitting summaries electronically.

The ANS Scientific Publications Department may be contacted at the following:

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Scientific Publications Office  
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# ANS 2008 Isotopes for Medicine and Industry Technical Tracks

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## **1. Applications in Nuclear Medicine—Diagnostics**

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Discussions will include advances in the design and utilization of new PET and SPECT radiolabeled compounds for molecular imaging studies in animal models and humans, strategies for developing site-specific *in vivo* targeting radiotracers, and applications of molecular imaging radiopharmaceuticals for non-invasive assessment, monitoring and characterization of diseases and disease processes in patients.

## **2. Reactor Production of Medical Isotopes**

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Topics to be discussed are target development, irradiation strategies, production yields, impurity levels, product separations, neutronics, thermal hydraulics, and computational methods.

## **3. Isotopes in Environmental, Industrial and Nuclear Power Applications**

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This session will include radionuclide interaction processes that control transport in the environment, new developments of separation strategies and techniques for nuclear waste minimization, transmutation, and spent fuel reprocessing related to the Advanced Fuel Cycle Initiative (AFCI) and the Global Nuclear Energy Program (GNEP).

## **4. Applications in Nuclear Medicine—Therapeutics**

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Recent progress in the development and evaluation of radiotherapeutic applications will be discussed, including radionuclide selection, labeling chemistry, target selection, choice of targeting vector, and dosimetry.

## **5. Reactor Production of Research and Industrial Isotopes**

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Reactor based isotopes have long played a significant role in research for the health care and commercial industries. As the health care industry moves to earlier detection and treatment of disease and commercial entities expand their uses of radioisotopes, the requirement for new isotopes and production methodologies is ever increasing. This session will review novel techniques in the reactor production of isotopes.

## **6. Cyclotron Production of Biomedical Tracers**

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This session will cover recent developments and methodology for accelerator production of radionuclides for Positron Emission Tomography (PET) imaging and experimental therapy. The unique chemical and engineering challenges of short-lived radionuclide quality for human versus animal research will be explored. The implications of microchemistry with respect to accelerator production will be discussed.

## **7. Radiochemistry**

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Radiochemical methods play a critical role in the production, use, and monitoring of radioisotopes. Advances in the development and application of radiochemical methods will be discussed.

## **8. High Energy Accelerator/Cyclotron Production of Isotopes**

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Program comparisons, target design challenges at high energy and intensity, target chemistry challenges at high energy, new isotope developments, economics and availability, and living with the physicists will be discussed.

## **9. Distribution and Transportation Issues**

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Byproduct Material Transportation Programs and Issues: This session will focus on denial and delay of shipment, effective and compliant transportation security plans, training of personnel, management controls, emerging issues surrounding the shipment of radioactive materials, and elements of an effective type A and type B shipping program.

## **10. Production and Application of Alpha Emitters**

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Development of Radiological Standards: This session will cover radioisotope production, accelerator-produced isotopes, reactor-produced isotopes, radiochemical separations, generator systems, medical applications, industrial applications, target materials, enriched stable isotopes, production optimization, recycling nuclear resources, and meeting critical national needs.

## **11. R&D and Standards Needs for Future Applications in Industry**

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New societal needs include nuclear security, nuclear reactor decommissioning, quantitative occupational and medical radionuclide imaging. Underlying the successful development of new radio-technologies is the development of new standards and metrology basis for measurement quantification and validation, and information comparison over time and changes in the subject.

## **12. Manpower and Education**

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Radiochemistry and nuclear science manpower needs have been well documented by various National Academy of Science and Department of Energy committee reports. The need for radiochemists and nuclear scientists in industry, the National Laboratories, the Department of Energy, the Nuclear Regulatory Commission, nuclear medicine and various other areas of importance will be discussed, including the current status and importance of training.