# PLUTONIUM FUTURES —THE SCIENCE CONFERENCE



# SECOND ANNOUNCEMENT CALL FOR PAPERS



in cooperation with the American Nuclear Society

# **ALBUQUERQUE NEW MEXICO USA**

















photos from New Mexico Department of Tourism

# **ABOUT THE CONFERENCE**

This conference, third in a series, will provide an international forum for presentation and discussion of current research on physical and chemical properties and environmental interactions of plutonium and other actinide elements. A number of issues surrounding plutonium and other actinides deserve and receive significant national and international attention, including the safe storage and long-term management of surplus weapons materials, and the management of large inventories of actinides from civilian nuclear power generation. The technical basis for addressing these issues requires intensive and increasing understanding of the underlying plutonium and actinide science and technology.

The previous conference held in the summer of 2000 in Santa Fe, N.M., was attended by more than 400 people, representing more than 60 institutions and 15 countries. More than 180 papers covered endeavors in materials science, actinide process chemistry, nuclear fuels, transuranic waste forms, actinides in the environment, actinide separation and analysis, and condensed matter physics.

Issues surrounding plutonium can be very politically charged, and while this conference focuses on the science of this fascinating element, the science is certainly influenced by policies and politics around the globe. Plutonium science provides exciting opportunities for researchers and engineers to apply their talents to technical issues of international importance.

#### **CONFERENCE GENERAL CHAIRS**

Timothy G. George Siegfried S. Hecker

#### CONFERENCE PROGRAM CHAIRS

Gordon D. Jarvinen Kyu C. Kim

# CONFERENCE TECHNICAL COODINATOR

Kathy L. DeLucas

# INTERNATIONAL ADVISORY COMMITTEE

Jordi Bruno, Cerdanyola, Spain
Dan G. Cacuci, Karlsruhe, Germany
Jerry Cuttler, Toronto, Canada
Pierre D'Hondt, Mol, Belgium
Abdul Fattah, Vienna, Austria
Charles Madic, Paris, France
Christophe Thiebaut, Is-sur-Tille, France
Tetsuo Ohatni, Tokai-mura, Japan
Neil Seagrave, Aldermaston, U.K.
Roland Schenkel, Karlsruhe, Germany
Dong-Seong Sohn, Taejon, Korea
Robin Taylor, Sellafield, U.K.
Nikolai Ponomarev-Stepnoi, Moscow, Russia
Eric Vance, Menai, Australia

### ORGANIZING COMMITTEE

Kyu C. Kim Allen Hartford, Jr. Gordon D. Jarvinen Sandra L. Mecklenburg David E. Hobart Heather T. Hawkins LeeRoy J. Herrera David L. Clark Robert J. Hanrahan William Chambers

# TECHNICAL PROGRAM COMMITTEE

Kyu C. Kim Los Alamos National Laboratory

> Richard A. Bartsch Texas Tech University

Douglas C. Crawford, Argonne National Laboratory West

Rodney C. Ewing University of Michigan

Charles W. Forsberg
Oak Ridge National Laboratory

Ann Gibbs Westinghouse Savannah River Company

Darleane C. Hoffman Lawrence Berkeley National Laboratory

Harold F. MacFarlane Argonne National Laboratory West

Kenneth L. Peddicord *Texas A&M University* 

William J. Sutcliffe
Lawrence Livermore National Laboratory

Ned A. Wogman
Batelle, Pacific Northwest National Laboratory

Susan Wood Westinghouse Savannah River Company

Gerd Rosenblatt Lawrence Berkeley National Laboratory

Paul Cunningham
Los Alamos National Laboratory

### CALL FOR PAPERS

This is the formal call for papers for the 2003 Plutonium Futures – The Science Conference. If you wish to submit papers, please submit an extended summary describing the work, significance, and relevance to plutonium and actinide science. The official language of the conference is English. To facilitate a quick review by our program chairs, we must receive your summary by February 1, 2003. The Program Committee will notify you by March 15 if papers are accepted. All technical papers accepted will be presented in the main event of the conference poster session. The Conference Organizing Committee will choose about two dozen papers from across the subject areas. These and a few invited papers will be presented as oral presentations. All attendees will receive a copy of the conference proceedings. All presenters and conference attendees are required to register for the conference. Conference subject categories are listed on page 9.

Submitters should follow these guidelines:

### CONTENT

- Introduction
- Results
- · Discussion-why this work is important
- · References-must be published and cited works

#### LENGTH

- Minimum is 500 words not including references, tables, and figures.
- No more than 1,000 words including tables and figures
- · Use no more than three figures or tables.

#### **FORMAT**

- Title of paper followed by name of authors and their affiliations on first page
- Summary is double-spaced
- References listed at the end with superscript numbers in the text

#### **FONT**

10- or 12- point font is requested

Fill out the Summary Cover Coupon (which is also available on the website at www.lanl.gov/pu2003) and attach it to the original and one copy of the summary. Submit two complete sets with cover sheets by February I, 2003. You may submit your summary electronically, but please include a hard copy in the mail, as there are sometimes conversion problems. Be sure to include contact information including phone numbers or email addresses with any correspondence.

Mail to:

Plutonium Futures – The Science 2003 Los Alamos National Laboratory Nuclear Materials Technology Division Attn: Kathy DeLucas Mail Stop E500 Los Alamos, NM 87545 USA or Email to Kathy DeLucas: duke@lanl.gov

Attach a Microsoft Word® or a WordPerfect® document. In the message, include a title, author's name, word-processing format, software version and whether it is a Macintosh or PC file. If you have difficulties attaching a file, you may include the summary in the body of the email message.

### **REGULAR MAIL**

Submit a 3.5-inch disk or a zip disk as either a MS Word® or WordPerfect® file. Label the disk with a title, author's name, format, and whether it is a Macintosh or PC file.

#### COPYRIGHTS

The American Institute of Physics (AIP) will publish the conference transactions. The author needs to transfer the copyright of the published paper to AIP. Other than the copyright, authors retain all rights to the research.

AIP allows the authors to publish all or part of the paper in any compilation or publication limited to the author's own works or in any compilation or publication approved by AIP.

AIP allows the author to make copies of the paper for his or her own use for lectures or classroom purposes. AIP allows the author to make additional oral presentations of the paper.

If the paper was written under a U.S. government contract, the government shall have the rights to the copyright to the extent required by the contract and the authors shall notify AIP of such rights.

If you use previously published material that has a copyright, you are responsible and must receive written permission from the owner, such as either the original publisher or author.

For more copyright information and to fill out the form, go to the conference website at www.lanl.gov/pu2003.

### **SUBJECT CATEGORIES**

For Contributed and Invited Sessions

- I. Plutonium Properties
- 2. Material Science
- 3. Nuclear Fuels/Isotopes
- 4. Separations and Process Chemistry
- 5. Detection and Analysis
- 6. Plutonium Chemistry and Compounds
- 7. Actinide Compounds and Complexes
- 8. Actinides in the Environment
- 9. Condensed Matter Physics
- 10. Life Sciences

#### **POTENTIAL TOURS**

Waste Isolation Pilot Plant Atomic Museum

### **EXHIBITS**

Los Alamos National Laboratory
Sandia National Laboratories
Waste Isolation Pilot Plant
Seaborg Institute
Lawrence Livermore National Laboratory



### **CONFERENCE EVENTS**

**Sunday, July 6, 2003** 

Registration Actinide Primer Reception

Monday, July 7, 2003

Opening and Welcome Plenary Sessions Speakers:

Pierre D'Hondt, Director Reactor Safety, SCK·CEN "Advances in MOX Technology"

Roland Schenkel, Institute for Transuranium Elements "Recent Highlights of Actinide Research at ITU"

> Teresa Fryberger DOE, Office of Science "Actinides in the Environment"

And other distinguished guests

Panel Discussions with all plenary speakers and other distinguished guest speakers

### Tuesday, July 8, 2003

Presentations
Technical Sessions

# Wednesday, July 9, 2003

Presentations
Technical Sessions
Banquet with Speaker: Dr. Helen Caldicott
Founder of Physicians for Social Responsibility
"Medical Implications of Plutonium"

# Thursday, July 10, 2003

Presentations
Technical Sessions

# ACCOMMODATIONS INFORMATION

The Marriott Albuquerque, a three-star hotel, is conveniently located between two shopping malls



in the uptown business district of Albuquerque.

For reservations, call within the United States toll free I-800-228-9290. For international reservations call I-505-881-6800. Or fax

the Marriott at I-505-881-1780. Conference attendees may also make reservations on the Internet at www.marriotthotels.com/ABQNM or access the Marriott's website for more information.

The conference has reserved a block of rooms with a special room rate for conference attendees. Rooms are available on a first-come, first-served basis beginning in July 2002. A group code will be needed for Internet reservations. The code is LNPLNPA. Please use this code when you register.

#### DIRECTIONS

From the Airport:
Take I-25 North to I-40 East.
Take the Louisiana Boulevard North exit - Hotel is I/2 mile on the west side.



#### **ATTRACTIONS & LANDMARKS**

Albuquerque is 5,314 feet above sea level. The area is steeped in Native American and Spanish



traditions. Albuquerque is New Mexico's largest city and was named to honor a Spanish duke. A group of colonists founded the city in 1706 with the permission of King Philip

of Spain. Old Town, in the heart of Albuquerque, still retains some of the original buildings with quaint shops and traditional native New Mexican dining.

At the western edge of the city, the Petroglyph National Monument is an impressive collection



of ancient Indian and Hispanic petroglyphs from 1300 A.D.Thanks to a year-around moderate climate, Albuquerque is a premier hot air balloon-

ing spot. Every October, the city hosts the world's largest balloon fiesta with more than

I,000 balloons from more than 50 countries. Only 60 minutes away by car, or 20 minutes by the Sandia Peak Tramway, the world's longest aerial tramway, a person can experience the Sandia Mountains for hiking or mountain biking during the summer months.



Albuquerque also is home to the National Atomic Museum. The mission of the museum is to serve as America's resource for nuclear history and science. The museum has exhibits and educational programs that convey the diversity of individuals and events that shaped the nuclear age. For more information call 505-245-2136.

#### OTHER ATTRACTIONS INCLUDE:

Bio Park & Aquarium (5 mi)
Albuquerque Zoo (5 mi)
Indian Pueblo Cultural Center (5 mi)
Natural History Museum (5 mi)
Old Town (5 mi)
Sandia Peak - hiking, mountain biking (10 mi)
Santa Fe (65 mi)
University of NM (5 mi)



### **SPORTS & RECREATION**

Tennis (0.5 mi) Golfing:

- Arroyo Del Oso Golf Course (18 holes; 72 par; 6 miles)
- Los Altos Municiple Golf Course (18 holes; 71 par; 4 miles)
- University of New Mexico South (18 holes; 7200 yards; 72 par; 11 miles)

# REGISTRATION AND STUDENT PARTICIPATION

Early registration, before June 5, 2003, costs \$350 (\$300 for American Nuclear Society members). After June 5, 2003, the cost will be \$450 (\$400 for ANS members). The registration fee will be waived for all students and postdoctoral fellows. The banquet costs are included in the registration fee. An additional cost of \$45 will be added for those not registered for the conference, but who wish to attend the banquet. Financial assistance is available for students and postdoctoral fellows who present papers. For more information, please visit the conference Web site.

#### TRAVEL INFORMATION

Airports and travel arrangements have become more inconvenient since the September 11 terrorist attacks.

If you are traveling from oversees and need assistance or a list of foreign consular offices and locations in the United States, access the website: http://www.state.gov/s/cpr/rls/fco/.

Foreign citizens who wish to stay in the United States temporarily must generally have a visa issued by the U.S. Department of State.

To obtain a visa, or more information on this topic, contact the U.S. Embassy or U.S. Consulate in your country of residence.

# TRAVELING TO THE ALBUQUERQUE INTERNATIONAL SUNPORT

The Albuquerque International Sunport, along with all other U.S. airports, continues to operate



at an enhanced level of security. Stricter security measures are expected to continue indefinitely and will impose some constraints on passengers and visitors to the Sunport.

Sunport passengers and visitors should be aware of and follow these guidelines:

Give yourself some extra time and be patient. Every effort the airport and airlines undertake is in an effort to ensure that your travel is safe, secure and efficient.

Check directly with your airline before going to the airport. Make absolutely sure your flight has not been cancelled, rescheduled or delayed. Allow plenty of time for check-in prior to your scheduled departure time. Anticipate longer lines at airline ticket counters, increased security screening and other potential delays. Your airline can advise you how much extra time to allow—many advise at least a two-hour advance time. Call your airline in advance for a recommendation

Picture ID is absolutely essential for flight checkin at the ticket counter and other locations prior to boarding your aircraft. Please be prepared to present your ID at the security checkpoint and at the gate area.

Only passengers with tickets or passengers who can produce airline-approved documentation will be allowed beyond the security checkpoint. If you are using e-tickets or ticketless travel, please confirm with your airline what you will need at the checkpoint.

New carryon baggage restrictions allow only one (I) carryon bag and one (I) personal item such as a purse, briefcase or laptop computer per passenger. If you have more items than allowed, you will be asked to go back and check the extra items at the ticket counter.

Please take time to check with your airline if you have any questions regarding flights, restricted carryon items, carryon baggage limits or security checkpoint exception access requests.

Family members, friends and others waiting on arriving passengers or accompanying departing passengers will have to stay outside the security checkpoint area. People who meet and greet passengers are no longer allowed access to the gate areas.

Sharp objects of any description, composition, or length are strictly prohibited beyond the security checkpoint. This includes knives and scissors of any kind. Cutting objects such as box cutters and straight razors are not allowed past the checkpoint. Metal nail files, corkscrews, ice picks, letter openers, nail clippers with a comb knife, and screwdrivers are among other restricted items.



### FOR ADDITIONAL INFORMATION

# TECHNICAL CONFERENCE COORDINATOR

Kathy DeLucas Mail Stop E500 Los Alamos National Laboratory Los Alamos, N.M. USA Email: duke@lanl.gov Phone: (505) 665-3618 Fax: (505) 667-6569

# REGISTRATION INFORMATION

For a registration form, check the Pu Futures website listed below or contact Kathy DeLucas

# CONFERENCE WEBSITE INFORMATION

www.lanl.gov/pu2003

#### **IMPORTANT DATES**

February 1, 2003 Summaries Due

March 15, 2003
Committee notifies those selected

June 5, 2003
Early registration ends



# PLUTONIUM FUTURES— THE SCIENCE CONFERENCE

Albuquerque, NM USA July 6-10, 2003

### **SUMMARY COVER COUPON**

(attach to two copies of your written summary)

Contributed Paper Yes/No

Author:	Invited Talk Yes/No
Organization:  Address: (Please include the address of the author)  Subject Category Number	Title:
Address: (Please include the address of the author)  Subject Category Number	Author:
Address: (Please include the address of the author)  Subject Category Number	Organization:
Alternative Subject Category Number	
Alternative Subject Category Number	
Has the substance of this summary been presented or published before? Yes/No If yes, where and when?  Has the paper been submitted for publication in a technical journal? Yes/No If yes, when and what publication?  Has this summary been approved for publication by your institution or company? Yes/No  Plutonium Futures – The Science Conference is unclassified and open to the general public. It is your responsibility to protect	Subject Category Number
published before? Yes/No  If yes, where and when?  Has the paper been submitted for publication in a technical journal? Yes/No  If yes, when and what publication?  Has this summary been approved for publication by your institution or company? Yes/No  Plutonium Futures – The Science Conference is unclassified and open to the general public. It is your responsibility to protect	Alternative Subject Category Number
technical journal? Yes/No If yes, when and what publication?  Has this summary been approved for publication by your institution or company? Yes/No  Plutonium Futures – The Science Conference is unclassified and open to the general public. It is your responsibility to protect	published before? Yes/No
Has this summary been approved for publication by your institution or company? Yes/No  Plutonium Futures – The Science Conference is unclassified and open to the general public. It is your responsibility to protect	
your institution or company? Yes/No  Plutonium Futures — The Science Conference is unclassified and open to the general public. It is your responsibility to protect	If yes, when and what publication?
your institution or company? Yes/No  Plutonium Futures — The Science Conference is unclassified and open to the general public. It is your responsibility to protect	Has this summary been approved for publication by
open to the general public. It is your responsibility to protect	
	open to the general public. It is your responsibility to protect

