

# **RERTR-2004 International Meeting on Reduced Enrichment for Research and Test Reactors**

**7-12 November 2004**

**Vienna, Austria**

*Hosted by the*  
International Atomic Energy Agency

*in co-operation with the*  
RERTR Programme

The International Atomic Energy Agency in co-operation with the RERTR Programme managed by the Argonne National Laboratory for the United States Department of Energy, is hosting the "RERTR-2004 International Meeting on Reduced Enrichment for Research and Test Reactors". This will be the 26th meeting of a series on the same general subject. The previous meetings were held at ANL (1978), Saclay, France (1979), ANL (1980), Jülich, Germany (1981), ANL (1982), Tokai, Japan (1983), ANL (1984), Petten, The Netherlands (1985), Gatlinburg, Tennessee (1986), Buenos Aires, Argentina (1987), San Diego, California, (1988), Berlin, Germany (1989), Newport, Rhode Island (1990), Jakarta, Indonesia (1991), Roskilde, Denmark (1992), Oarai, Japan (1993), Williamsburg, Virginia (1994), Paris, France (1995), Seoul, Korea (1996), Jackson Hole, Wyoming, (1997), São Paulo, Brazil (1998), Budapest, Hungary (1999), Las Vegas, Nevada (2000), Bariloche, Argentina (2002) and ANL (2003).

You are cordially invited to attend this meeting, where information will be exchanged on the progress of national and international Programmes to develop low enriched fuels and targets for research and test reactors and to convert the reactors to such fuels and targets. The meeting will be held in English and will be open to the public, but the Meeting Secretariat reserves the right to limit the attendance.

The main objective of this series of meetings is the core conversion of research reactors from HEU to LEU fuels. Fuel element manufacturers and national laboratories have developed fuel types suitable for LEU utilization in most of the world's research reactors. Many reactors are already fully converted and new promising LEU fuels are under development and scheduled for early qualification

You are encouraged to present a paper at the meeting. If you intend to do so, please indicate this intention on the attached Registration Form and send an abstract of the paper, as soon as possible, but not later than **27 August 2004** to the Meeting Secretariat (please see Instructions for Authors and Typists and Form for Publication Release). The presentation of each paper will be limited to 20 minutes. If you intend to participate without presenting a paper, please send only the completed Registration Form by the same deadline. Please observe the Instruction for Forms and Deadlines.

All papers will be distributed at the meeting and will be published in the proceedings by the Argonne National Laboratory.

Topics to be covered during the meeting are:

- **Progress reports of national Programmes**
- **Fuel development**
- **Fuel testing and evaluation**
- **Measurements and calculations for converted reactors**
- **Safety tests and evaluations**
- **Core conversion studies**
- **Production of fission Mo-99 from LEU**
- **Licensing requirements**
- **HEU and LEU fuel cycle**
- **Spent fuel transportation and storage**
- **Utilization of converted (LEU) reactors**

**LOCATION OF THE MEETING:**

International Atomic Energy Agency  
Vienna International Centre (VIC)  
Meeting Room I (C-02)  
Wagramer Strasse 5  
1400 VIENNA  
Austria  
Tel No: (+43) 1 2600-21330-21300 (during the meeting)  
Fax No: (+43) 1 2600-29325

**REGISTRATION:**

**1. Registration Fee** (please see information attached):

Each participant will be required to pay a registration fee of US\$ 240.- (€ 200.-) to cover the cost of different services provided during the meeting, i.e. coffee breaks, lunches and conference dinner. This fee will be collected by the organizers of the RERTR Programme located at Argonne National Laboratory.

**Payment instructions:**

- **Credit Card:** Only VISA or MASTERCARD should be used.  
Payment should be made by faxing the attached Credit Card Payment Form, duly completed, to the Argonne Conference Services (Fax No: +1-630-252-5533)
- **Cheques:** Only cheques in US Dollars can be accepted.  
Cheques should be made payable to "Asst. CFO, Argonne National Laboratory", reference number "04392-R3-115".  
The cheques should be mailed to: Argonne National Laboratory  
Attn: Asst. Chief Financial Officer  
9700 S. Cas Avenue, Bldg. 201  
Argonne, IL 60439  
USA
- **Cash** upon registration

Participants who have paid their registration fee in advance will receive a confirmation, which has to be presented at the Registration Desk in order to obtain the conference documentation.

## **2. Registration Procedure:**

The Registration Desk at Gate I at the Vienna International Centre will be open on Sunday, 7 November 2004 from 4:30 to 6:00 p.m. and throughout the Meeting during working hours. Please bring with you identification documents to facilitate your entry to the meeting premises. The photo badge issued by the UN Pass Office is needed for entrance to the VIC and must be worn at all times on the VIC premises.

A Welcome Reception will be held from 6:00 to 7:30 p.m. at the VIC.

## **GRANTS:**

The International Atomic Energy Agency has limited funds at its disposal to help meet the cost of attendance of qualified specialists mainly from developing countries with low economic resources. Generally, not more than one grant will be awarded to any one country.

If Governments wish to apply for a grant on behalf of one of their participants, they should address specific requests to the Meeting Secretariat to this effect. Governments should ensure that applications for grants:

1. are submitted by **14 September 2004**
2. are accompanied by a duly completed and signed Grant Application Form

Applications that do not comply with the conditions stated under 1. and 2. cannot be considered. The grants awarded will be in form of a lump sum and will usually cover only part of the cost of attendance.

## **ACCOMMODATION:**

Attached is a List of Hotels. Please complete the attached Hotel Reservation Form and send it (preferably by fax) **before 4 October 2004** to the following address:

AMERICAN EXPRESS Travel Service  
VIC - Wagramer Strasse 5  
1400 VIENNA  
Austria

Tel: (+43) 1 2600 23041  
Fax: (+43) 1 2600 23050  
E-mail: <mailto:Korherr@amex.at>

## **Payment Conditions:**

American Express will confirm your reservation only upon receipt of your credit card number or deposit (see Hotel Reservation Form). Without a credit card number or a deposit the reservation cannot be guaranteed.

The Meeting Secretariat is not in a position to assist you with hotel bookings nor can the Meeting Secretariat assume responsibility for paying cancellation fees or for re-bookings.

## **TRANSPORTATION:**

- **Transportation from Vienna's Schwechat Airport to Hotels in Vienna**

**Vienna airport lines** (stops situated right in front of arrival hall):

Buses leave every 90 minutes from the airport to the Vienna International Centre (additional stops at the Hotel Crown Plaza and the Country Inn & Suites) from 07:30 to 19:30 hrs and every 30 minutes to “Schwedenplatz” from 6:20 to 0:20 hrs. The fare is €6 for the one way and €11 for the round-trip ticket. For bus schedule and maps please visit: [http://www.oebb.at/Angebot\\_Reisen/Zentrale/BahnBus/BahnBus\\_Wien/VAL2004.pdf](http://www.oebb.at/Angebot_Reisen/Zentrale/BahnBus/BahnBus_Wien/VAL2004.pdf)

**Train service "CAT"** takes you to the City Air Terminal every 30 minutes from 6:06 to 23:06 hrs. The fare is € 8 for the one way and € 15 for the round-trip ticket.

**Airport transfer services:**

“Mazur” has a counter in the arrival hall. One can book for the next car going to the city and passengers will be taken to their hotels. The fare is between € 15. and € 18 per person, depending on the destination.

“C&K” does not have a counter but drivers are waiting in the arrival hall on the left-hand side. C&K charges € 25 per car hired.

**Taxis** are available outside the airport. The journey to the city centre is approx. € 40.

- **Transportation from Hotels to the VIC**

The VIC can be reached with the underground (U-Bahn) by taking the red line (U1) towards Kagran and getting off at station Kaisermühlen-Vienna International Centre. Weekly tickets can be purchased from vending machines in all U-Bahn stations or at tobacco shops marked “Tabak Trafik”, at central U-Bahn stations and also at the VIC newspaper stand. The weekly ticket is valid Monday through Sunday with unlimited use of all Viennese public transport facilities (U-Bahn, bus, tramway) and does not need to be cancelled before commencing your journey. Single tickets may also be purchased from the vending machines and are valid for one trip lasting no longer than one hour in one direction. Single tickets do need to be cancelled.

**VISA:**

A list of countries requiring visa for entering Austria can be found at: <http://www.aussenministerium.gv.at>  
Participants requiring a visa should follow the attached Instructions for Visa Applications.

*Participants who wish to visit the Budapest Research Reactor have to apply for a Schengen visa for multiple entry and if they require a visa for entering Hungary should contact the nearest consular representative of Hungary as early as possible.*

**WORKING LANGUAGE:**

The working language of the meeting will be English. No simultaneous interpretation will be provided.

**TECHNICAL EQUIPMENT AVAILABLE:**

Equipment for overhead transparencies and PowerPoint presentations through a PC laptop with a LCD projector will be available. If participants require special equipment, please inform the Meeting Secretariat as soon as possible.

**COMMERCIAL EXHIBITIONS:**

Exhibition space is available adjacent to the conference meeting area for companies seeking to set up commercial exhibits or displays describing products and services relevant to the subject matter of the meeting. Please contact the scientific secretary or conference services listed below to make specific arrangements for commercial exhibitions.

**COFFEE/LUNCH BREAKS:**

Coffee/tea will be served during coffee breaks.

Buffet luncheons will be available for participants at the VIC Restaurant from Monday to Thursday. Lunch vouchers should be handed to the waiters.

Participants who prefer vegetarian meals or follow a special diet should check the box on the registration form, so that the necessary arrangements can be made.

### **SOCIAL EVENTS:**

|           |             |                   |   |
|-----------|-------------|-------------------|---|
| Sunday,   | 7 November  | 18:00 – 19:30 hrs | Welcome Reception at the VIC Restaurant |
| Thursday, | 11 November | 19:00 hrs         | Conference Dinner at the VIC Restaurant |

### **SCIENTIFIC TOURS:**

On Friday, 12 November 2004, the meeting participants will have an opportunity to participate in either one of the two technical visits to the:

1. Research Reactor at the Atominstitut der Österreichischen Universitäten in Vienna, Austria or
2. Budapest Research Reactor at the KFKI Atomic Research Institute in Budapest, Hungary.

#### **1. Research Reactor Atominstitut, Vienna:**

The 250 kW TRIGA Mark-II reactor operates since March 1962 at the Atominstitut Vienna/Austria. Ever since operation of the reactor has averaged 220 days per year, without extended outages. Therefore, the small research reactor is very well utilized.

The Atominstitute's main tasks are education on nuclear topics and training in the fields of neutron- and solid state physics, nuclear technology, reactor safety, radiochemistry, radiation protection and dosimetry, as well as low temperature physics and fusion research. In addition, the Atominstitut co-operates closely with the IAEA in research projects, coordinated research programs (CRP) and provides also expert services.

This TRIGA Mark-II is equipped with a number of irradiation devices:

- 5 reflector irradiation tubes
- 1 central irradiation tube
- 1 slow pneumatic transfer system (transfer time 4 seconds)
- 1 vertical fast pneumatic transfer system (transfer time 0.3 seconds)
- 1 horizontal fast pneumatic transfer system (transfer time 20 milliseconds)
- 4 neutron beam ducts
- 1 thermal column
- 2 neutron radiography facilities

#### **Tentative Programme:**

|               |   |
|---------------|---|
| 09:30         | Bus will leave from the VIC                   |
| 10:00 - 12:00 | Introduction and tour of the Research Reactor |
| 12:30 - 14:00 | Lunch at Restaurant "Amon"                    |
| 14:30         | Return to the VIC                             |

Participation in the tour, which will include transportation and lunch, will require a payment of € 20.-.

#### **2. Budapest Research Reactor, Budapest:**

The Budapest Research Reactor (BRR) is a tank-type reactor, moderated and cooled by light water. The reactor is of Russian origin, it went critical in 1959. The thermal power was at that time 2 MW. The first upgrading took place in 1967 when the power output was increased from 2 MW to 5 MW, using a new type of fuel and a beryllium-reflector. After 27 years of operation, a full-scale reactor reconstruction and upgrading project began in 1986. The upgraded 10 MW research reactor was relicensed on 25 November 1993. According to Hungarian safety regulations a periodic safety review (PSR) was conducted in 2002-2003, as a result the operation license was renewed for another ten years.

|                                     |   |
|-------------------------------------|---|
| Reactor type: .....                 | Light-water cooled and moderated tank-type reactor with beryllium reflector           |
| Fuel: .....                         | VVR-SM(-M2)   |
| Nominal thermal power: .....        | 10 MW   |
| Mean power density in the core: ..  | 61,2 kW/l   |
| Neutron flux density in the core: . | 2,5 * 10 <sup>14</sup> n/cm <sup>2</sup> s (thermal in the flux trap)                 |
|                                     | 1 * 10 <sup>14</sup> n/cm <sup>2</sup> s (approx. max. fast flux in the fast channel) |

The BRR is used for irradiation and neutron research. The reactor has more than 60 channels and ten beam ports. The beam ports with the research facilities are installed in the reactor hall and neutron

**Tentative Programme:**

|         |   |
|---------|---|
| 07:00   | Bus will leave from the VIC                                       |
| 10:30 - | Welcome coffee/tea  |
| 11:00 - | Presentations and visit of the reactor and utilization facilities |
| 12:30 - | Lunch   |
| 13:30 - | Guided sightseeing tour by bus through Budapest                   |
| 17:00   | Departure to Vienna   |

Participation in the tour, which will include transportation and lunch, will require a payment of € 50.-

***Participants who wish to visit the Budapest Research Reactor have to apply for a Schengen visa for multiple entry and if they require a visa for entering Hungary should contact the nearest consular representative of Hungary as early as possible.***

Participants planning to stay in Budapest for the weekend, please see the attached Package Information and Booking Form provided by American Express Travel Service.

**CURRENCY:**

The official currency is Euro (€): Conversion rate for 1 US\$ = € 0.820 (July 2004).

It is recommended to change money at banks, which are open daily from 9:00 to 15:00 hrs.

All major credits cards such as American Express, Diners Club, Master Card and Visa are equally accepted in the hotels, restaurant, shops etc..

**ELECTRICITY:**

Electrical current in Austria is 230 V AC 50 Hz. Round, European-style two-pin plugs are used. Appliances designed to operate on 110/120 V need a voltage converter and a plug adapter.

**WEATHER:**

The temperature this time of the year ranges between 3 to 8 degrees Celsius.

**INFORMATION ON AUSTRIA:**

A brochure "Austria, Fact and Figures" can be found at: [www.austria.gv.at](http://www.austria.gv.at) (section "Service").

**PROGRAMME FOR ACCOMPANYING PERSONS:**

Please see attached Vienna sightseeing information provided by American Express Travel Service.

**SCIENTIFIC SECRETARIAT OF THE MEETING:**

**Mr. P. Adelfang**

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**Administration and organization:**

**Ms. T. Niedermayr**

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