



PRELIMINARY PROGRAMME

The international topical meeting on Research Reactor Fuel Management (RRFM) has been successfully run since 1997 to provide an open forum for the exchange of information on all significant aspects of the nuclear fuel cycle.

The eighth two-day event in this series, RRFM 2004, will take place in Munich, Germany, from March 21–24, 2004. This meeting will again focus on key areas of development and current concern, including operational aspects of improvements in the physical security of research reactor fuel.

This is to be a very special meeting of RRFM in that it will be held in the city where FRM II is being commissioned. FRM II is an innovative research reactor especially designed to push forward the frontiers of all types of neutron based research. To celebrate this development the meeting will open with a series of invited presentations on international topics of interest to the whole research reactor community. These will concern the innovative utilisation of research reactors, links to international initiatives such as Generation-IV, INPRO and the 6th European Framework Research Programme. In addition presentations will be invited on issues and changes in international policies affecting the research reactor fuel cycle:

- **International Topics**
- **Fuel Development, Qualification, Fabrication and Licensing**
- **Reactor Operation, Fuel Safety and Core Conversion**
- **Spent Fuel Management, Back-end Options, Transportation**

Venue

Munich, the capital of Bavaria has an international reputation as a metropolis of art and culture. The city has a staggering number of theatres, museums and a vibrant arts scene. The Bavarian State Opera House is known as one of the most outstanding repertoire theatres in the world of Opera and the Cuvilliés Theatre ranks at the top of the most breathtaking Rococo theatres in Europe.

The entire palette of European culture can be admired in over fifty museums and collections and in numerous

Organised by the
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in co-operation with the
International Atomic Energy Agency (IAEA)

8th International Topical Meeting **Research Reactor Fuel Management (RRFM)**

Forum Hotel, Munich, Germany
March 21-24, 2004

galleries. And the Deutsches Museum is one of the largest technical and natural science museums in the world. 18,000 original instruments, models and replicas document the development of natural science, techniques and industry up to present day standards.

Munich is a cosmopolitan city where RRFM participants can spend the evening sampling the array of beers on offer or attending a concert of classical music. And with its extensive parks and gardens, its old buildings and fountains and the central pedestrian precinct in the old town centre Munich is also a city that will appeal to your aesthetic sense. It is a perfect base for trips to the world famous castles of Neuschwanstein, Linderhof and Herrenchiemsee and the beautiful Bavarian mountains, lakes and countryside.



Post-conference Tour

Post-conference and in the RRFM tradition, a technical site visit will be organised - this time to FRM-II.
http://www.frm2.tu-muenchen.de/index_en.shtml

Conference Exhibition

An exhibition is being organised alongside the conference. For an offer of modular stands, please ask the conference secretariat for the exhibitor documentation. E-mail: rrfm2004@euronuclear.org

Sunday, March 21, 2004

Registration

13.00 - 17.00 h, Forum Hotel

Guided walking tour of Munich

15.00 h, meeting point: 'Fischbrunnen' at Marienplatz

Conference Dinner

20.00 h, Forum Hotel

Monday, March 22, 2004

Registration

07.30 h, Forum Hotel

Welcome Address

Dr. Th. Goppel Minister of the Bavarian State Ministry of Sciences, Research and the Arts, München

Opening Address

Prof. W. Herrmann President of the Technical University, München (to be confirmed)

Session 1 International Topics

Chairperson: K. Schreckenbach, Technical University Munich, Germany

First Start-up of FRM-II (invited) – *The FRM-II Team, Technical University, München, Germany*

Neutron Research and Applications at FRM-II (invited) – *The FRM-II Team, Technical University, München, Germany*

The Status of US Policy concerning Non-Proliferation, Conversion, Return of Foreign Spent Fuel to America and Russia (invited) – *T. Dedit, Department of Energy, Washington D.C, USA*

Status of Framework Programme 6 (invited) – *H. Forsström, European Commission, Research DG, Brussels, Belgium*

The Role of Research Reactors in Support of the Development of the Generation IV Nuclear Systems (invited) – *M. K. Meyer, Argonne National Laboratory, Idaho Falls, ID, USA*

Overview of the CEA R&D Programme on Generation IV Nuclear Energy (invited) – *F. Carré, P. Anzieu, Ph. Billot, Phi. Brossard, G-L. Fiorini, CEA/SACLAY, Gif sur Yvette, France*

Safety Upgrading of PHENIX and Operation in the Frame of Generation IV Forum (invited) – *J. Guidez, L. Martin, CEA/Valrhô - Marcoule, France*

Session 2 Fuel Development, Qualification, Fabrication and Licensing

Chairpersons: A. Ballagny, CEA, France
J-P. Durand, CERCA, France

U-Mo Dispersion Fuel Results and Status of Qualification and Licensing Programs (invited) – *P. Lemoine*, J. L. Snelgrove**, L. Alvarez†, N. Arkhangelsky**, *CEA/Saclay, France, **ANL, Argonne, IL, USA, †CNEA, Buenos Aires, Argentina, **Ministry for Atomic Energy, Moscow, Russia*

Update on Qualification of U-Mo Dispersion Fuel and Development of U-Mo Monolithic Fuel – *J. L. Snelgrove, M. R. Finlay, G. L. Hofman, S. L. Hayes, M. K. Meyer, C. R. Clark, Argonne National Laboratory, Argonne, IL, USA*

Status as of March 2004 of the French U-Mo Group Development Program – *J-M. Hamy*, F. Huet**, B. Guigon**, P. Lemoine***, C. Jarousse†, Boyard† M., J-L. Emin††, *Framatome-ANP, **CEA/Cadarache, ***CEA/Saclay, †CERCA, Romans, ††COGEMA, France*

2004 Status of the CNEA Qualification Programs for the Fabrication of High Density Fuels for Research Reactors – *L. Alvarez, N. Boero, P. Echenique, G. Ruggirello, Comisión Nacional de Energía Atómica, Buenos Aires, Argentina*

Recent Observations at the Post-irradiation Examination of Low-Enriched U-Mo Miniplates Irradiated to High Burnup – *G. L. Hofman, Y. S. Kim, M. R. Finlay, J. L. Snelgrove, S. L. Hayes, M. K. Meyer, C. R. Clark, Argonne National Laboratory, Argonne, IL, USA*

Post-irradiation Observations on U-7wt%Mo Atomised Dispersion Fuel – *A. Leenaers*, S. Van den Berghe*, L. Sannen*, E. Koonen*, C. Jarousse**, F. Huet#, M. Troabas†, M. Boyard††, S. Guillot††, *SCK-CEN, Mol, Belgium, **CERCA, Romans, France, #CEA Cadarache, France, †SRMJ, l'Etang la Ville, France, ††TECHNICATOME, Aix-en-Provence, France*

Fabrication and Characteristics of U-Mo Foils for a Monolithic Fuel by Cooling-Roll Casting Method – *Ki-Hwan Kim, Don-Bae Lee, Soek-Jin Oh, Chang-Kyu Kim, Dong-Sung Sohn, KAERI, Daejeon, Republic of Korea*

Activities for HANARO Fuel Production in KAERI – *Chang-Kyu Kim, Ki-Hwan Kim, Jong-Man-Park, Yoon-Sang Lee, Don-Bae Lee, Seuk-Jin Oh, Hee-Dae Park, Dong-Sung Sohn, KAERI, Daejeon, Republic of Korea*

Success Story of FRM-II Silicide Fuel Element Manufacturing – *G. Harbonnier, P. Colomb, M. Grasse, JP. Durand, B. Duban, CERCA, Romans-sur-Isère, France*

CERCA Mo-99 Annular Cans Target Manufacturing Development – *C. Jarousse*, P. Colomb*, M. Febvre*, N. Morcos**, P. Anderson**, *CERCA, Romans-sur-Isère, France, **ANSTO, Lucas Heights NSW, Australia*

Firming Up the Supply of Enriched Uranium for Research Reactors of the World: A Core U.S. National Nuclear Security Administration Mission – *M. E. Hassler, E. M. Parker, Y-12 National Security Complex, Oak Ridge, TN, USA*

Poster Session 1 International Topics, Fuel Development, Qualification, Fabrication and Licensing

Chairperson: G. Damm, Research Center Jülich, Germany

The Maple Facilities: Dedicated to the Secure Supply of Medical Isotopes – *G. Malkoske, Engineering & Technology, MDS Nordion, Ottawa, Canada*

Results of Computational Studying the Kinetics of Stress-Strained State in a (U-9 % Mo)-Al Dispersive Fuel Element Irradiated in IVV-2M Reactor – *V. V. Popov*, M. Ya. Khmelevsky*, V. G. Aden**, Ye .F. Kartashev**, V. A. Lukichev**, *SSC RF-IPPE, Obninsk, **FSUE RDIPE, Moscow, Russia*

Thermo-mechanical Modelling of U-Mo Fuels with MAIA – *Vincent Marelle*, F. Huet*, P. Lemoine**, CEA/Cadarache, CEA/Saclay, France*

Behaviour of U₃Si₂ Fuel Plates Submitted to High Power and Heat Flux – *S. Van den Berghe*, A. Leenaers*, B. Vos*, L. E. Koonen*, C. Sannen, Jarousse**, B. Guigon†, A. Ballagny†, *SCK-CEN, Mol, Belgium, **CERCA, Romans, France, †CEA/Cadarache, France*

Reactors Tests and Post-Irradiation Examinations of Fuel Elements with Low-Enrichment Uranium-Molybdenum Fuels – *V. A. Lukichev*, V. G. Aden*, E. R. Kartashev*, O. A. Golosov**, V. B. Semerikov**, M. S. Lyutikova**, A. A. Dyakov**, A. V. Meleshko**, V. M. Tchernyshov†, A. A. Enin††, *RDIPE, **IRM, †TVEL, ††NZHK, Moscow, Russia*

Tuesday, March 23, 2004

Session 3 Reactor Operation, Fuel Safety and Core Conversion

Chairperson: *A. H. M. Verkooijen, Interfaculty Reactor Institute, Delft, The Netherlands*

Conversion of FRM-II (invited) – *The FRM-II Team, Technical University, München, Germany*

The new Australian Research Reactor: Construction Progress and Licensing Issues (invited) – *T. Irwin, D. Vittorio, ANSTO, Menai, NSW, Australia*

ILL High Flux Reactor: Improvements and Specific Experimentation (invited) – *H. Guyon, Ch. Vettier, Institut Max von Laue - Paul Langevin (ILL), Grenoble, France*

Upgrading of the Core Safety and the MIR Reactor Operation Life Prolongation (invited) – *A. Ijoutov, A. F. Grachev, V. V. Kalygin, A. E. Novoselov, M. N. Svyatkin, Russia Research Institute of Atomic Reactors, Dimitrovgrad, Russia*

Current Status of U-Mo Conversion Program in JRR-3 – *Y. Murayama, T. Kusunoki, S. Wada, T. Kato, F. Sakurai, Japan Atomic Energy Research Institute, Tokai-mura, Japan*

The use of Cadmium Wires as Burnable Poison: A First Feasibility Study for the BR2 Reactor – *A. Beeckmans, SCK-CEN, Mol, Belgium*

Session 4 Spent Fuel Management, Back-end Options, Transportation

Chairperson: *Ph. Auziere, COGEMA, Vélizy, France*

Overview of Research reactor Problems and Concerns (invited) – *I. G. Ritchie, IAEA, Vienna, Austria*

Spent U-Mo Fuel Acceptance for Treatment at the La Hague Plant (invited) – *Ph. Auziere, COGEMA, Vélizy, France*

Decommissioning the Material Test Reactor Fuel Cycle (invited) – *Ph. Cartwright, UKAEA, Dounreay, Great Britain*

The Fuel Situation at Research Reactors in Austria – *H. Böck, M. Villa, Atomic Institute of the Austrian Universities, Vienna, Austria*

Storage of Fuels Elements Coming from Dutch Research Reactors and Laboratories – *C. Kalverboer*, H. Kastelein*, B. Tigoulet**, S. Petitjean**, *COVRA, Vlissingen, The Netherlands, ** SGN, St Quentin en Yvelines, France*

Successfully Shipping Fresh Fuel from Romania to Russia: The Experience – *J. Thomas, M. Ciocanescu, L. Biro, A. Smirnov,*

United States Foreign Research Reactor Spent Nuclear Fuel Acceptance Program: Current Progress and Future Challenges – *A. W. Thrower, C. E. Messick Sr, J. R. Wade, Department of Energy, Washington D.C, USA*

Global Cleanout Project – *J. Edlow, G. Gruber, Edlow International Company, Washington, D.C, USA*

Poster Session 2 Reactor Operation, Fuel Safety, Core Conversion, Spent Fuel Management, Back-end Options, Transportation

Chairperson: *H. Müller, RWE Nukem, Alzenau, Germany*

Irradiation of Two U-Mo Fuel Plates in BR2 – *V. Kuzminov, E. Koonen, SCK-CEN, Mol, Belgium*

Preliminary Study on the Utilisation of U-Mo Fuel for the RSG-GAS Reactor – *T. M Sembiring, T. Taryo, I. Kuntoro, BATAN, Serpong, Indonesia*

Criticality Safety Assessment on the RSG-GAS Fresh Fuel Storage for *Anticipating the Next Core Conversion Program* – *T. M Sembiring, Zuhair, BATAN, Serpong, Indonesia*

MCNP Calculation of Substitution Experiments at RB Critical Assembly – *M. Pesic, Vinča Institute of Nuclear Sciences, Belgrade, Serbia and Montenegro*

A Study on the Extension of the Cycle Length and Change of the Fuel Reloading Pattern for HANARO – *Choong-Sung Lee, Dong-Keun Cho, Sang-Jun Park, Heonil Kim, Korea Atomic Energy Research Institute, Daejeon, Republic of Korea*

Development of IRT-Type Fuel Assembly with Pin-Type Fuel Element for LEU Conversion of WWR-SM Research Reactor in Uzbekistan – *A. Vatulin*, A. Morozov*, V. Suprun*, I. Dobrikova*, V. Mishunin*, G. Kulakov*, A. Alexandrov**, A. Enin**, A. Tkachev**, *A. A. Bochvar, Moscow, **NZChK, Novosibirsk, Russia*

Technical Project of a Research Reactor at 200 kW Power – *T. G. Apostolov, V. D. Anastassov, Sofia, Bulgaria*

Efficiency of HEU and LEU Fuel for the WWR-M Research Reactor in Ukraine – *Institute for Nuclear Research, Kiev, Ukraine*

Spent Fuel Handling during the REBUS Burn-up Credit Experiments – *F. Vermeersch, P. Baeten, F. Joppen, SCK-CEN, Mol, Belgium*

New Design Study of the Moderator Chamber of the FRG-1 Cold Neutron Source for the Increase of Cold Neutron Flux – *W. Bernnat*, W. Feltes**, Knop*, P. Schreiner*, *IKE, University of Stuttgart, Framatome ANP, Erlangen, *GKSS, Geesthacht, Germany*

U-Mo Spent Fuel Reprocessing: First Experimental Results on Unirradiated Fuels – *A. Juvenelle, J. P. Dancausse, A. Vaudano ; M. H. Garrido, CEA, Bagnol sur Cèze, France*

Possibilities for Providing Safety and reliable Transportation and Future Storage of the IRT-Sofia Research Reactor Spent Nuclear Fuel – *M. Baltiyski, L. Manev, AtomEnergoproekt, Sofia, Bulgaria*

Cleaning Methods for RA Reactor SNF Storage Tubes Decontamination – *S. Yu Bulkin*, V. G. Aden*, V. F. Muraviev**, A. F. Mordukhay**, V. A. Parabin**, N. M. Sorokin**, *RDIPE, Moscow, **NIKIMT, Moscow, Russia*

Spent Fuel Management of the Finnish TRIGA Reactor – *S. Salmenhaara, VTT, Espoo, Finland*

Logistics of the Research Reactor Fuel Cycle: Area Solutions – *J-L Falgoux*, F. Obadia**, L. Halle*, P. Naigeon*, P. Auziere**, *CERCA, Paris, **CERCA, Romans, *COGEMA LOGISTICS, Saint Quentin en Yvelines, **COGEMA, Vélizy, France*

Wednesday, March 24, 2004

Post-conference Technical Visit

FRM-II, Garching

Members of the Programme Committee

Pol Gubel, SCK-CEN, Mol, Belgium (Chairman)
Nikolai Arkhangelsky, Minatom, Moscow, Russia
Philippe Auziere, COGEMA, Vélizy, France
Philip A. Beeley, HMS Sultan, Gosport, United Kingdom
André Chabre, CEA Saclay, *Gif sur Yvette*, France
Gunter Damm, Research Centre Jülich, Jülich, Germany
Jean-Louis Falgoux, CERCA, Paris, France
Hans Müller, RWE Nukem, Alzenau, Germany
Iain G. Ritchie, IAEA, Vienna, Austria
István Vidovszky, AEKI, Budapest, Hungary
Jacob W. de Vries, IRI, Delft, The Netherlands

RRFM 2004 General Information

Attendance

RRFM 2004 is open to all interested professionals from the nuclear community.

Language

The conference language is English. No simultaneous translation is provided.

Transactions

All invited and contributed papers will be published in the Transactions, which will be handed to the participants at the start of the conference.

Conference Registration Fees

The RRFM 2004 registration fee includes:

- participation in all sessions
- one set of the conference Transactions
- conference dinner on Sunday evening (each accompanying person at EUR 50.00 extra)
- lunches on Monday and Tuesday
- coffee and refreshments during breaks
- guided walking tour of Munich on Sunday (including accompanying person)
- visit to FRM-II

Young Generation participants (below age 35; send copy of passport or ID), university teachers and members of the nuclear societies from the following countries benefit from a substantial rebate on the registration fee: Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Lithuania, Poland, Romania, Russian Federation, Serbia and Montenegro, Slovak Republic, Slovenia, Ukraine.

- ENS members * EUR 730.00
- Non-members EUR 790.00
- Young Generation and participants from the above mentioned countries EUR 365.00

* Membership rate applies to all members of ENS Full Member and Associate Member Societies and the staff of ENS Corporate Members.

Registration must be made by means of the Registration Form and is not valid unless accompanied by payment or notification of bank transfer/credit card details. Upon payment, participants will receive confirmation of registration, which they must present at the registration desk at the venue to obtain conference badges, documentation and 'Transactions'.

Post-conference Technical Visit

FRM-II, Garching.

Buses will be provided for the return trip from the Forum Hotel to FRM-II. Registrations will be accepted on a 'first come,- first served' basis.

Registration Deadlines

Conference and Payment	February 12, 2004
Hotel Accommodation	February 12, 2004
Technical Visit.	February 12, 2004

Cancellation

No refund in case of cancellations made after Feb 12, 2004. An administrative charge of EUR 75.00 will be deducted from cancellations made before that date.

Venue

Forum Hotel München
Hochstrasse 3, 81669 München, Germany
Phone +49 89 4803 0
Fax +49 89 4488 277
E-mail muchb@ichotelsgroup.com

Access to Forum Hotel München

From Munich Airport 36 km: S-Bahn 'S8' every 20 minutes directly to the station 'Rosenheimer Platz'. The Forum Hotel is located in the same building complex. Fare: EUR 8.00. Taxi: approx. EUR 50.

From main railway station (Hauptbahnhof) 3 km. All S-Bahn lines in the direction of 'Ostbahnhof' go to 'Rosenheimer Platz'. Fare: EUR 2.00. Taxi approx. EUR 8.

Hotel Accommodation

For all questions concerning your hotel reservation, please contact the Forum Hotel München or the Munich Tourist Office.

ENS has negotiated a special room rate of EUR 130.00 (1 person), EUR 150.00 (2 persons) at the Forum Hotel München. The rates are per room per night; breakfast, service and taxes are included. To book a room at the Forum Hotel by phone please use the extension +49 89 4803 444 quoting the code "RRFM 2004".

If you want to stay at an other hotel, please contact:

Munich Tourist Office, Hotel Reservation
Sendlinger Str. 1, 80331 München, Germany
Phone +49 89 23330 236, Fax: +49 89 23330 233
E-mail hotelservice@muenchen.de
http://www.muenchen-tourist.de/englisch/muenchen-index_e_m.htm



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