

29th ENSA meeting, Delft 22 April 2008

Attending

delegates

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organisations

NMI3	Prof. Robert L. McGreevy	r.l.mcgreevy@rl.ac.uk
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Excuses of absence

Greece	Dr Konstatina Mergia	kmergia@ipta.demokritos.gr
Poland	Prof. Andrzej Szytula	szytula@if.uj.edu.pl

Approved agenda

1. Minutes previous meeting (Mortensen)
2. Information of the chairman (Allenspach)
3. ESS status/ESS-PP project (Allenspach)
4. Information about meetings
 - IAEA research reactor initiative, Vienna (Knudsen)
 - RI-ERA, Slovenia (Deriu)
 - Support letter Oyster (van Well, Allenspach)
5. Finances
 - Financial statement (Allenspach)
 - Report of the auditors (Deriu/Rosta)
 - Election of auditor (replacement of Deriu)
6. Draft of Statutes; weight of votes (Allenspach)
7. News from NMI3, EU-FP7 (Schober)
8. News from national societies / observers / facilities / organisations
9. Any other business

1. Minutes previous meeting (Mortensen)

Minutes of the 28th ENSA meeting, Bilbao 8-9 October 2007, are accepted

2. Information of the chairman (Allenspach)

- P. Allenspach was in his function as chairman present at the following meetings:
- *20 years of collaboration between Spain and the ILL*, Madrid, 28 November 2007
 - *Neutron and Muon User Meeting 2008*, Nottingham, 18-19 March 2008
 - ESS presentation in Switzerland

The *ESF / ENSA Survey 2005 of the Neutron Scattering Community in Europe* appeared, see http://neutron.neutron-eu.net/n_ensa/n_documentation

3. ESS status/ESS-PP project (Allenspach)

ESS: At the moment there are bids from three potential sites: Lund, Sweden, Bilbao, Spain, and Debrecen, Hungary. ESFRI installed the *ESFRI Working Group on ESS siting (EWESS)* or 'Zinsli group and the *ESS site review group (SRG)* to do a site assessment in order to obtain objective data that can be compared. EWESS will not provide a ranking! The responses to the questionnaire are expected in July, and SRG will report to EWESS on September 15, 2008.

ESS-pp: ESS-pp is a two-year EU (FP7) funded project, starting in April 2008, to carry out preparatory work towards the start of construction of ESS. The work is site independent. ENSA is one of the 12 partners. Peter Tindemans is chairman of the board. The project consists of 9 work packages. As ENSA delegate, Peter Allenspach is leader of the task *new paradigm, and data policy*. Here input from the users is needed. Leqlercq will assist Allenspach, together with someone to be suggested by Rosta. Task is to evaluate present situation at the different user facilities and recommend a desired structure (proposal system for single experiments, long-term project, sending in samples, etc) as seen from the perspective of the users. McGreevy states that data policy not only needs input from users but also from a higher level (research councils, etc). The question is: who is the owner of the data.

4. Information about meetings

- Knudsen report on *Meeting on Investigating Formation of Neutron Scattering Research Reactor Coalition*, Vienna, Feb 2008. Report is added as Appendix A.

Conclusion: ENSA will at present not take an active role in this initiative.

- Deriu reports on RI-ERA Meeting, March 5-6, 2008, Brdo, Slovenia, Appendix B. Conclusion: ENSA will follow, and distribute knowledge about, the developments in this field.

- Support letter Oyster (van Well, Allenspach)

Van Well reports about the Oyster project at the Reactor Institute at the Delft University of Technology. By increasing the power, compacting the core and installing a cold source the performance of the cold-neutron instruments will improve by two orders of magnitude. Allenspach will write, on behalf of ENSA, a support letter.

- Claver and Schober attended the *Int. Technology, Education and Development Conference*, March 2008, Valencia. Some contributions may be interesting for ENSA. They will report on this next meeting.

5. Finances

- Financial statement is presented by Allenspach and approved by the auditors Deriu/Rosta.

- Election of auditor (replacement of Deriu): By unanimous votes Deriu is replaced by Knudsen.

- ENSA needs some financial means for awarding neutron prizes (e.g. Lewy Bertaut prize, promoting/performing education, etc.). A committee has been installed (Deriu(head) and McEwen) to investigate opportunities for sponsoring).

6. Draft of Statutes; weight of votes (Allenspach)

Suggestion for changing Statutes:

- Article 3: Affiliation.

Replace 'Affiliation to ENSA is open to bodies representing neutron scattering users in those countries who are Members or Associates of the European Union ,and Switzerland, Norway and Russia' by 'Affiliation to ENSA is open to bodies representing neutron scattering users in European countries.'

Approved unanimously.

- Article 5.6: Replace 'Decisions will be made by a simple majority of delegates present' by 'Decisions will be made by a simple majority of all delegate votes present. The number of delegate votes per national society is given in Annex 3 and may be reconsidered by the ENSA delegates at their regular meetings at intervals that are not more frequent than every two years'.

Approved unanimously.

- Annex 3. Three options were proposed. Option 0, based on number of members of national societies (1 vote for $\# < 50$, 2 votes for $50 < \# < 500$, 3 votes for $\# > 500$). Option 1 and 2 are based on number of citations of neutron-related papers with affiliation in the relevant countries, based on survey performed by Rauch. See annex C. With 9 votes pro and 5 votes con option 0 was chosen. This was also based on the discussion during the previous ENSA meeting, Bilboa October 8-9, 2007. The next time this Annex will be reconsidered will not be before October 2009.

7. News from NMI3 EU-FP7

Schober reports on status of the NMI3 proposal. On February 27, 2008, the proposal for 22.5 MEuro was sent in. In June it became apparent that only a maximum of 15 MEuro could be granted. After ample discussion it was decided by all parties the networking that the access part will be reduced considerably; the other parts (networking, RTD, etc) on the average 25% reduction. Negotiations about the contract will start shortly.

8. News from national societies / observers / facilities / organisations

Austria

- The project AUSTRON has been put on ice but a satellite part "med-AUSTRON" will be realized in Wr. Neustadt near to Vienna. It is a medical accelerator unit for cancer therapy with two dedicated beam-lines for medium energy physics.
- The next meeting of the neutron community will take place together with the German community in Garching on 15-17 September 2008.
- The winter school on research with neutrons and synchrotron radiation will take place 9.-13. March 2009 at Plannersalm, Styria, Austria.
- A science citation survey concerning neutron scattering activities within Europe has been done which showed Austria at the 11th rank behind France, Germany, UK, Russia, Italy, Switzerland, Spain, Poland, Sweden and Netherlands.

Czech Republic and Slovakia

- One day seminars of Czech and Slovak neutron and X-ray community:
 - 17. 10. 2007, Nanoparticles on the base of iron and iron oxides and their applications, Olomouc
 - 29. 11. 2007, Memorial lectures in Honor of prof. F. Hanic, Bratislava
 - 12. 2007, History and future of structure analysis, Prague
 - 22. 1. 2008, Crystallography of proteins – News from our laboratories, Bratislava
- Organization of Autumn School on Neutron Scattering, Tatranska Strba, 15-18 September 2007 (40 Czech and Slovak participants).
- October 2007, Celebration of 50 years of the reactor LVR-15 in Āež
- In 2007 reactor operated 175 days. Spent fuel has been sent to Russia. Access Program was fulfilled and at present we provide the beam time above the NMI3 limit.
- New medium-resolution powder diffractometer has been installed at the reactor LVR-15 in Āež.

Denmark

- The Danish Neutron Scattering Association, DANSSK.
The Danish neutron community is organized by the Danish Neutron Scattering Society (DANSSK), with 145 members.
We have in Denmark recently made a report on key numbers for Danish neutron scattering activities. The report includes an estimate of the number of active Danish neutron scientists (i.e. with Danish affiliation) within the 5-year period 2003-2007. We define here that students and scientists belonging to at least **two** of the following categories are counted as *active neutron scatterers*.
 1. Scientists involved in neutron scattering organisation work
 2. Group leaders in the grant application for the instrument centre DANSCATT
 3. Scientist and student members of the Danish Neutron Scattering Society
 4. Scientists and students co-authoring neutron-related publications
 5. Scientists and students travelling to neutron beam timeUsing this criterion, we find that the number of active neutron scatterers in Denmark is 111, distributed by employment as 50 Permanent staff, 24 temporary staff, 25 PhD students and 12 MSc students.

- Danish funding for neutron scattering; DANSCATT
The Danish neutron scattering activities are partly funded through the DANSCATT center for Synchrotron X-Ray and neutron research. The funding covers some travelling costs, and few post doc positions. By January 1 2008, the funding for respectively synchrotron X-ray and neutron scattering was merged into one unit.
The annual meeting for X-ray and Neutron Scattering will take place at the University of Århus May 29-30, 2008.
The Danish neutron scattering activities are primarily done at SINQ, PSI in Switzerland, with whom we have contracts concerning the use of the RITA and the SANS-II (former Risø) instruments. Other Danish activities are spread over many European and other international facilities.
- ESS and ESS-S
The Danish minister for Research and Innovation announced in April 2008 that Denmark will start negotiation with Sweden on possibly co-hosting ESS in Lund. For the negotiation, the minister appointed Michael Christiansen and Jørgen Kjems, as well as a sub-committee represented by neutron scatterers as well as top university and industry persons.

France

Report SFN:

- Since Bilbao meeting, three SFN council meetings have been held [31/10/07(LLB), 22/01/08 (ILL), 04/04/08(LLB)].
- The French neutron meeting JDN16 will be held in Albé near Strasbourg (June, 23 to 30) due to the organisation team from the Institut Charles Sadron in Strasbourg (J. Combet, T. Charitat and M. Rawiso). The school on "Inelastic excitations as seen by neutron techniques" (TOF and 3 axis experiments) is organised by S. Rols (ILL) and S. Petit (LLB); 65 people will attend the School- 90 people the Conference.
- The SFN thesis prize will be allocated to Delphine Lebeugle for her work on the "Coupling between ferroelectric polarisation and magnetic structure in BiFeO3 single crystals" (SPEC, CEA-Saclay), on May 28 during the half day common to the School and the Conference. 10 thesis have been proposed for this prize, and examined by a multi-disciplinary jury chaired by Jean Pierre Hanssen, Liquid State theorist, currently at Cambridge University.
- The General Assembly meeting will be held during the JDN16 (June 29), with renewal of part of the council. [5 members: one delegate for each institute LLB and ILL and 2 user representatives reach the end of their 3 years mandate].
- The JDN16 Evening sessions will focus both on:
 - the Present, with reports from the centres (Cap 2010 at the LLB and the Millenium program at the ILL).
 - the Future, with the box score of ESS discussed in the presence of D. Vandromme the ESFRI delegate for France: Ferenc Mezei will outline the European choice 5MW Long Pulse, introducing presentations of the 3 site candidates : J. Campo for ESS-Bilbao, L. Rosta for HUFESS in Debrecen and C. Vettier for ESS-S in Lund.
- Free access to the courses of SFN Thematic Schools is now possible on a web site housed on the site of EDPSciences publisher: www.neutron-sciences.org (8 volumes on line, the last one "Neutron Diffraction and structural studies" is under press)
- The ESF-ENSA Survey has been circulated *by name* to about one hundred of people: French representatives in charge of neutron facilities or more generally large infrastructures for research, and experts in charge of evaluation of science.
- Last February, several contacts have been made with the representatives of CEA and CNRS strategy programs, aiming to urge a French decision to support ESS.

- SFN is one of the organising societies of the serie of the 'Matériaux' conferences with the aim to underline the income of neutron technics in material sciences. The organisation of the next occurrence Matériaux 2010 has started (responsible O. Isnard).
- Last, SFN is continuing regular actions : in the framework of the 'Itinerant Neutron Chair', poster expositions, introductory talks on neutron technics and thematic conferences are organised in several universities [responsible : G.Chaboussant], diffusion of 'Les Echos de la SFN' (a brief information sheet on recent news, two issues a year), ...

Germany

- Annual neutron conference, together with Austria, Garching, 17 September 2007
- 17 September 2007: new board of KFN (via email: 900 sent, 500 returned)
- Suggests for next ECNS proceeding: no old-fashioned proceedings but citable extended abstracts

Hungary

- The reactor has stable operation for 16 times 10 days
- In year 2008/9 transition HEU to LEU (66% to 20%). Spent fuel will be sent to Russia in 2008. The reactor will be operational for another 20 years
- Grant has been approved for instrumentation upgrade (SANS and NR)
- 1-day meeting in Debrecen: November 2007, 100 participants
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Italy

News from Italy and activities of the Italian Neutron Scattering Society (SISN) for the year 2007

- The traditional SISN Annual Meeting took place in September in Sestri Levante (near Genova) with a large participation especially from young researchers. Prizes were awarded to the best posters and talks presented by young post-docs and PhD students.
- The meeting was followed by a short thematic school (Giornate Didattiche
- SISN) that in 2007 was devoted to the dynamics of complex systems. Three days of lectures in Sestri Levante were followed by a five days training stage at the ILL. The students could perform real experiments using the two Italian CRG instruments (IN13 and BRISP) as well a three axis spectrometer (IN3) kindly made available by ILL. This new formula (lectures + experimental stage) has been very successful and it will be replicated in 2008.
- In 2007 the Italy National Research Council (CNR) renewed its agreement with The Science & Technology Facilities Council for the access at the ISIS pulsed source in the UK. The Italian financial contribution will be at 3% level, with a possibility of upgrading up to 5% with in kind contributions: at present Italy is participating to the construction of the intermediate range diffractometer NIMROD for the second target station of ISIS.
- The agreement for the participation at the ILL (presently at 3.5% level) will have to be renewed by the end of 2008.

The Netherlands

- A committee for the ministry of Education, Culture and Science will present a road map for national and international large research infrastructures in June 2008.
- RID started the Oyster project, is now looking for funds (see item 4 of the agenda)
- February 1, 2008, prof. Ekkes Brück is appointed as section head of the section FAME of the department R3.
- The contract between NWO and ISIS to ensure access for Dutch scientist has not been prolonged at January 1, 2008.
- Thursday April 24, 2008, RID will celebrate the fact that the Delft reactor has been critical for 45 years
- .

Norway

- New researchers in neutron scattering, mainly in H-storage).
- JEEP operation will probably be extended for another 10 years.

Romania

- 2 new members of the board
- Romania participated in Brussels in Spain/Hungary ESS meeting
- End 2008, the reactor will no longer be operational

Russia

- Society had on 13-19 October its 20th meeting in Gatchina
- Finances for 'new' reactor (PIK, Gatchina) will become available this year. Planned to be operational in 2010/11. Financing of the instruments is less clear.

Spain

Activities of Spanish Society on Neutron Techniques (SETN) in 2007:

- Spallation Techniques School held in Bilbao in October 2007 and organised by SETN with 100 participants and around 15 lecturers coming mainly from ISIS. The event was sponsored by NMI3, ESS-Bilbao and SETN. The same week SETN also organised the fall meeting of NMI3 project in Bilbao with around 120 participants.
- In 2007 were 20 years since the Spanish Ministry of Education and Science signed the first agreement with the Institut Laue Langevin (ILL) from Grenoble, which enabled and granted access to neutron beam time for Spanish Scientists at the aforementioned institute. Therefore Spain became the first scientific member of the ILL, lately followed by other countries. To celebrate this twentieth anniversary of our participation at the ILL, the Ministry of Education and Science jointly with the Institut Laue Langevin, organized an event last November 28th at the new building of the Ministry in Madrid. Among the attendants we had the Directors of the ILL, its Steering Committee and former Directors, representatives from CSIC, representatives from other European centres on Neutrons, Spanish Universities, representants of Spanish large research facilities, Ministry authorities. In total around 110 participants. A clear endorsement of the Spanish SEUI for ESS-Bilbao was announced.
- The MEC organised in 29-30 November in Madrid the fall meeting of the ILL Steering Committee.
- IV biannual meeting of the SETN, will be held in San Feliu de Guixols (Gerona) during 8 to 10 September 2008. A three days meeting with several sessions devoted to instrumentation, sources, science and scientific policy. Around 100 people are estimated to participate.
- Spanish ministry of science and education (MEC) agreed with ILL on the signature of a new contract in which a increase from 4% to 6% of beam time use for Spanish scientists is anticipated. The new contract will be in force in 2009 and will be extended till 2013.
- Concerning the two Spanish-French CRG at ILL, JC informed about the renewal of the contract with CNRS to continue the collaboration in D1B and the normal continuation in D15 with CEA until 2010.
- MEC renewed the MoU with ISIS in order to collaborate with a participation 2.5 % of beam time for Spanish Users. The new contract is in force since 2008 and it is extended for 4 years.
- Last news about the SETN bibliometric study based on ISI-WoK data base. JC reports about Spanish neutron users community that will be published soon. The definition taken for neutron user is: a scientist is considered a neutron user if "*the scientist has published at least 5 papers in the last 15 years where the word neutron appears in the title, abstract or keywords and excluding that papers related with fields in neutron starts, nuclear physics*

and radioactivity'. Within this definition SETN estimated a Spanish neutron scattering community around 240 people in 2007.

- Also information was given about the ESS-Bilbao Consortium and the MoU signed with ESS-Hungary. The main lines of that MoU were underlined: joint scientific director, exchange of information and methodology about socio-economic impact and costing etc...

Sweden

SNSS reported that the next meeting of their Society would be on the 13 & 14 May 2008. It is held in English and participants from other countries were welcome. The Swedish participation at ILL as a scientific member has been increased to 1.5% and that a consortium with Belgium is being formed for membership.

Switzerland

- Walter Fischer one of the fathers of SINQ died in February.
- Number of society members: 196
- Designated PSI-director is Joel Mesot. He will take office on August 1.
- Celebration of 20 years Switzerland at ILL: Symposium on November 28, 2008, at PSI.
- The Swiss 16T actively shielded magnet for SNS (initiated by our society) is scheduled for tests at PSI in early 2009 and shipment to SNS right after the tests.

U.K.

The UK Neutron Users Meeting was held on 18 - 19 March 2008 at the University of Nottingham. It was attended by about 250 people. Updates on new developments at the ILL and ISIS were presented. The BTM Willis Prize, awarded annually by the Neutron Scattering Group of the Institute of Physics and Royal Society of Chemistry to a relatively young scientist, was presented to Dr Radu Coldea (University of Bristol) for his outstanding contributions to quantum magnetism, using neutron scattering. Radu then gave a lecture on this topic.

Observers

Belgium

The 2 years interim period of the ILL's membership of Belgium (at 0.5% level) ended in April 2008. A consortium should be made with Sweden in order to share the fixed fee (of about 1.3%) between the two partners (and hopefully with more partners in the future). The agreement is on the Belgian minister's desk. The Belgium participation should be increased up to 0.7%.

Facilities

ISIS

TS2 progresses according to schedule. Expects next June/July the first protons on target.

LLB

The Instrumental Program "Cap 2015" is launched. The goal is twofold:

- Upgrade several instruments. In this framework, a new detector for the 7C2 spectrometer, dedicated to structural investigations of liquids, glasses and amorphous materials is under construction.
- Built 2 new instruments: We are preparing Fa#, our future quasielastic spectrometer that replaces Mibemol. Also, the construction of a new small angle scattering instrument, called Pa20, with GISANS and polarized neutrons options, will start very soon. In both cases, new guides will be optimized.

SINQ

- Presently there is a longer than planned shut-down for SINQ in order to realize an intermediate cooling cycle. This measure became necessary after a leak in a heat exchanger between the tritium contaminated heavy water of the target and a light water circuit. This led to light water in the heavy water system and reduced neutron flux as well as a tritium contamination of the light water circuit.
- The backscattering spectrometer MARS has taken up user operation. Measurements with resolutions of some uev in the inelastic regime up to 10 meV are possible with this instrument (see also Neutron News).

8. Any other business

- McGreevy took the opportunity, in his last ENSA meeting, to express his concern about the impact and visibility of ENSA. Discussion about future actions followed. Will be continued.
- Next meeting will be held in Kopenhagen on October 2, 2008.

APPENDIX A

FINAL REPORT

Meeting on Investigating Formation of Neutron Scattering Research Reactor Coalition (RER/4/029) 11-13 February 2008

Background:

Research reactors continue to play a key role in the development of peaceful uses of atomic energy, including education and training, production of medical and industrial isotopes, non-destructive testing, analytical studies, modification of materials, research in physics, biology and materials science, and support of nuclear power.

In order to address the complex of issues related to sustainability, security, and non-proliferation aspects of research reactors, and to promote international and regional cooperation, the IAEA has initiated the Research Reactor Coalitions and Centres of Excellence initiative. This activity is supported by a 2007-2008 IAEA Technical Cooperation Project, "Enhancement of the Sustainability of Research Reactors and their Safe Operation Through Regional Cooperation, Networking, and Coalitions" (RER/4/029). It is also supported by a two-year grant from the Nuclear Threat Initiative, Inc. (NTI), as well as relevant national and regional IAEA Technical Cooperation projects and complementary IAEA regular and extra-budgetary funded programme activities in research reactor utilization, safety, security, and the fuel cycle. These activities were endorsed by the IAEA Board of Governors in March 2007, which encouraged research reactor regional cooperation and networking.

The meeting was convened in order to explore the possibility of forming a research reactor coalition focused on neutron scattering, as preliminary consultations had indicated potential for expanded cooperation among research reactors with neutron scattering capabilities.

Objectives:

The meeting had the following objectives:

- Review the current status of neutron sciences and neutron scattering facilities worldwide, and consider the establishment of an inventory of neutron scattering facilities;
- Review past and existing networks, cooperative ties, or burden-sharing arrangements between neutron scattering facilities;
- Discuss and evaluate the potential for a neutron sciences Coalition, including its mission, scope, and mandate, level of formality and commitment made by parties;
- Suggest potential participating/matching facilities;
- Make explicit recommendation about potential obstacles or pitfalls;
- Advise on how a Coalition would operate, including potential IAEA role, requirements for funding, how new neutron science Coalitions might be subsequently spawned, how new partners may join existing Coalitions, and indeed if this should be sought through outreach activities.

Work Done:

The meeting was attended by representatives of eighteen research reactors from fourteen countries (participants list attached as Appendix A). Following introductory remarks by IAEA staff and an IAEA consultant, presentations were made by fifteen participants regarding the neutron scattering activities at their facilities.

This included major operating international facilities - ILL, FRM-2, and NIST - (as well as Oak Ridge) especially information and statistics on their user access programs. The representative from Australia outlined the status of the new OPAL reactor and its neutron scattering instruments, including regional cooperation and plans to establish an Asia-Pacific Neutron Scattering Association.

A number of European reactors (Delft, Demokritos, Budapest, Hahn-Meitner Institute, Kjeller, Petten, Rez, and Vienna) described their activities, and in the case of several, specialty neutron scattering capabilities involving special instruments and experimental conditions. Existing networks such as European Union-funded activities (e.g. NMI3) and the role of the European Neutron Scattering Association (ENSA) were highlighted.

Information was also presented on the plans of the Russian institutions Joint Institute of Nuclear Research, Dubna (IBR-2 pulse reactor) and Kurchatov Institute, Moscow regarding their current activities to refurbish the research reactors and associated neutron scattering instruments in order to resume full operation in 2011. Information was also presented on the current neutron scattering capabilities of the existing research reactor at Gatchina and the recent decision by Russian authorities (Russian Academy of Sciences) to fund the completion of the PIK reactor by 2011. The Russian presentations stressed their interest in having international involvement in these centres.

During the presentations and in open sessions, a number of issues were discussed related to possible areas of expanded cooperation and collaboration between neutron scattering institutions. This included the possibility of re-directing non-accepted proposals from the major user centres, support for education and training, and technology development for neutron scattering instruments, as well as technology transfer to improve the level of neutron scattering facilities and scientific personnel in developing countries.

The following conclusions and recommendations represent findings that resulted from the presentations and discussions. These, as well as the specific actions noted below for the IAEA to pursue, have been agreed by the participants.

Conclusions:

- Leading NS facilities that serve as national or international neutron user centres on the basis of the submission and peer review of competitive proposals largely through mature web-based systems have somewhat more than twice the amount of applications for beam-time than the capacity available. This ratio is accepted and desired by these centres.
- Neutron scattering facilities are continuing to expand their number and variety of available instruments in order to increase beamtime and to improve experimental capability.
- There are constraints to simply re-directing existing over-demand from the major centres to secondary NS centres. In many cases, this is not feasible, as the users are looking for specific capabilities that are not available at secondary centres. Some re-direction already occurs in an informal, ad-hoc manner, including on the basis of established professional relationships.
- An additional significant obstacle to moving experiments and researchers is the required financial support for travel and subsistence.
- Some of the medium and smaller reactors and neutron scattering centres in Europe have developed quality niche expertise relating to neutron-scattering sometime relating to topical areas (e.g. IFE, hydrogen storage and materials; HMI, magnetism), specialty sample

environments (HMI – magnetic fields; Rez – stress and strain), and particular instruments (e.g. Delft, spin-echo SANS and positron).

- Methods and instrument development are sometimes very suitable to first occur at small centres and universities for later full deployment and implementation at the larger centres (e.g. spin-echo; SESANS). This has a particular benefit for human resource development and for building the neutron scattering user base. Typical examples of components which can be developed away from the large centres are: neutron optics, detectors, super-mirrors, monochromators, etc.

-Neutron handling /guidance is a key aspect to get good scattering results and would benefit from cooperative activities and knowledge transfer from the leading facilities.

-Sending instrument scientists to the large, high-throughput neutron scattering centres may be of limited value in terms of training because they are unable to have detailed interaction with development and construction of the instrumentation.

-Smaller facilities are well-positioned to assist in the education process, especially for Master, PhD, and engineer training.

-Europe has a well-developed infrastructure including existing networks for cooperation and communication between NS centres and the user community (e.g. ENSA) including EU-support (NMI-3) for networking and the enhancement of smaller facilities, as well as national neutron user organizations.

-Close relationships and connection to universities is vitally important at all levels.

-Establishment of GRID connection between neutron scattering facilities would be highly beneficial. Support for development of data analysis capabilities should be encouraged.

Recommendations:

- Actions need to be undertaken to support the education, training, and mobility of researchers, especially from developing countries, in order to have access to available neutron scattering centres.

-Improving the accessibility and comparability of information on instruments available at various NS centres would be helpful in cultivating the user community. Efforts by NMI3 (Neutron Pathfinder) may serve as a model in this regard.

-Smaller and medium facilities need to have at least one well-operated (frequent availability, with good quality measurements) standard neutron scattering instrument that can help develop an expanded user base in that country or region.

-Instrument development is an area with good potential for substantial cooperation, as there is a real need to collaborate better on instrumentation.

-Use of neutrons is interdisciplinary. Beyond physics, there should be increased outreach efforts to the chemistry, biology, geology, cultural heritage, engineering, and life science communities.

Actions for IAEA:

It was recognized that the IAEA has undertaken a number of activities through Coordinated Research Projects and national Technical Cooperation (TC) projects to assist some developing countries in establishing or improving neutron scattering capabilities. Continuation and expansion, where appropriate, of such activities is encouraged, especially to promote development of early career scientists. In particular, it was recommended that the IAEA:

- provide support for PhD students and post-docs,
- strengthen relationships with universities
- support capabilities to write scientifically competitive proposals, including support for fellowships for visits to well developed neutron centres for this purpose,
- support long-term fellowships (e.g. 1 year) to well-developed neutron centres to learn advanced methods and neutron instrumentation, and
- provide financial support for travel and subsistence of experimenters from developing countries.

The IAEA is encouraged to strengthen relationships with mature neutron scattering centres for assistance in building specific neutron instruments of appropriate complexity at facilities in developing countries. TC projects are effective tools in this regard.

It was noted that the IAEA definition of deuterated research sample and quantities for states to apply exceptions to transport between research institutions in different states has led to difficulties in moving deuterated samples for neutron scattering. The IAEA was urged to examine whether there are means to bring the issue to the attention of the Agency's Steering Committee on the Denial of Shipment.

An example of a possible coalition is the proposal for the creation of Network for Residual Stress Analysis (STRAINET), a collaborative network for strain and texture measurements by neutrons. The IAEA is currently reviewing establishment of a cooperative relationship with STRAINET.

A proposal for a new reactor coalition in the field of ultra-cold neutrons (UCN) was made by Austria, involving the reactors in Vienna, Budapest, Munich, Mainz, and Pitesti (Romania). This would involve installing a UCN vessel near to the reactor in the powerful pulsed TRIGA reactor in Pitesti. The Austrian representative provided details regarding this proposal, which are attached as Appendix B.

APPENDIX B

RI-ERA Meeting, March 5-6, 2008, Brdo, Slovenia

About 250 participants overall.

The main objective was to clarify the challenges and opportunities at the national, regional and European level related to research infrastructures (including e-infrastructures).

The Meeting was organized into four Sessions. This is just a very schematic summary of the main points addressed and/or highlighted by the speakers.

Session 1: *The Impact of Research Infrastructures on the Regional Dimension of ERA*

- Territorial asymmetry (in terms of scientific and industrial development) requires defining a new cohesion scheme to reach a sufficiently broad consensus on the initiatives.
- A recurrent keyword was that of "*cross-border meta-regions*" as a flexible scheme for infrastructures better tailored to local (regional) needs in place of a more rigid "*one size fits all*" scheme.
- Another recurring statement (also in some of the following sessions) was the need of new more flexible funding mechanisms to replace the present financial framework.

Session 2: *Towards a comprehensive strategy for research infrastructures at European level*

- Need of general criteria on how to allocate large infrastructures. In this respect the ESFRI roadmap provides the starting picture, but when crucial decisions have to be taken some relevant points need to be properly considered:
 - o A transparent manner for decision
 - o Competitiveness must be balanced with cohesion
 - o Funding complexity (public central funds, regional funds, private ones, etc...) has to taken into account
 - o On the side of "consensus", important items are: well synchronized decision making and direct open negotiations (transparent bidding approach)
- Case for a strong cohesion policy and FP.
- Choice of proper time to take decisions.

Session 3: *Research infrastructures as engines for open innovation*

- Managing multi-actor knowledge production.
- Create "ecosystems" for innovation where the organization of the infrastructure takes into proper account the benefits that a stimulating climate can bring to research and development. Some examples were provided for instance by people from Philips of benefits achieved by re-structuring their research labs in an "open" way with a significant integration with Universities.
- Need for super-clusters and multi-site research infrastructures to reach critical masses.
- Development of e-infrastructures ("virtual labs" and "virtual proximity").
- Stimulate the growth of regional partner facilities (especially made up by smaller countries) for a better ERA integration.
- Make use of the potential of synergies between FP7 funds and structural funds.
- Take actions to merge the scientific research communities of the various countries.

Session 4: *Orchestrated sustainable funding from multiple sources*

- Public funding will keep its key role for research infrastructures not only in the construction stage but also to support running costs.
- Due to the relatively low level of public resources (major increases are not foreseen....) priorities have to be well identified and this must be done while ensuring a balance between cohesion and competitiveness.
- Ensure effective and efficient use of public funds.
- Ensure sustainability through the association of public and private funding sources.
- Elaborate innovative financial instruments, for instance with a better use of funds from EIB (this was also a recommendation from a representative of the European Bank)

The closing remarks were formulated by J. Potočnik who, among other things, insisted on keeping the focus on excellence, but stimulating at the same time the scientific growth of the newer European countries.

APPENDIX C

ENSA Statutes, Annex 3

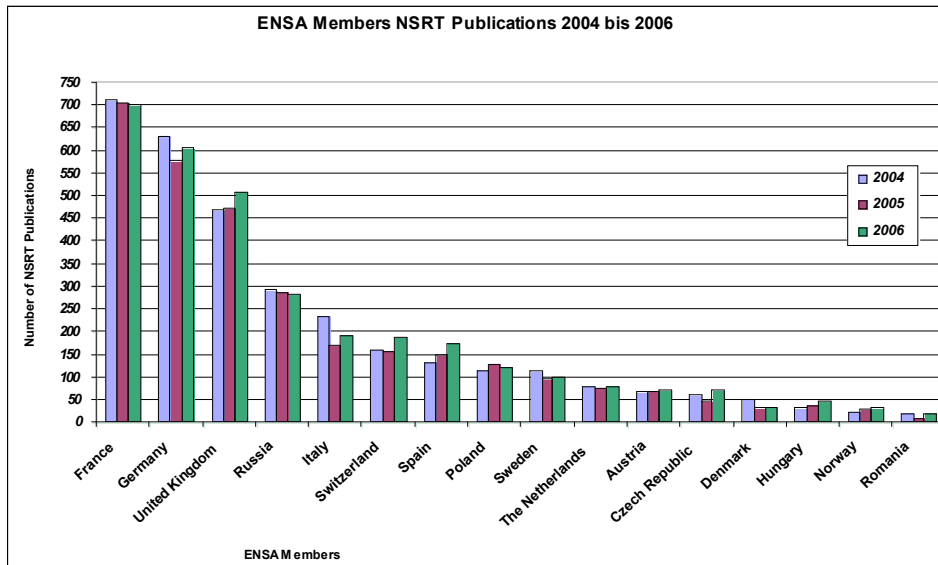
Delegate Votes per National Society

Proposition, April 22, 2008

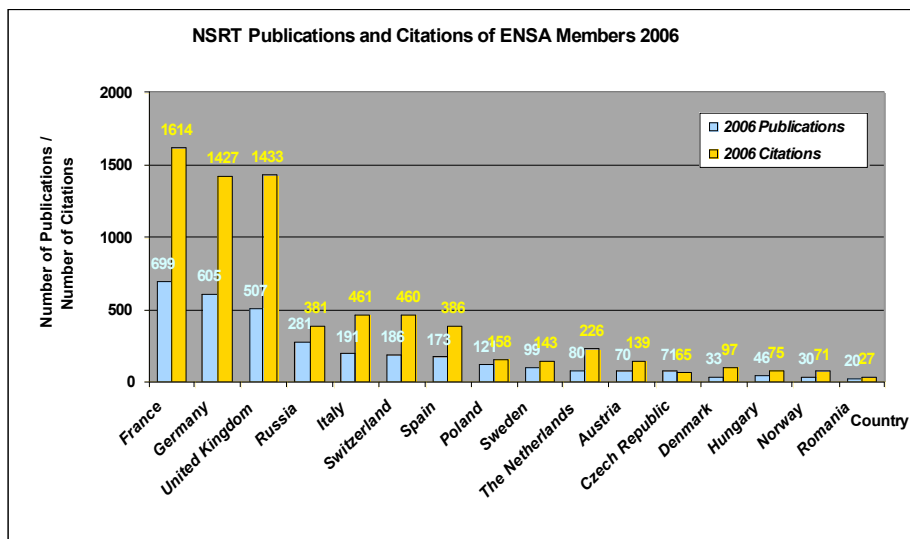
Option 0: according to number of members of national societies

Options 1 and 2: according 2006 citations, see below

country	number of votes		
	option 0	option1	option2
Austria	1	1	1
Czech Republic	1	1	1
Denmark	2	1	1
France	3	3	5
Germany	3	3	5
Greece	1	1	1
Hungary	1	1	1
Italy	2	2	2
Netherlands	2	1	1
Norway	1	1	1
Romania	1	1	1
Russia	2	2	2
Poland	1	1	1
Spain	2	2	2
Sweden	2	1	1
Switzerland	2	2	2
UK	3	3	5
total:	30	27	33



The number of „neutron scattering relevant“ publications from the different countries



Number of publications and citations in the year 2006 for the different countries for „neutron scattering relevant papers“.