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**WORKSHOP SESSION II REPORT: R&D
NEEDS OF IGORR MEMBERS**

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Report on the Workshop Session II:

R & D Needs of IGORR Members

K. Böning

On the first day of this meeting a variety of reports has been given on projects covering the range from major upgrades of existing research reactors or experimental installations up to totally new research reactor facilities. From these project descriptions it was clear that a strong need of all these groups for R & D (research and development) work had to be anticipated. So the purpose of the present workshop was - on the one hand - to identify those fields in which the results of R & D work would be required by IGORR member groups.

On the other hand - there is an appreciable amount of R & D work either being planned for the near future or being performed right now (or having just been completed) by IGORR member groups. These groups would - quite generally - be happy to share their results with other groups interested. So the purpose of this workshop was also to identify those fields in which R & D work actually is or will be (or has been) performed by IGORR members.

It seems obvious that the problem so far is one of communication, i.e. of bringing together those IGORR member groups which have common R & D interests. So it has been attempted during the workshop to establish a matrix in which the various fields of R & D activities could be compiled together with the various IGORR groups being either performing such R & D work or only interested in its results. It was hoped that in this way correlations would show up which could allow groups of common interests to come into contact with each other, to exchange information and perhaps to avoid duplicating efforts.

Having this in mind, overviews were first given on the workshop of the R & D work planned or required for the two projects aiming at totally new research reactors. Here R & D work is particularly important in the case of the Advanced Neutron Source ANS, a big and challenging project requiring new technology in many areas,

whereas this demand is not so strong in the case of the new Research Reactor Munich FRM-II, a much smaller project relying essentially on established technology. Although these reports concentrated more on experimental R & D work, since this is usually most budget- and time-consuming, it was generally understood that non-experimental work (e.g. evaluation of data, check of correlations, etc.) is of comparable importance and should not be excluded from our considerations here.

After these two presentations a matrix has been set up as argued above, in which the various fields of R & D work were listed on the vertical and the IGORR member groups interested in this work on the horizontal axis. The symbol "+" has been introduced for that R & D work which a given group was not only interested in but determined to perform actively by itself, and the symbol "o" in those cases where a given group was only interested in being informed about the results of such work but did not intend to perform it by itself. Having established this matrix a lively discussion set in among the participants of the workshop which led to the matrix growing significantly in size. The final form of the matrix, in which the various IGORR member groups are listed in the order of their contribution to the discussion, is shown at the end of this paper.

A few comments should be given with respect to this table. First, it was generally regretted that the representatives of the High Flux Reactor at Grenoble (ILL) had to cancel their participation in the IGORR Meeting shortly since important contributions to the subject could be expected from this center. Further, it goes without saying that the matrix only represents a very rough, summarizing description of the actual situation since space does not allow to include any details here.

Nevertheless, some more specific comments shall be given with respect to the following topics of the matrix:

To 3.: It was felt that for small, undermoderated reactor cores which are surrounded by a high-quality moderator the distinction between the short lifetime of prompt neutrons remaining within the core and the long life of prompt neutrons diffusing back from the moderator into the core should be taken into consideration more explicitly.

To 6.: Includes the behaviour under irradiation of highly enriched silicide (ANS, FRM-II) and aluminide (MURRI) fuel.

To 7.: Refers mainly to boron poison in the form of either a cermet or an aluminum alloy.

To 8.: Interest seems to concentrate on Al 6061 (ANS, BNL) and zircaloy (ORPHEE, MAPLE) both representing well established research reactor materials. The available data include those of irradiated hafnium absorbers (MAPLE).

To 9.: Neutron transmission tests on irradiated guides.

To 10.: The data from Riso refer to Al 5052 cold source material.

Further, it was pointed out from the Canadian side (MAPLE) that - as far as commercial interests are being involved - one would have to distinguish between free and proprietary R & D results.

How shall we proceed for the future to make the best out of this evaluation? It would certainly not be a proper approach to distribute all available material on R & D results unspecifically among the IGORR members. It is rather being suggested here that those IGORR members having common R & D interests - according to the matrix - try to get into contact with each other. It has further been suggested during the workshop that an IGORR Newsletter should be established which should appear in regular time intervals; this newsletter should contain a "R & D section" in which the titles and abstracts of reports on recent R & D work could be published so that interested IGORR members could directly contact the authors to ask for copies.

R & D work

topics:	being planned (+) or results needed (o):										
	ANS	FRM-II	MURRI	BNL	Riso	JAERI	Petten	Berlin	ORPHEE	MAPLE	MIT
1. Thermal-hydraulic tests and correlations	+	o	+	o		+					
2. Corrosion tests and analytical models	+	o	o								o
3. Multidimensional kinetic analysis for small cores	o	o								+	

4. Fuel plates fabrication	+	+									
5. Fuel plates stability	+	+	o								
6. Fuel irradiation	+	o	+			+					
7. Burnable poison irradiation	+	+									

8. Structural materials irradiation	+	o	+	+			+	o	+	+	
9. Neutron guides irradiation	o	o				+					
10. Cold Source materials irradiation	o	o			+			o	+		

11. Cold Source LN ₂ test	+										
12. Cold Source LH ₂ -H ₂ O reaction (H or D)	o	?		+		+					

13. Instrumentation upgrading and digital control system	+		o	o			+		+		
14. Man-machine interface	o	o									+

comments: + results needed and own work/tests planned
 ? results needed, but own tests not decided yet
 o results needed, but own work not planned

REPORT ON IGORR ORGANIZING COMMITTEE MEETING

On the final day of the First IGORR Meeting, the original Organizing Committee held an open meeting to discuss the purpose and structure of IGORR, possible plans and schedules for the next meeting, and plans for interim activities.

The members present decided that IGORR is indeed an organization with a useful role and should continue. A charter was agreed upon and is printed at the beginning of the Proceedings. The Group plans to concentrate on new reactors or planned upgrades, a field that did not previously have any specialist international forum, although IGORR will continue to seek interaction with other organizations representing research reactor operators and users, including university reactors, the IAEA, and the European research reactor community. Future IGORR meetings will emphasize new designs, new equipment, safety, and new data (such as materials data) of primary interest to members.

To further the sharing of knowledge among members, B. Farnoux volunteered to produce an IGORR newsletter. The newsletter will include announcements of proposed upgrades or new projects and will list recent publications of research and other results of importance to the community.

The group proposed to hold the next meeting in Fall 1991, perhaps in conjunction with a meeting on irradiation effects scheduled at that time. B. Farnoux volunteered to host the meeting at Saclay.

Two new members were added to the organizing committee - Monsieur C. Desandre (Technicatome) and Professor H. Nishihari (Kyoto University). Colin D. West was elected Chairman.

John Axe kindly offered to publish a short summary of the meeting in *Neutron News*.

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