

IGORR: The First Twenty-Five Years

Presented at the RRFM/IGORR Meeting March 2016

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Background

- In 1989 there were several proposed new research reactors and major upgrades to several existing research reactors.
- There were 4 major new research reactor projects
 - At ORNL we were in the process of designing the Advanced Neutron Source reactor which was to have been a replacement for the HFIR.
 - The FRM2 research reactor project was underway in Germany
 - The HANARO reactor project was underway in South Korea
 - The initial planning for the OPAL reactor was underway
- There were also several major research reactor upgrade projects that were underway or in planning
 - NIST was in the process of adding their first cold source (A D2O ice moderator)
 - A major upgrade to the BER-II was just completing
 - Major upgrades to the Petten reactor were just being completed
 - The Orphée reactor management were considering a major upgrade to the scientific capabilities
 - The rebuild of the JRR-3 reactor was almost complete

Colin West (the Director of the Advanced Neutron Source Project at ORNL) Initiated the Discussion of A Possible World Wide Research Reactor Organization

- **Colin contacted several organizations around the world with the idea.**
- **The general feeling was that this worth pursuing.**
- **A Charter for the new organization was prepared**
- **A steering committee was formed and tasked with organizing a meeting.**



The Initial Charter for the IGORR Organization Was Simple

- *The International Group On Research Reactors was formed to facilitate the sharing of knowledge and experience among those institutions and individuals who are actively working to design, build and promote new research reactors or to make significant upgrades to existing facilities*

The Initial Steering Committee was Composed of a Single Representative From Each of the Major Organizations That Had Agreed to Participate

1. J. Ahlf, Joint Research Center – Petten (The Netherlands)
2. P. Armbruster, Institut Laue-Langevin – (France)
3. J. D. Axe, Brookhaven National Laboratory (USA)
4. A. Axmann, Hahn Meitner Institute (Germany)
5. K. Boning, Technischen Universitat Munchen (Germany)
6. C. Desandre, Technicatome (France)
7. A. F. DiMeglio, Rhode Island Atomic Energy Commission (USA)
8. B. Farnoux, Laboratory Leon Brillouin (France)
9. O. K. Harling, Massachusetts Institute of Technology (USA)
10. R. F. Lidstone, Whiteshell Nuclear Research Establishment (Canada)
11. S. Matsuura, JAERI, Tokai (Japan)
12. J. C. McKibben, University of Missouri (USA)
13. H. Nishihara, Research Reactor Institute, Kyoto University (Japan)
14. Y. V. Petrov, St Petersburg Nuclear Physics Institute (Russia)
15. H. J. Roegler, Interatom (Germany)
16. J. M. Rowe National Institute for Standards and Technology (USA)
17. C. D. West (Committee Chairman), Oak Ridge National Laboratory (USA)

The First IGORR Meeting Was Held A Little Over a Year After the Initial Concept Was Established

- Meeting was held close to ORNL at the Knoxville Tennessee Airport Hilton Hotel
- The meeting was not the level of conference that we have today
 - There was no registration fee.
 - There was no general call for papers and essentially all the papers were invited
 - There were only 17 papers
 - There were only 52 attendees and 16 of those were from ORNL
 - Attendees were from 25 organizations in 10 countries
- Papers were published in an ORNL report
- It was agreed by all attendees that IGORR should continue and the second meeting was planned to be held in Saclay, France

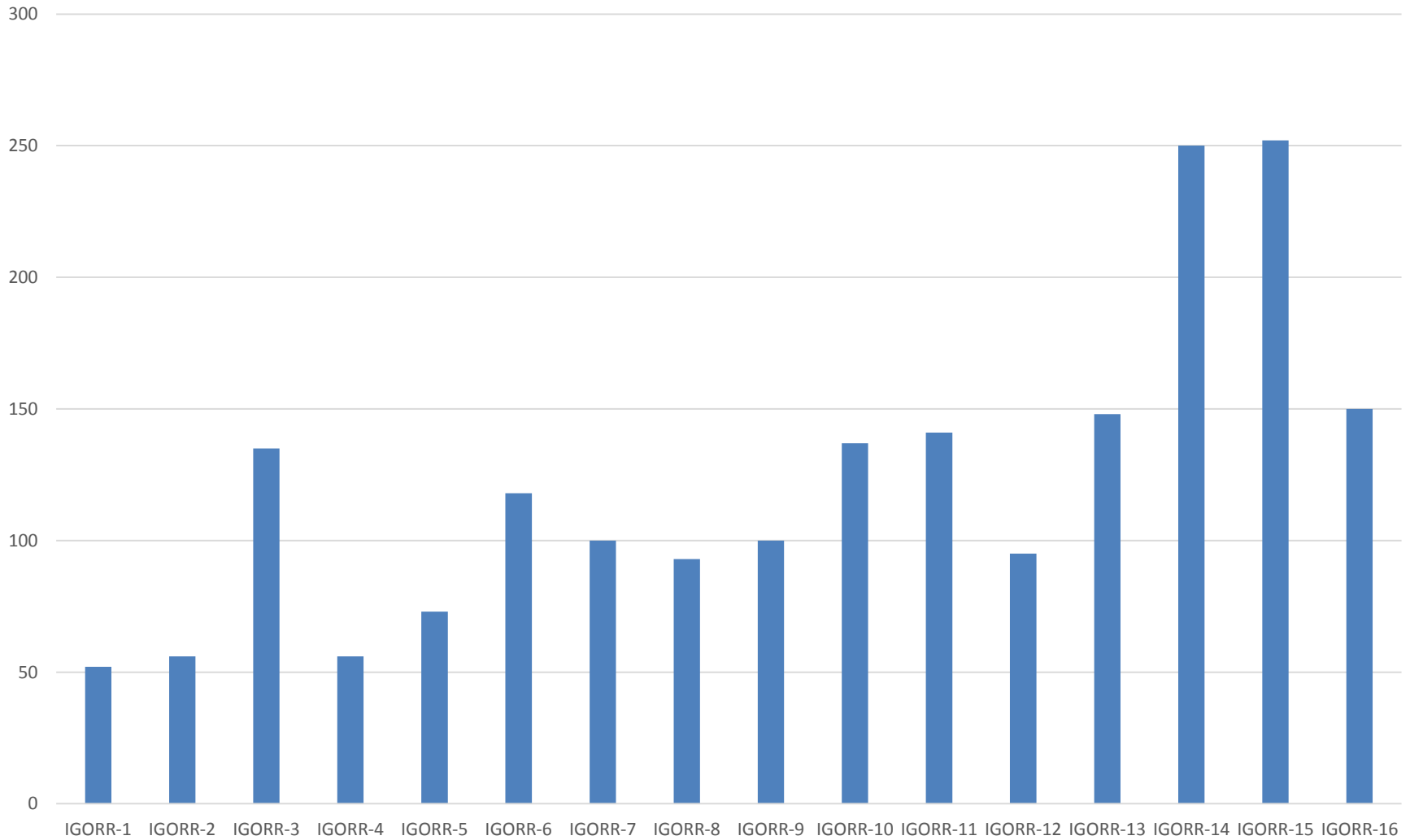
IGORR Workshops Were In My Opinion the Highlight of the First Meeting

- **One of the biggest weaknesses of the research reactor community at the time was a lack of communication amongst various research reactor staffs.**
- **The workshops offered an opportunity to openly discuss issues that were common to many research reactors in a round table format**
- **There were a number of collaboration efforts that were initiated by the IGORR workshops**
- **Unfortunately, the workshops were phased out as IGORR shifted to a more conventional conference.**

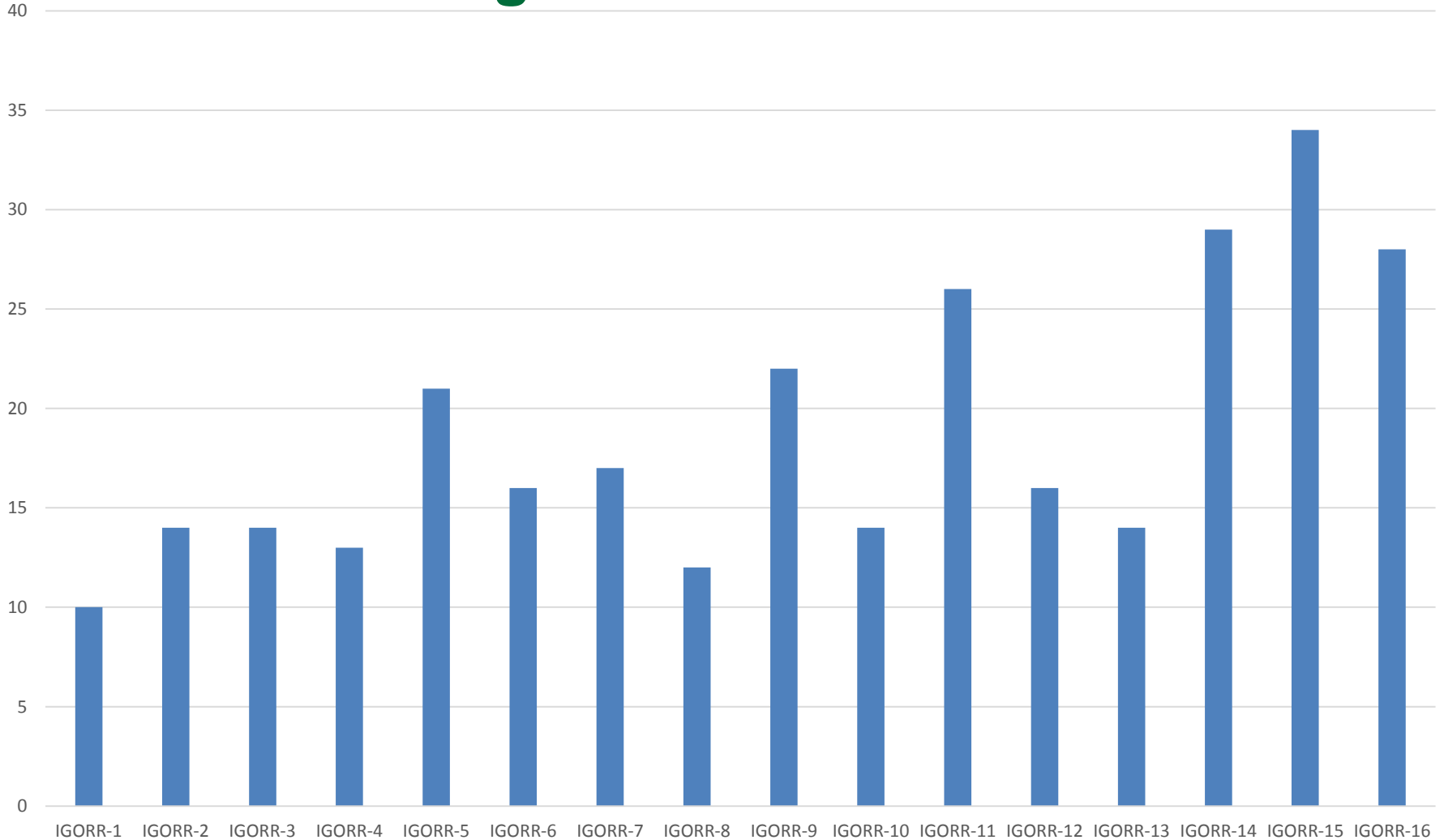
Topics Covered in the IGORR Workshops Were Widespread

- Thermal-hydraulic tests and correlations
- Corrosion tests and analytical models
- Multidimensional kinetic analysis for small cores
- Fuel plate fabrication
- New fuel irradiation data
- Structural materials
- Neutron guides
- Cold source concepts
- Instrumentation upgrading and digital control systems
- Man-machine interface
- Reactor utilization and user needs

There Has Been A Significant Increase in Attendance Over the First 25 Years



There Has Also Been A Significant Increase in the Number of Countries Represented Over the 16 IGORR Meetings



Over the First 25 Years There Have Been 5 IGORR Chairmen

- Colin West (7 Years) 1989 – 1996 (IGORR-1 through IGORR-5)
- Klaus Böning (7 Years) 1996 – 2003 (IGORR-6 through IGORR-9)
- Alain Ballagny (2 Years) 2003 – 2005 (IGORR 10)
- Joël Guidez (4 Years) 2005 – 2009 (IGORR 11 and IGORR 12)
- Gilles Bignan (7 Years) 2009 – 2016 (IGORR 13 through IGORR 17)
- It should be noted that without the hard work and determination of these 5 chairmen, there would probably not be an IGORR organization today

The Steering Committee Has Changed Almost Every Year

- There were 17 members of the original steering committee representing 7 countries
- The number of members of the Steering Committee has varied from a low of 15 to a high of 21
- Today there are no remaining members of the original Steering Committee which is composed of 18 members from 11 countries
- The three Steering Committee members who have been on the committee the longest are José Lolic (INVAP-Argentina), Bob Williams (NIST-USA), and Doug Selby (ORNL-USA)
- With José and myself retiring and leaving the committee, Bob will now be the senior member of the committee

Points of Interest

- **The IGORR Charter was changed in 2007 to emphasize the importance of promoting safe operation in the research reactor community**
 - I would note at the Steering Committee this week I suggested that the full charter should be revisited to make sure that it is consistent with the scope of IGORR today.
- **Through the first 15 years of IGORR, the chairman used input from different facilities to issue an IGORR semi-annual newsletter; updating activities and issues at research reactors around the world**
 - This was phased out, as the reactor projects initiated in the 1990's were either finished or canceled.
- **Through this meeting, IGORR has been hosted on 5 of the 7 continents:**
 - Europe (6), North America (4), Asia (4), South America (2), and Australia (1)
- **In the first 10 years of IGORR the majority of the papers were presented on new research reactor projects or major upgrades; but this has shifted over the last 15 years to be more on R&D, reactor utilization, and reactor operations.**

Farewell Comments

- **Although there has been a decline in the number of research reactors over the years, this should not be interpreted as a decline in the need for research reactors.**
 - Shojiro Maturra (Former Executive Director of JAERI) at IGORR 3, Wolfgang Gläser (Former Director of ILL) at IGORR 8, and Douglas Selby at IGORR 17 stated that in general the demand to use the existing research reactors continues to increase.
- **The practice of finding related topical meetings for joint conferences has been a big success and this practice should be continued.**
 - It decreases costs
 - Broadens the scope of the meeting
 - Allows the IGORR papers to be presented to a broader group of people
- **The IGORR Steering Committee should consider reinstating the workshops at future IGORR meetings**
- **The Steering Committee was originally intended to be more than a group that organized the meetings and were meant to serve as individual contact points to set a foundation for global networking though out the year.**

Farewell Comments

- **If there is one thing that I would pass on to the IGORR Steering Committee and attendees, it is that no research reactor can operate in isolation from the rest of the world .**
 - **In today's world of instant communication what happens at one research reactor half-way around the world from your facility can and will impact the operation of your facility and the questions and issues that your regulators bring to you**
 - **Communicate, communicate, and communicate**
 - **IAEA recognizes this as much as anyone and the IGORR Steering Committee and the organizations represented by the attendees at this meeting should work with IAEA to encourage that:**
 - **There are minimum standards met at every research reactor**
 - **Issues and problems at a research reactors are shared with the community so that similar problems can be avoided at other facilities**
- **Finally, I would like to say that it has been a fun 25 years and I hope that in 25 more years someone will give a paper on the second 25 years of IGORR**