



Overview of the IYNC2014

IYNC2014 took place in Burgos (Spain) during 6th to 14th of July. Roughly 400 participants assisted to the Congress, from many different nationalities. In this article, a summary of the main events during the congress is given, to share the experience with the members of the Nuclear Spanish Society and international peers.



Social events

IYNC Games took place on Sunday 6th afternoon. Participants were assigned to different groups: one for each of the six systems considered as Generation IV reactors, and the NIF facility. IYNC participants had to interact with Burgos inhabitants and the city itself to perform quests and missions in order to earn "points". The weather was not kind to the participants, and it started to rain hard. However, thanks to one of the quests that consisted in enjoying the gastronomic life of Burgos, the weather was not a real problem. Finally, during the Welcome reception, the winners were rewarded with a nice souvenir from the city of Burgos.

The **Welcome reception** sponsored by the Burgos City Hall on Sunday evening was the first official meeting of all IYNC participants. It was the perfect occasion to meet new friends and enjoy a conversation with other participants from all around the world. The participants had the opportunity to taste the outstanding food and drinks from Burgos. At some point, the Local Chair, Alfonso Barbas, gave an encouraging speech welcoming the participants to IYNC2014. Then a councilwoman from the Burgos City Hall performed a speech about the highlights of the host city. At the end, Alfonso had the floor again to announce the winners of IYNC games and gave them the awards.

The visit to the **Winery** took place on Monday 7th evening after the first day with a very powerful technical content. The buses were awaiting the participants at the ABBA hotel and departed to the Portia winery. During the journey participants were able to have an impression of the Burgos surroundings, the vineyards, the quietness, serenity and beauty. Upon arrival the participants were divided into 5 groups and were guided through the innovative building. It was designed by the renowned architect Norman Foster, and it combines efficiency with an original flower-shaped concrete structure. The visit included a wine tasting, where participants were able to taste two types of wine; and a tour through the



A group of participants during the IYNC Games.



Participants enjoying welcome cocktail.



Group picture at the barrel room (Portia Winery).



Atapuerca Show during the Official dinner.



A group of participants during the guided tour through Burgos city.



Miguel Millán speaking on behalf of Westinghouse, Platinum sponsor.

magnificent facility, where all wine making processes were integrated: the grape collection, fermentation, storage in barrels and bottling. The visit concluded with a dinner served at the barrels wing, where waiters were cutting Iberic ham and the participants could keep tasting the different types of wine from the winery.

On Tuesday 8th evening there was a **Gastronomical and Cultural Tour**

through the streets of Burgos. It started at the Burgos Cathedral, where a group picture was taken. Participants were divided into 6 groups and led through the history of Burgos by certified guides. During the tour the groups stopped at a few well-known bars in Burgos and tasted some "tapas" with a drink, such as gazpacho, pisto and of course rice morcilla, typical from Burgos.

The **Farewell dinner** was held on Thursday 10th evening at the Coco Atapuerca restaurant, close to the Burgos center. It is a unique restaurant that represents the Atapuerca archeological site, with a little taste of the ancient times. Participants arrived there by bus and got into the cave for the dinner. When the dessert was served, the show began with pre-historic people communicating and



Group picture at the arena (La Cabañuela).



Keynote speakers: Alejo Vidal-Quadras and Danny Roderick, from left to right.

playing with fire. It concluded when one of them took the congress General Co-Chair, Raquel Ochoa, to the stage, who introduced the two speakers from the two Platinum sponsors. After the speech, the bar opened and the dance began.

On Saturday 12th an optional cultural event took place: the **capea**. Participants were brought to a nearby bull-ranch named "La Cabañuela" (Ganadería Antonio Bañuelos), with long tradition to breed bulls in Spain. Upon arrival, participants made a short tour through the field and could observe the different bulls, sorted by age. After the tour, participants were led to the arena. At some point, the novices asked the participants to be brave enough to get down to the arena and "play" with the cow, and just one did it. After the exhibition, lunch was served which included typical regional products and wine.

Special sessions

The **opening session** was held on Monday morning at the "Forum Evolución" that, with its modern architectural concept, belongs to the Human Evolution Complex. There, Raquel Ochoa, President of the Spanish Young Generation Network "Jóvenes Nucleares" and General Co-Chair of the Conference started welcoming all the participants. She thanked the different committees involved in the organization of the Conference as well as the speakers, and described briefly the agenda of the week. Then, Nicolas Anciaux, President of IYNC and General Co-Chair of the congress, talked about the challenges that young generation networks are facing around the world, underlining the key role that IYNC plays on it. After him, Francisco Lopez, President of the Spanish Nuclear Society (SNE) gave an interesting speech explaining the



Opening session speakers: Francisco Lopez (SNE President), Raquel Ochoa (JJNN President and IYNC2014 General Co-Chair), Fernando Gómez Aguado (Burgos Vice-Major), Nicolas Anciaux (IYNC President and IYNC2014 General Co-Chair), from left to right.

situation of the Spanish nuclear industry. Finally, the official kick-off was performed by Mr. Fernando Gómez Aguado, Burgos Vice-Major and Cultural and Tourism Councilman, who after thanking the organization for having chosen Burgos to host IYNC2014, briefly described the wonders of this lovely city.

After the opening session, the **key-note session** started with two high level speakers. First Alejo Vidal-Quadras, former European Parliament Vice President, followed by Danny Roderick, Westinghouse CEO. Vidal-Quadras talked about the current situation of the nuclear industry in Europe and emphasized the importance of this technology for competitiveness and sustainability. Roderick's speech was very inspiring, talking not only about technology, but also about professional pride and the responsibility that is associated with the signature of each of us nuclear professionals. That was a message he thought important to transmit to young generations.

Sharing information and international awareness is one of the goals of IYNC, therefore, **country reports**



Silvia Ortega, Spanish representative at the Country report session.

session is one of the events that represent the soul of IYNC. The session took place on Monday morning right after the coffee break. In a small speech, a total of 34 countries reported both their general outlook of the national nuclear industry, and the current activities the young nuclear generation performed in those countries.



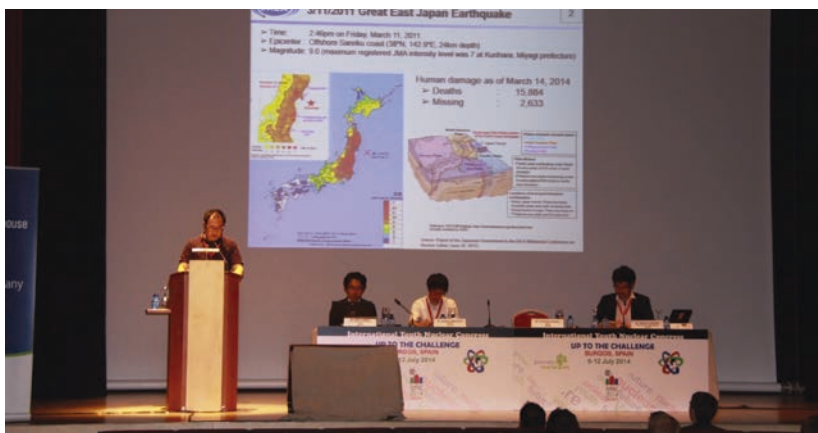
The **Fukushima special session** was held on Tuesday afternoon. It was organized by Kenta Horio, the IYNC Japanese representative, and performed by three Japanese Fukushima experts: Akinori Yamaguchi (Chief Associate, TEPCO, Japan), Yuki-hisa Sanada (Assistant Principal Engineer, JAEA, Japan) and Hiroshi Kainuma (Proj, Researcher, Fukushima University, Japan). They explained in detail the works currently underway at the nuclear power plant and the surrounding area, such as the fact that almost all the fuel from the pools in Unit 4 has been removed. After the presentations, the participants tasted some food and drinks from the Fukushima region, in a cultural exchange event.

The film **Pandora's Promise** was projected on Wednesday afternoon in the auditorium. It presents the question, whether the one technology most feared by public could save our planet from a climate catastrophe, while providing the energy needed to lift billions of people in the developing world out of poverty. In this controversial new film, the director Robert Stone shows the intensely personal stories of environmentalists and energy experts who have undergone a radical conversion from being fiercely anti-nuclear to strong supporters of this technology, risking their careers and reputations in the process. After the film a on-line debate with Robert Stone himself took place, which was a great opportunity to discuss the message of the movie with the director himself.

In addition, IYNC2014 had the honor to host the **8th ENEN PhD event**, which is held every year within one prestigious international conference. For that, a group of 12 PhD students previously nominated by ENEN (European Nuclear Education Network) Members are selected among the best European theses to attend the event and present their work. The event took place on Wednesday and Thursday morning and the participants were requested to give a short presentation in front of the Jury.

The main objectives of this event were:

- To provide a forum for PhD students to present their research work to their fellows and colleagues in a friendly but competitive spirit.
- To promote the research work of PhD students in the nuclear field.
- To build bridges between PhD students and professionals in the nuclear field.



Fukushima special session.



Skype conference with Robert Stone after the projection of Pandora's promise movie, moderated by Denis Janin, IYNC2014 Program Chair.



8th ENEN PhD event group picture.

It was highly remarkable the friendly and competitive spirit of the event where the questions between the participants raised the interest and admiration for each others' work. After the evaluation of the Jury, three laureates were granted 1000€ to attend to an international conference to

present the result of his/her research work:

- Marta Nervo, Pol. Torino, Italy.
- Zoltan Perko TU Delft, Netherlands.
- Alexander Bakaev, SCK-CEN, Belgium.



Alfonso Barbas giving the logistic messages at the Closing session.



IYNC2014 organizers at the closing session.



Speakers at the Plenary 1.



Don Hoffman during his speech, giving the receipt for success.

On Thursday afternoon, the Technical Program of the conference came to the end with the **closing session**. It consisted in two parts. First, the continental reports were presented for Europe, North America, Latin America and Asia. During the European continental report, the next ENYGF 2015 was announced to be held in Paris from 21st to 25th June 2015. Then, the closing ceremony took place with the presence of the two General Chairs Nicolas Anciaux and Raquel Ochoa, and the new IYNC President, Melissa Crawford. During this session the Local chair, Alfonso Barbas was called to stage to give a few logistic messages for the rest of the week (Official Dinner, Technical Tours and Capea). Then, the responsible of the Technical Program, Denis Janis, gave an inspiring speech encouraging the participants to get involved in IYNC organization, followed by a short - awards ceremony and the announcement of the winners of the ENEN PhD Prize. Next, the IYNC2016 host country was announced, although it was already known by many: Hangzhou, China; and the new IYNC president was presented as well: Melissa Crawford. Finally, as a conclusion of the ceremony, Nicolas Anciaux and Raquel Ochoa, both General Chairs, gave a short closing speech thanking everyone for their

participation, in particular all the people engaged in the organization, who received a deserved recognition.

Plenary sessions

The **first plenary session** had *Nuclear Safety* as the main topic. The speakers, Shunsuke Kondo (Nuclear Waste Management Organization, Japan), Ken Ellis (World Association of Nuclear Operators, Canada), and Mike Weightman (former HM Chief inspector of Office for Nuclear Regulation), spoke about present, past and future of nuclear safety.

The **second plenary session** was about *Training, Education and Leadership*. For this topic we counted with the presence of three outstanding speakers: Frederic Lelievre (Vice Chief Commercial Officer from Areva, France), Elena Nayiba (Rosatom, Russia), and Donald Hoffman (President and CEO of Excel Services Corporation and Immediate Past President of the ANS, USA). Within this plenary session Mr. Hoffman's speech was remarkable. Mr. Hoffman was well known not only for being one of the most famous speakers in nuclear world, but also for being a brilliant and close person. His speech managed to get the audience in his pocket and he also addressed a topic that was highly important for young

people. His speech was about leadership, keeping the sense of humor, not fearing what others may think about you, being epic and, in summary, to work hard & play hard. Like Danny Roderick it seems that key people in the industry are encouraging the youth to change minds.

The **third plenary session** dealt with the topic of *Energy & Nuclear Power Development*. The speakers of this session were equally outstanding. First, Mr. Moon-Hee Chang (Vice-President from KAERI, South Korea) talked about the opportunities and changes taking place in eastern Asia. The biggest challenges faced there are the human resources development and the public acceptance of nuclear energy. Then, Mr. Luis Echevarri (Former Director-General OECD/NEA, Spain) gave an interesting speech, where the need of a secured energy supply in Europe together with the need to reduce the CO₂ emissions was underlined. He also emphasized the fact that nuclear energy does not compete with renewables, but with fossil fuels, since they both serve as baseload. Following that, Ms. Myriam Colacicco (Deputy



Speakers at the Plenary 3.



Claus Thegerstrom giving a speech during the Panel 1 session.



Valérie Faudon giving a speech during the Panel 3 session.



Lixin Shen giving a speech at Panel 5.



Panel 4 session.

Director of EDF Nuclear Engineering Division, France) highlighted the fact that 2/3 of the electricity produced over the world comes from CO₂-emitting sources. As challenges she identified the need to reinforce the regulation, the public acceptance and the control of costs/competitiveness. Finally, Mr. Zengguang Lei (Chief Technology Officer of CNNC, China) talked about the current situation in China regarding nuclear energy, and their ambitious plan of nuclear power plant new build.

Panel Sessions

The **Panel Sessions** provided a high level overview of the main work processes affecting the nuclear industry today. Together with the Plenary Sessions, they gave a unique opportunity to meet and debate with recognized leaders and experts on cutting edge topics for the energy and nuclear energy industry.

There were 5 Panel sessions:

Panel 1. Decommissioning and waste management, with George

Beveridge (Deputy Managing Director and Chief Business Officer of Selafeld, UK), Harukuni Tanaka (Senior Managing Executive Officer from Japan Nuclear Fuel Limited, Japan), David Garrido (Manager, Licensing and Design of Spent Nuclear Fuel Casks from ENSA, Spain), and Claus Thegerstrom (Senior Advisor and Former SKB CEO, Sweden).

Panel 2. Nuclear non-proliferation, with Willem Janssens (Head of Unit Nuclear Security from European Commission, Italy), Saleta Gonzalez-Escalada Mena (Head of Safeguards, Deputy Director-General for Nuclear Energy from the Spanish Ministry of Industry, Energy, and Tourism, Spain), and Yusuke Kondo (Dep. Director and Prime Scientist from ISCN of JAEA, Japan).



David Powell giving a speech at Panel 5.

Panel 3. New Energy Markets and Economics, with Jeff Archie (Senior VP and Chief Nuclear Officer from SCANA, USA), Tan Ke (Branch Director from China Nuclear Power Engineering Corporation), CGNPC, China), Ben Heard (Director from ThinkClimate consulting, Australia), and Valérie Faudon (Executive Director from French Nuclear Society, France).

Panel 4. Nuclear Communication, with Valérie Faudon (French Nuclear Society, France), Kirsty Gogan, (Head of Communications from Nuclear Industry Association, UK) Ben Heard, (ThinkClimate consulting, Australia), David Hess (Subeditor from the World Nuclear Association, UK), and Felix Meissner (President from the North American Young Generation Network, USA). This panel had a different configuration than the others, which allowed a more relaxed atmosphere for the discussions.

Panel 5. New Nuclear Systems, with Jean-Paul Grouiller (Senior Manager from CEA, France), David Powell (Vice President Europe Region NPP Sales GE Hitachi, UK), Lixin Shen (Deputy Secretary-General from Chinese Nuclear Society, China), Chad Lee Painter (Consultant/Scientist from IAEA, Austria), and Takeo Shimizu (Senior Fellow from Toshiba Corporation, Japan).

Workshops

There were 15 workshop sessions. The workshops had a different flavor from panel sessions. There were speakers too, but after the speech there were activities and group discussions.

The workshops encompassed lots of topics, and gave the great oppor-



Participants at the Fuel Cycle Game workshop.



Participants at the Women Going Critical in Nuclear Workshop.

tunity to discuss with the experts openly, instead of waiting to the question round. The following workshops were performed:

New Build or Refurbishment?, with the presence as speakers of Ramiro Marcos (Life Extension Manager from Nuclenor, Spain) and Frederic Lelievre (Vice Chief Commercial Officer from Areva, France), who talked about pros and cons of these two options for the current sites.

Nuclear science and Nanotechnology, with the expert Raquel Gonzalez Arrabal Associate Professor at Nuclear Engineering Department, UPM, Spain). The nanotechnology was explained as a currently used technology, and its wide range of applications, including nuclear.

Nuclear Energy sustainability, with Ben Heard (Director of ThinkClimate Consulting, Australia) and Suzanne Hobbs (Director of the Nuclear Literacy Project, USA), who discussed the main topics related to sustainability.

Fuel Cycle Game, with Nicolas Stauff (Scientist, ANL, France). In this workshop the main facilities and processes involved in the fuel cycle were explored in a fun, interactive way.

Thorium reactors and Next Nuclear Fuel, with Manuele Aufiero (Postdoc Researcher at CNRS, France) and Uddaharan Basak (Adv. Nuclear Fuel cycle Specialist at IAEA, Austria). Several challenges and opportunities for thorium reactors for the next years were discussed.

Small Nuclear Power Reactors, with Chad Lee Painter (Consultant/Scientist at IAEA, USA) and Mikko Kallas (Safety Engineer at Fortum, Finland). In this workshop the future energy needs were discussed, exploring how small nuclear power reactors could help meet them.

Fusion: a 50 year story, with Francesco Romanelli (Scientist at EFDA-JET, Italy), Jose Manuel Perlado (Scientist and Director of DENIM, Nuclear Fusion Institute, at UPM, Spain), and Yves Peysson (Scientist at CEA, France). Thanks to these three great speakers a good explanation of the current status of inertial and magnetic fusion was provided, and then the "to do's" for the developers of this energy were explained too.

Balancing Nuclear Power's Global Expansion and Proliferation, with Yusuke Kuno (Dep. Director and Prime Scientist at ISCN



of JAEA, Japan) and Klaas Van der Meer (Scientist Coordinator at SCK-CEN, Belgium). They addressed the controversial topic of proliferation related to the expansions of nuclear energy.

Women Going Critical in Nuclear. This workshop was one of those generating more expectation, not only because it had 6 speakers, but also because they debated a taboo in most countries; the lack of women in nuclear activities. The speakers were Kahlida Gill (Deputy Chief Scientist at Pakistan Atomic Energy Commission, Pakistan), Kristy Gogan (Visiting Researcher at Dalton Nuclear Institute, UK), August Fern (Partner at Radiant Capital Partners, USA), Rastamela Masango (CEO at Mzesi Energy Ltd, South Africa), Gabriele Voigt (Director of the Office of Safeguards analytical Services at IAEA, Austria), and Sara Mongelli (Project Manager at Axpo Power AG Nuclear Energy, Italy).

Nuclear Waste Challenges and Your Solutions, with Lauri Parvianen (Research coordinator at Posiva, Finland), David Garrido (Licensing and Design of Spent Nuclear Fuel Casks, at ENSA, Spain), and Merja Pukar (research Associate at KTH, Sweden).

Tools to Use in Your Local YGN, which was orientated to YGN chairmen, in which activities to enlarge and improve the local groups were presented and discussed.

Will Nuclear Kill Cancer? with David Lloyd (Scientist at Health Protection Agency, UK) discussed new techniques that are really renewing hopes in cancer treatment like, for example, the boron neutron capture therapy.

Entrepreneurship & New Ventures in Nuclear. This workshop explored the challenges, old and new, that nuclear industry needs to solve. The speakers were August Fern (Partner at Radiant Capital Partners, USA), Seponono Kekana (Director of Sites Alpha Ltd, South Africa) and Ramastela Masango (CEO at Mzesi Energy Ltd, South Africa).

The Trouble with Justification. This workshop was performed by one of the persons that probably has spent more time thinking about nuclear energy ethics than any other in world; Gaston Meskens (Researcher at CEVI, University of Ghent, Belgium). In this fantastic workshop,

Gaston debated with participants about this topic, trying to teach and also to learn from us.

Knowledge Transfer Between Generations. This workshop had a look at the methods of knowledge transfer between generations through role-playing scenarios. The Speakers were John Hurst (Manager at Atkins, UK), Julie Sickle (Senior Director of Training at Exelon, USA), and Anastasia Zhukova (Consultant at IAEA, Austria).

Media Training Workshop

Four media training workshops were a special privilege and unique feature at the 2014 IYNC. These workshops provided the participants a high-level training, usually offered through CIP Institute's "Master Classes". CIP stands for Complex Interactive Processes, and has its roots in process theory and the approach of communication Constituting Organizations (CCO). The aim of the CIP Institute, with offices in Belgium, the Netherlands, Portugal, Spain, and the UK, is to exchange, create, and disseminate knowledge in the aforementioned domains.

1. Are we communicating or are we managing a complex interactive process?

First, we can talk about organizational communication as the communication that happens within organizations. We then go deeper by introducing an alternative, more sophisticated approach of seeing organizations as communication. This can radically change how we understand human interaction and organizational life. The Speaker was Hugo Marynissen (Founder of CIP-Institute, Belgium).

2. How to deal with media in a broad organization context?

Introduction of how the media (both the traditional news wires and social media) works. How do they think, create opinions, interact with the nuclear sector, amplify messages, etc? And how can a communication manager, take the lead in this conversation? The speaker was Daniel Alonso (Visiting lecturer in ESERP Business School, Spain).

3. Why do people have wrong risk perceptions, and how to address them?

As technical experts in a specific field we don't understand why people are so emotional. Don't they

simply understand the figures and the science behind our message? The answer is: no. This workshop offered insights in the field of cognitive science and communication. The speaker was Juan Manuel Dominguez (Lead Auditor, Business Continuity Management, Spain).

4. How to communicate when things are going wrong?

Based on the experience of multiple real life crisis situations and various exercises with companies in all type of industries (included a nuclear power station and a nuclear research center), Stijn Pieters (Founder of CIP Institute, Belgium), gave the participants a straight forward toolkit for handling crisis communication in a very effective way.

Technical Visits

The proposed technical tours provided a full vision of the nuclear fuel cycle, from fuel assembly and components fabrication through operation until decommissioning and dismantling. There were 6 technical visits:

Heavy Components Factory (ENSA): the tour participants visited the Nuclear Components Facility where ENUN overpacks, heat exchangers and racks are manufactured. Then the Advanced Technology Centre was visited. Participants could see the Metrology and Materials Testing Laboratories, and the Welding Development, Robotic Applications and Defectology work units.

After the visit, tour participants were invited to a boat trip of Santander's bay and finally they were invited to have a lunch in Real Golf de Pedreña.

Fuel Assembly Factory (ENUSA): the participants visited the main areas of the Facility. They started in the Ceramic Area, where ceramic processes (UO₂ pressing, sintering and grinding to convert it into fuel pellets) were shown. After the Ceramic Area, participants also visited the Mechanical Area, where the assembly processes (fuel rods are assembled, welded, pressurized and inspected; and fuel assemblies are mounted, inspected and washed) were shown in detail.

Afterwards, participants visited the Facility's surrounding Area, where they could see the Effluent Treatment System and the Radioactive Waste storage area.

Santa María de Garoña Nuclear Power Plant: the tour started at the



Participants in the ENUSA Fuel Factory technical visit.



Participants in the TECNATOM technical visit.



Participants in the Magnetic Confinement Fusion Reactor (TJII Stellarator) during the CIEMAT National Research Center technical visit.

Information Center with a presentation by the NPP Manager, Miguel Angel Cortés, followed by a Q&A round. Then the control room was visited. The Operations Manager explained the panels, which include the post-Fukushima new instrumentation for the spent fuel pool. After that, participants dressed up to enter the controlled area and went into the reactor building. They could see the hydraulic control units for the control rods, the isolation condenser, and the refueling floor where the head of the reactor pressure vessel and the fuel pool are located.

After the first part of the visit, tour participants were invited to have lunch at the NPP Canteen with the NPP Manager and other Nucenor employees who kindly acted as guides for the visit.

Following lunch, tour participants visited the workshop housing the mock-ups for reactor components, and also had a walk around the site, during which they had the opportunity of observing the safe storage area for portable emergency equipment, procured as a lesson learned from the Fukushima accident.

Control Room Simulators (TECNATOM): the participants visited the Trillo Nuclear Power Plant Simulator located in the facilities of San Sebastián de los Reyes (Madrid). They could simulate realistically operations such as: achieving criticality in the nuclear reactor, raising power, rolling the turbine, connecting to the grid and even an emergency scenario.

José Cabrera Nuclear Power Plant under decommissioning & dismantling: the tour participants visited the Information Center where the José Cabrera NPP decommissioning project was explained. After that, the participants visited the Conventional Areas: the Independent Fuel Storage Installation (ISFI), the Dismantling Auxiliary Building and the Declassification Area.

Finally, tour participants were invited to have lunch in Almonazid de Zorita.

TJII Stellarator & Neutron Standards Laboratory (CIEMAT): the tour participants had the chance to visit the Magnetic Confinement Fusion Reactor (TJII Stellarator), and the recently inaugurated Neutron Standards Laboratory, in which neutron measurement equipment, neutron monitors and dosimeters can be calibrated. ■