Our Monthly GIF Newsletter UPDATE



End-of-the-Year Newsletter

Dear GIF colleagues, Dear readers,

As a newcomer in the GIF family, it is a real pleasure for me to introduce this 6th GIF newsletter. Except for my occasional participation in the organization team of the 2018 GIF Symposium, I started being involved in the GIF early in 2020 with the EG and PG support team. I do my best to serve the Technical Director. particularly for the EG meetings. Since then, it has been a great opportunity for me to participate in the GIF meetings and to contribute to the evolutions proposed by the Technical Director to the GIF board, with the precious contribution of the NEA Technical Secretariat team.

In this Newsletter you will learn about an emerging initiative on Preserving and Capitalizing Knowledge at GIF. Ms. Kathryn Obisesan who just joined the GIF team to support a number of groups as Technical Secretariat, gives her first feeling about this initiative.

You will also find an article from Shigenobu Kubo, who acted as Chair of the Safety Design Criteria Task Force, on the Development of Safety Design Criteria and Guidelines for the GIF systems. This includes the latest information

about the closing of the SDC taskforce and its merging into the Risk and Safety Working Group.

End of October was our EG44/PG50 meetings. Unfortunately, due to Covid restrictions, we were not able to hold this meeting in France/Amboise/Clos Lucé as we had expected in order to celebrate the 20th anniversary of the GIF.

Despite the fact these EG/PG meetings were held by videoconference. they were a real success: we gathered from 60 to 75 participants each day during the week. We also experimented an optimized agenda taking into account the lessons learned from the previous spring virtual EG/PG meetings, with more time to present the technical progress from the SSCs, WGs and TFs during the newly combined EG/PG days. The objective is to avoid redundancy during the week and to promote dynamic exchanges. We hope that the participants enjoyed this new formula!

One of the points discussed during these EG/PG meetings was the initiative proposed by the Technical Director to hold a brainstorming meeting on Non-Electrical Application of Nuclear Heat. This meeting was held on 16th November with more than 60 experts. "A first

promising step!" as Gilles Rodriguez concluded in his article.

As everybody knows, Sama Bilbao Y León crossed the Channel to be the new Director General of the World Nuclear Association. On behalf of all GIF members, "Thank you Sama for your precious job done for the GIF... Good things ahead Sama (we know you read the GIF newsletter!)". And, welcome to Philippe Guiberteau who replaced Sama since October as Head of the GIF Technical Secretariat.

Finally yet importantly, do not miss the next webinars announced here! We also invite you to follow us on gen-4.org where new GIF branding is being implemented.

Remember that it is your newsletter and that you can contact the GIF Secretariat to suggest an article for the next issues

Bonnes fêtes de fin d'année! Prenez bien soin de vous! (*)

*Season's greetings! Stay Safe, Stay Healthy!



Pascal Terrasson

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Upcoming Conferences

International Conference on Fast Reactors and Related Fuel Cycles (FR21) - 10–13 May 2021, Beijing, China.

https://www.iaea.org/events/fr21

HTR 2021 International Conference 2-4 June 2021, Yogyakarta, Indonesia htpps://htr2020.org/

Major events

December 2020 Webinar Series 48:
Development of Multiple-Particle
Positron Emission Particle
Tracking for Flow Measurement,
Cody Wiggins, VCU (USA)

January 2021 Webinar Series 49: MOX Fuel for advanced reactors, Nathalie Chauvin, CEA (France)

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A Newcomers Perspective on Preserving and Capitalizing Knowledge at GIF

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On September 14th, 2020, I joined the GIF team as a Technical Secretariat support to several groups. Recently with the Education and Training Working Group (ETWG), I have had the opportunity to provide support to a budding activity encapsulating Knowledge Preservation and Capitalization.

Knowledge preservation and knowledge capitalization acknowledge the need to dedicate time today to prevent the potential dangers erosion of knowledge can bring in the future. Within our GIF community. Gilles Rodriguez (Technical Director), alongside ETWG members, are planning an initiative to implement knowledge preservation and capitalization

principles into GIF work. Through this initiative, they would like to facilitate the transmission of expertise between GIF generations.

The specifics, which Gilles and ETWG are still finalizing, are as follows: Hosting a crosscutting webinar series that would focus on retired GIF experts sharing their relevant professional experiences. The selected expert would connect with GIF members to deliver a 20 minute virtual presentation followed by a 20 minute interview led by 4-5 midcareer GIF members who would ask specific questions related to their day-to-day work. The webinar would close with an opportunity for the audience to pose questions to the subject matter expert in a question and answer session that would last 20 minutes.

As an early career GIF participant myself, I am still learning the intricacies of the forum. How one progresses an idea to fruition or

engages in crosscutting support to move a new initiative forward is fresh. It is fascinating to observe an emerging project in real-time while concurrently providing support. Perhaps the Knowledge Management webinar series will only be the beginning of a longstanding commitment within GIF... Engaging our developed expertise to endow knowledge on those currently in the organization is a valuable commitment.

Until this project, I was unfamiliar with the concept of knowledge capitalization and preservation. But as an individual very early in my career, I am a part of this initiative's planning and synchronously represent the target audience. For this experience, I am excited and grateful.

Kathryn

OBISESAN, ETWG Technical Secretariat

Development of Safety Design Criteria and Guidelines for GIF systems

To establish an international safety design standard, GIF has promoted the development of Safety Design Criteria (SDC) and Safety Design Guidelines (SDGs) for each of the GIF systems, and the Policy Group (PG) established a task force for the SDC (SDC-TF) in 2011. The first mission of the TF was to develop the SDC for sodiumcooled fast reactors (SFRs). The TF, which consists of experts of advanced reactor safety and SFR technologies from GIF member countries and IAEA as an observer, developed the SFR SDC report and presented it in the PG meeting in San Diego in 2012. In 2013, according to the PG's recommendations, the TF launched its Phase 2 activities for quantifying and qualifying key aspects of the SFR SDC to

demonstrate the advantages of Gen-IV SFRs more clearly. Since then, the TF made extensive work: based on review by national regulators and international organizations such as the IAEA, the TF revised the SDC report; and the TF developed two Safety Design Guidelines (SDGs) that describe recommendations for practically applying the SDC to SFR design. After being reviewed by external bodies, the SDGs were disseminated internationally through annual GIF-IAEA safety workshops. The latest version of the SDC report and the first SDG report "Safety Design Guideline on Safety Approach and Design Conditions" are available on the GIF website (https://www.gen-4.org/gif/jcms/c 93020/safetydesign-criteria). The second SDG report "Safety Design Guideline on Structure, Systems and Components" will be released soon.

Having completed the missions, the TF joined in the Risk and Safety Working Group (RSWG) in 2019. The well-experienced SDC-TF is contributing to drafting SDC and SDGs for the other GIF systems including very high temperature reactors and lead-cooled fast reactors. The RSWG will also contribute to the development of IAEA SMR safety standards and safety documents, because non-LWR small modular reactors (SMR) have many technical similarities to the GIF systems. In 2020, the RWSG has already made great contribution in joint activities with IAEA regarding SMR safety issues.

Shigenobu **KUBO**, Chair of **SDC-TF**



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Brainstorming Meeting on Non-Electrical Application of Nuclear Heat

A virtual meeting was organized on November 16th by the GIF Technical Director with the support of the GIF Technical Secretariat to explore the possibility of undertaking activities, within the GIF framework, related to Non Electrical Application of Nuclear Heat (NEANH). The meeting was a very first step in this direction and took the form of a brainstorming session aimed at surveying the GIF experts' interest in this important topic.

Through the Paris agreement (entered into force in November 2016), 174 countries and the European Union committed to reduce the greenhouse gas emission to limit the global average temperature increase to well below 2°C from the preindustrial era. This will require substantial efforts to be undertaken to decarbonize the electricity generation sector. In this context, the nuclear industry may play a major role as a lowcarbon energy source. However, nuclear energy production will have to be integrated in electricity generation schemes with increasing shares of intermittent renewables: as a consequence, the current nuclear reactors designs and utilities operators will both have to evolve in this new landscape to meet the challenging objective of guaranteeing a certain level of flexibility of the operations. In the same time, the economics of nuclear energy production has to be improved. One of the strategies currently under study to achieve this objective consists in modulating the size and versatility of nuclear power plants to adapt their deployment to a variety of economic and geographical contexts where smaller size power reactors and cogeneration (ability to deliver or store heat, to produce hydrogen, industrial heat and electricity) may renew the interest on the nuclear technologies.

The emergence of Small Modular Reactors and micro-reactor designs represents an opportunity for the nuclear industry to meet the requirements sketched above to adapt to future markets in which nuclear reactors will have to propose an extended portfolio of services in the energy frame.

This first brainstorming meeting was the occasion to gather specialists and to exchange together around the following questions: What is the asset of nuclear energy in the whole energy systems? In particular, what is the asset of the six **GENIV** systems in NEANH? What are the most optimized NEANH solutions with GENIV systems: Hydrogen production? Heat storage? Power to gas? Desalinization? Flexibility? All of them? Other? What is the optimum GIF couple: Reactor power (Large/SMR/Micro) / Ratio Electricity prod - NEANH capacity? Are the six GENIV systems equivalent regarding all the NEANH processes? What could be the role of GIF in this context complementary to some already existing initiative (i.e. at IAEA)?



A first promising step...

This virtual meeting gathered more than 60 attendees, showing a sharp interest in this subject from the community. It was the opportunity to cross and exchange ideas, positions and feelings in a quite informal, although structured, brainstorming mode.

The next step is now to summarize all these inputs to propose GIF initiatives, an adapted organization to carry out them, and a roadmap for 2021. The next meeting will be scheduled early in 2021.



Gilles RODRIGUEZ (GIF Technical Director)

SHARE YOUR UPDATES? Please contact us at secretariat@gen-4.org

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