

Status of NSC Projects

Tatiana Ivanova

Head of the Division of Nuclear Science

WPEC Meeting
27 June 2019

New members of Nuclear Science Team



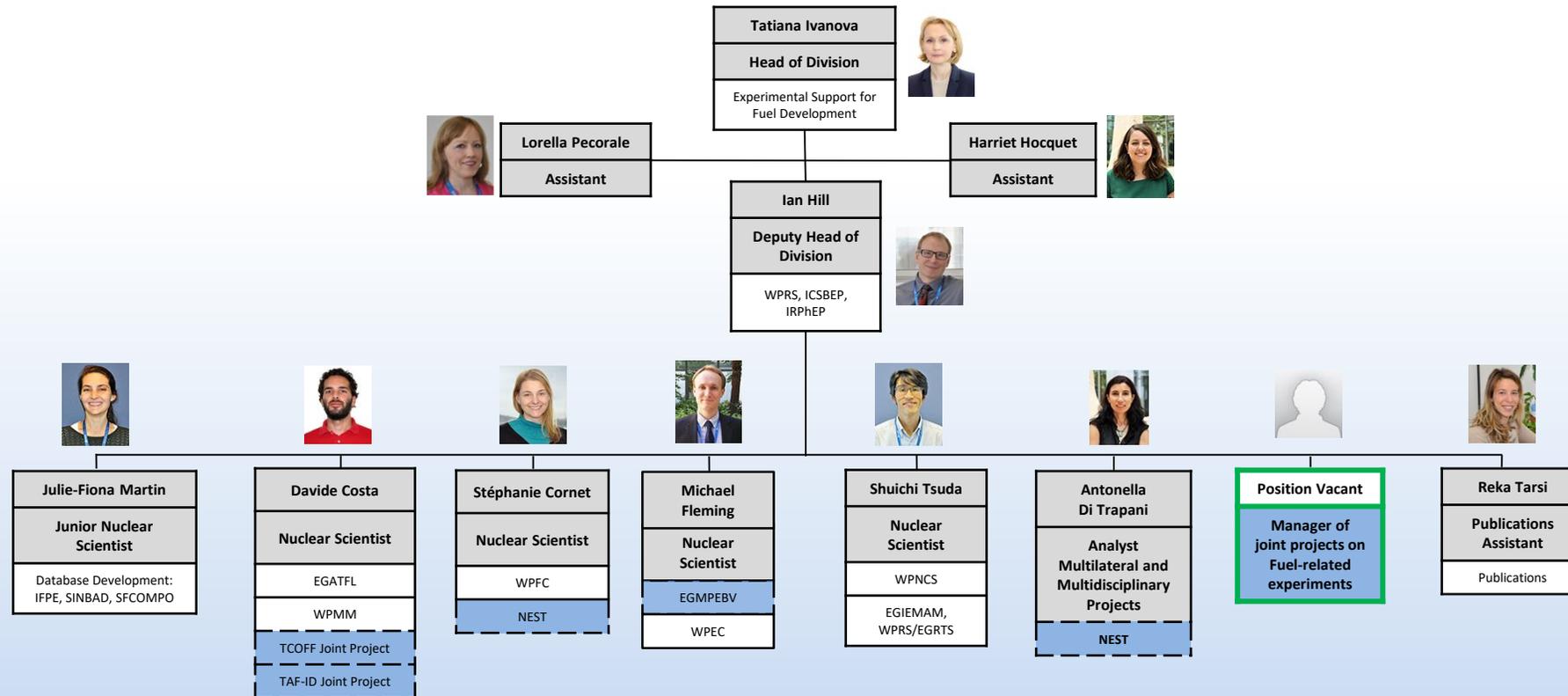
Harriet HOCQUET
Assistant
since July 2018

Antonella DI TRAPANI
NEST, education and KM
since July 2018



Michael FLEMING
WPEC and EGMPEBV secretariat
since June 2019

Division of Nuclear Science: Organisational Chart (June 2019)

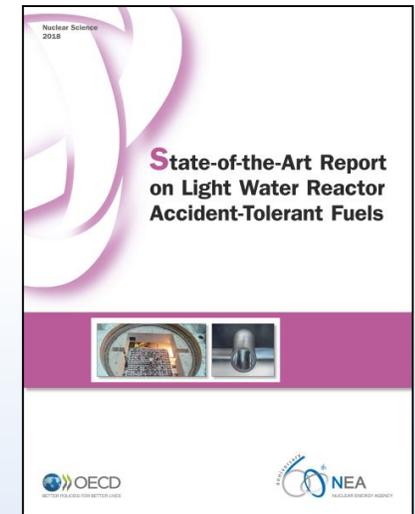


Some Highlights

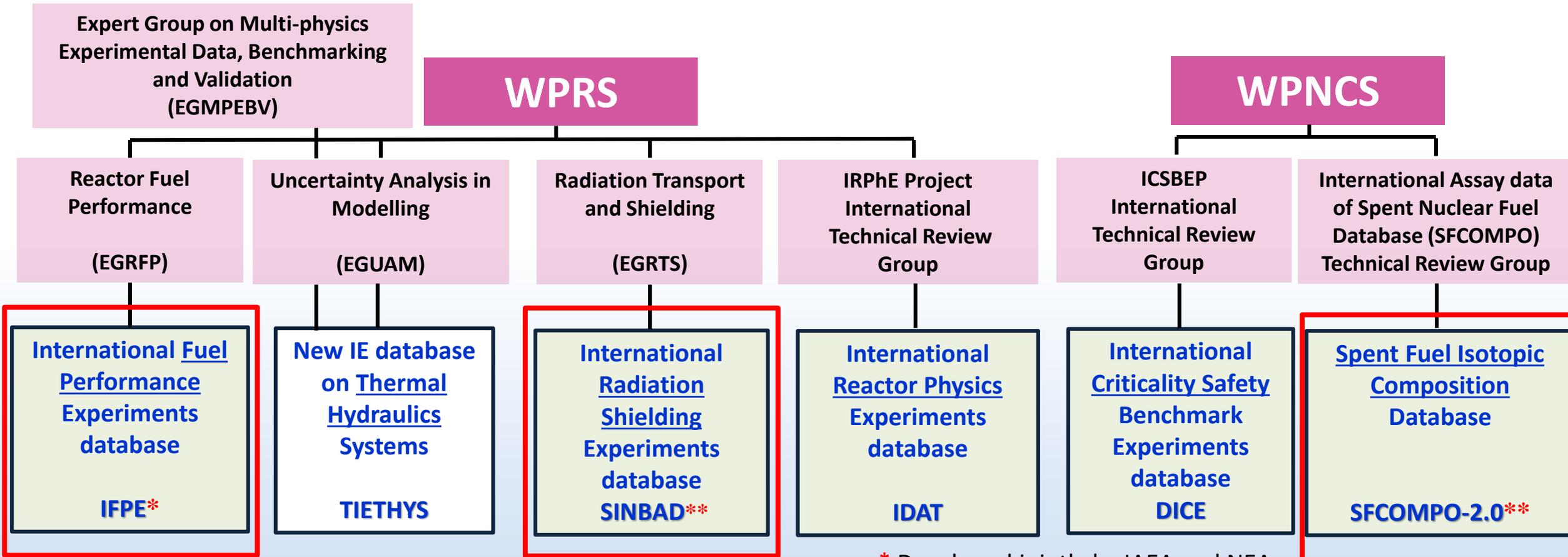
- SOAR by the Expert Group on Accident Tolerant Fuel for Light Water Reactors (ATF) and follow-up activities
- Kick-off of Expert Group on Reactor Core Thermal-hydraulics (EGRCTH)
- Kick-off of a Technical Review Group for the International Assay data of Spent Nuclear Fuel Database (SFCOMPO)
- Kick-off of Nuclear Education, Skills and Technology (NEST) Project
- Kick-off of new activities in the Working Party for Nuclear Criticality Safety
- Kick-off of the Thermodynamics of Advanced Fuels - International Database (TAF-ID) Joint Project Phase 2
- NSC Workshop on “Nuclear Material Characterisation Techniques”
- Progress in developing relational database of International Fuel Performance Experiments (IFPE)
- Increased cross-cutting activities, including in the areas of experimental needs, data preservation and education & KM
- Progress in establishing FIDES and its Joint Experimental Programmes

Visibility of NSC publications

- **State-of-the-Art Report on Light Water Reactor ATFs – flagship NEA publication**
 - Delivered by the **NSC Expert Group on Accident-tolerant Fuels for LWRs (EGATFL)** chair **Kemal O. Pasamehmetoglu (INL, U.S.)**
 - Published in September 2018
 - Available at <https://oe.cd/2mL>, can be ordered in print on demand
 - A webinar was held on 20 November 2018
 - Webinar participants: **William D. Magwood, IV**, NEA DG, **Kemal Pasamehmetoglu**, INL, U.S., **Marie Moatti**, EDF, France, **Masaki Kurata**, JAEA, Japan, **Marc Verwerft**, SCK•CEN, Belgium, **Tatiana Ivanova**, NEA HoD
 - 227 registrations, 99 live viewers, approx. 150 viewers in the month following (not including Youtube)
- **ISSN:DOI granted to the ICSBEP and IRPEP Handbooks in December 2018**
- **ISBN granted to some, mainly official, NSC publications**
- **NEA is exploring how best to expand further the number of publications and reports that receive ISBNs.**



NSC and DB Collections of Integral Experiments and Databases



* Developed jointly by IAEA and NEA

** Developed in cooperation with RSICC/ORNL

New Projects: Nuclear Education, Skills and Technology (NEST) Framework

- Entered into force on 15 February 2019
- 1st Management Board meeting was held on 28 March 2019
 - Andreas Pautz, PSI – chair of the NEST Management Board
 - Four projects selected
- 2nd Management Board meeting is scheduled for 13 September 2019
- Collaboration with international partners, IAEA, EC JRC, ENEN and OECD EDU to address KM challenges
- Broadening of the NEST membership and partnership

PARTICIPATING ORGANISATIONS



Korea Atomic Energy
Research Institute



New Multinational NEA Framework for In-pile Fuel and Material Testing

- **Motivation**

- Strengthen fuel- and material-related experimental capacities for the benefit of industry, safety and science
- Address the post-Halden situation
- Develop a coordinated approach and a new paradigm for experimentation

- **Steps towards establishing the Framework as an NEA Joint Undertaking**

- Workshops that gathered representatives from vendors, utilities, TSOs/regulators and R&D:
 - January 2018 <https://www.oecd-nea.org/science/workshops/advnucfuel2018/>
 - October 2018 <https://www.oecd-nea.org/science/workshops/fuelmat2018/>
 - March 2019 <https://www.oecd-nea.org/download/science/workshops/neaframework/>
- Workshops' outcomes shared on governmental level, including with the NEA Steering Committee
- Work in progress: develop Framework Agreement in parallel to Joint Experimental Programmes (JEEPs) based on the most mature proposals brought to March workshop

Proposed Structure & Programmes

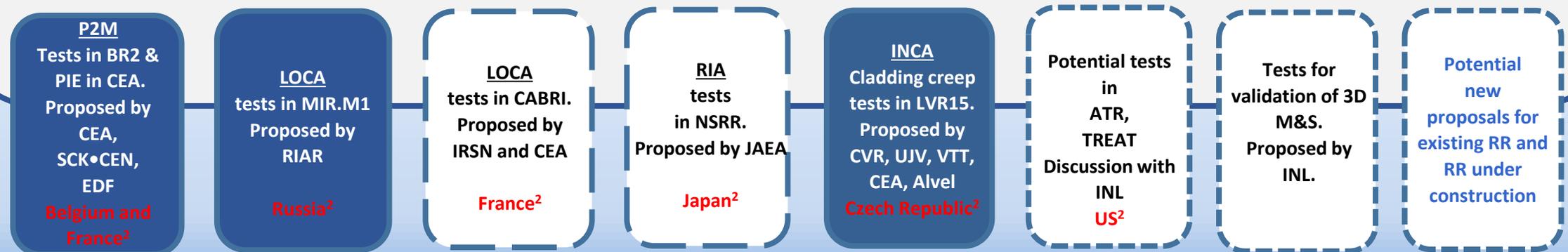
Pursuant to Article 5 of the NEA Statute, the Framework will be established as an international joint undertaking

Framework for IrraDiation ExperimentS – FIDES¹

- Being designed to provide stable, sustainable, reliable platform and an incentive for innovations for fuels and materials testing
- Encompasses **Joint Experimental Programmes** and the **Cross-cutting Activities**

Joint ExpErimental Programmes (JEEPs)

- **Enable in-pile experiments in test reactors and PIE**



¹ Fides (Latin: Fidēs) was the goddess of trust and bona fides (good faith)

² Country of the host organisation

Added Value and Cross-cutting Activities

The Framework is currently being established in order to

- provide continuity and sustainability in the strategic field
- build a collective awareness of needs and capabilities
- identify gaps requiring investments and facilitate related implementations
- create opportunities for cross-cutting activities
 - State-of-the-art instrumentation and **modelling & simulation**
 - Preservation and quality management of experimental data
 - Professional development and educational activities
- in collaboration with IAEA, address practical issues of nuclear fuel transport and waste management

NSC Collaboration with other NEA Committees/Divisions (1/2)

- **Management Board for the Development, Application and Validation of Nuclear Data and Codes (MBDAV) & Data Bank**
 - NSC oversees Working Groups on International Nuclear Data Evaluation Co-operation (WPEC)
 - Collaboration between major nuclear data projects, including ENDF (USA), JEFF (**NEA-DB**), JENDL (Japan) ROSFOND (Russia) and non-NEA participants including TENDL and CENDL.
 - SCI and DB work together on the experimental data preservation
- **Committee on the Safety of Nuclear Installations (CSNI) & Division of Nuclear Safety, Technology and Regulation (SAF)**
 - The New Expert Group on Reactor Core Thermal-hydraulics (EGRCTH)
 - Collaboration on PHWR R&D with COG
 - Contributions to SFEAR-II draft report
 - Post-EGATFL activities
 - Post-Fukushima activities
 - HYMERES Project in NEST Framework
 - Establishing FIDES and its Joint Experimental Programmes (JEEPs)
 - **Proposal for a Joint NSC and CSNI Bureau meeting in December 2019**

NSC Collaboration with other NEA Committees/Divisions (2/2)

- **Committee for Technical and Economic Studies on Nuclear Energy Development and the Fuel Cycle (NDC) & the Division of Nuclear Technology Development and Economics (NTE)**
 - NI2050
 - Nuclear Innovation Bootcamp, summer 2019

- **Division of Radiological Protection and Human Aspects (RP-HANS)**
 - Activities related to education, training and knowledge preservation
 - Human Capital Workshop, June 2019
 - Risk Communications Workshop, September 2019

NEA Joint Workshop on Holistic/Multifactor Optimisation of RWM Predisposal, Organised by RWMC

- **NEA STCs are invited to be co-organisers of the joint workshop** and hold their sessions for discussion of predisposal RWM related issues in the areas of their competency.
- February 10 – 14, 2020, Boulogne-Billancourt, NEA, Auditorium
- Invitees: IAEA, EC, WNA and others

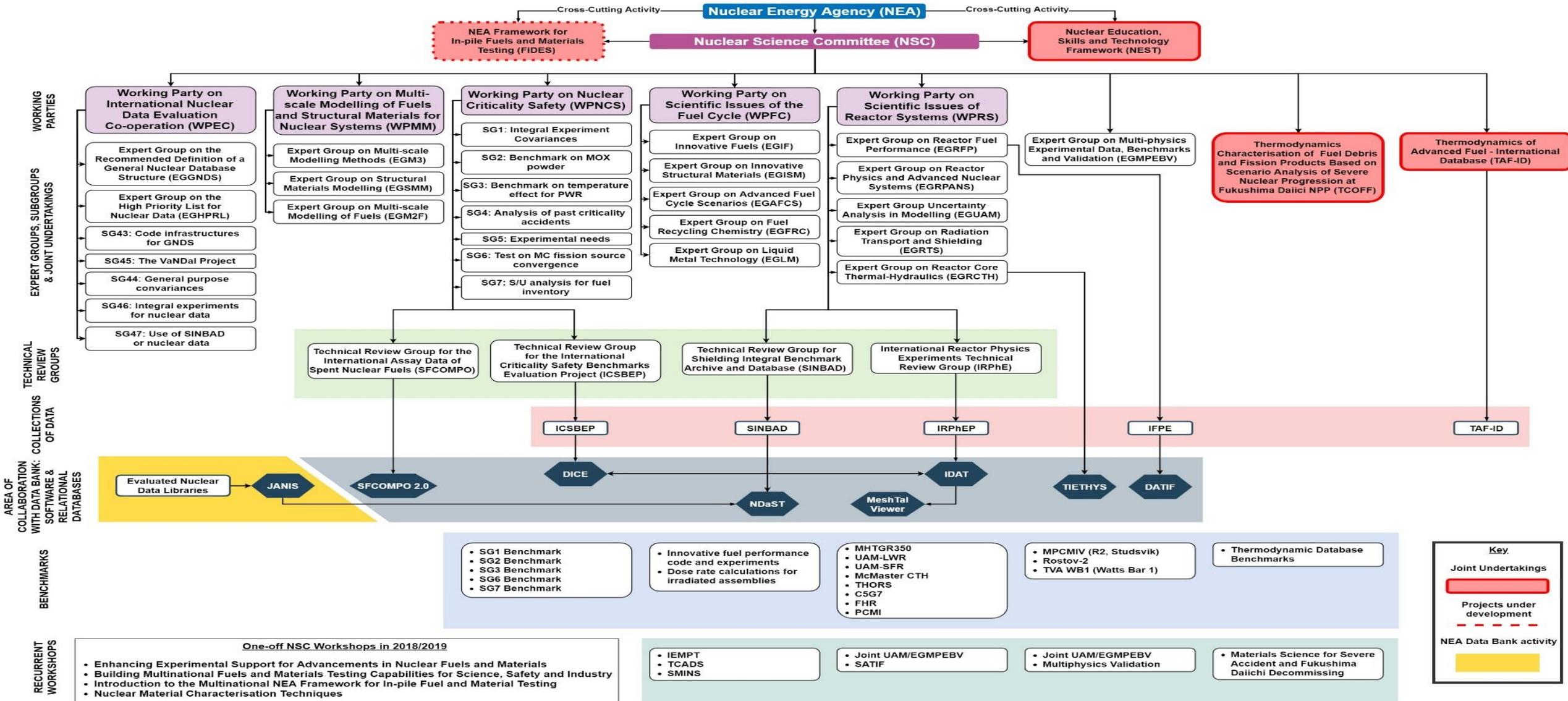
Sessions with topics (primary) are proposed:

- **RWMC**: optimization of predisposal RWM - experiences, needs, challenges (environmental and societal);
- **CDLM**: optimization challenges, mgmt. of decom/legacy waste
- **CRPPH**: radiation protection in RW mgmt. processes
- **NDC**: RWM in innovative projects; economic aspects of predisposal mgmt.
- **CSNI/CRNA**: challenges on on-site RWM and change of ownership
- **NSC + Databank**: predisposal mgmt. of RW/SF from new reactors; exposed materials; data management;
- **NLC**: nuclear liabilities (incl. transportation).

Outcome of NSC Bureau meeting: Recommendation by the NSC Bureau

- Optimise NSC activities in order to adjust them to the existing resources of the Division of Nuclear Science
- Establish metrics for the evaluation of the outcomes of NSC bodies

NEA Nuclear Science Activities



NSC meeting 2019: Some Conclusions and Actions

- The NSC endorses the creation of a Task Force to review and prioritise the NSC Programme of Work.
- Chairs of the NSC bodies will identify in mandates and are encouraged to highlight in presentations the practical impacts of NSC activities for a decision-maker level audience.

Cross-cutting activities:

- **The Workshop on the “Multifactor optimisation of predisposal management of radioactive waste”:**
 - The NEA Secretariat will liaise with NSC Members to identify and propose representatives on the Programme Committee.
 - In collaboration with the NSC Members, the Secretariat will organise a NSC session, identify topics and nominate participants.
- NSC requests that the Secretariat liaise with MBDAV and CSNI to address the NSC request for validation guidance for users.
- NSC endorses the proposal for exploration of cross-cutting co-ordination through joint NSC-CSNI Bureau meetings.

Thank you for your attention!



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