Meeting of WPEC Subgroup 46 on "the Efficient and Effective Use of Integral Experiments for Nuclear Data Validation"

Welcome and Meeting Objectives

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Meeting objectives

- This is a special meeting …
- The best way we can honour Massimo is by continuing to the SG46 he initiated
  - SG46 is playing an important role for the ND community
    … JEFF-4T0 (Nov 2020)…. JENDL-5 (2021) …
  - *SG46 is the bridge between ND evaluators and end-users in the utilisation of integral experiments*

SG46' Main goals:

- *To give guidelines/protocols for selecting and prioritizing integral experiments for ND validation*
- *To perform generalized adjustment methodologies to provide unambiguous feedbacks to evaluators*
- *To provide SG26's updated values for HPRL*

- **This meeting will serve as**

1. A review of SG46 actions: past, present and future
2. SG46 co-ordination
3. Review of actions since November 2019
   - 3.1 TAR revision
   - 3.2 Exercise – SG26 update **… Preliminary results in May 2021 !**
   - 3.3 To be continuing SG46 actions
   - 3.3 Forum for new contributions: SA/Depletion, Technique ML, …
4. Final discussion
   - Proposal: one year extension of SG46 mandate
   - AOB

Review Actions (November 25-26, 2019)

- Selecting appropriate experiments
  - JSFR 750 MWe fast neutron core (JAEA, K. Yokoyama)
  - ESFR (European Na-cooled fast reactor) (UPM, A. Carrascosa)
  - ASTRID-like: Na-cooled fast reactor, low Na-void coefficient (UPM, A. Carrascosa)
  - ALFRED: European Pb cooled fast reactor. (ENEA, G. Grasso)
  - MYRRHA: Pb-Bi cooled fast reactor experimental reactor. ADS demonstrator. (UKAEA, I-. Kodeli)
  - EFIT (ENEA , G. Grasso)
  - JAEA MA-loaded ADS: model available (JAEA, K. Yokoyama)
  - MOSART MOlten Salt (Na,Li,Be/F) Actinide Recycler & Transmuter (MOSART) system fuelled with Pu plus minor actinide trifluorides (AnF3) from PWR spent fuel without U-Th . (NEA?)
  - MSFR (CNRS, Grenoble) (IRSN, E. Ivanov)
  - PWR (UPM, O. Cabellos)
- Model available: S/U analysis foreseen
  - SG26 GEN-IV: High BU PWR; VHTR; MA burner ADS (ADMAB)
  - SG33: ABR FR metal and oxide fuel, Na-cooled. JOYO
- For each system, parameters to be considered

Review Actions (November 25-26, 2019)

- For each system… “accuracy requirements”
  - on shielding data (I. Kodeli, P. Romojaro, G. Grasso, K. Yokoyama, E. Ivanov)
  - on coolant void coefficients with leakage and non-leakage (P. Romojaro, G. Grasso, K. Yokoyama)
  - on decay heat uncertainty requirements (R. Mills, M. Hursin)
  - on Pressurised Water Reactor tables (O. Cabellos, M. Hursin, E. Ivanov)
  - on the Accelerator Driven System tables (G. Grasso, K. Yokoyama, E. Ivanov)
  - on the Molten Salt Reactor tables (E. Ivanov, M. Fleming)

  - on system availability consolidation and for S/U analysis performance (All)

Ongoing actions

- Methodology
  - New generalized adjustments to provide unambiguous feedbacks

    (K. Yokoyama, E. Ivanov, G. Palmiotti)

- Guidelines on
  - General protocol of nuclear data validation using assimilation techniques for safety and design purposes (E. Ivanov)

    … link with other EGs: e.g. EGMPEBV (M. Fleming)

- Keep collaboration with SG-C (HPRL) and SG44

Agenda

- 4 hours meeting == 1.5 days meeting : to be efficient !

Duration	PST (CA, USA)	CET (Paris)	JST (Tokyo)	Topic	
00:10	05:00	**14:00**	22:00	Welcome and meeting objectives	O. Cabellos
00:10	05:10	**14:10**	22:10	Comments on status of SG46	G. Palmiotti
00:20	05:20	**14:20**	22:20	Discussion on mandate of SG46	All
00:10	05:40	**14:40**	22:40	Confirmation of SG co-ordination	All
00:15	05:50	**14:50**	22:50	Reactivity and sensitivity calculation results with leakage and non-leakage components for sodium void reactivity of the 750MWe JSFR core	K. Yokoyama
00:30	06:05	**15:05**	23:05	IRSN contributions: from TARs and S/U to V&UQ via DA	E. Ivanov
00:15	06:35	**15:35**	23:35	Joint UPM and CIEMAT contribution: Progress on ESFR	A. Jiménez-Carrascosa
00:10	**06:50**	**15:50**	**23:50**	**Short Break**	
00:10	07:00	**16:00**	00:00	S/U analyses for MYRRHA	I. Kodeli
00:10	07:10	**16:10**	00:10	TAR studies for depletion	P. Romojaro
00:15	07:20	**16:20**	00:20	Constrained Bayesian Optimization of Criticality Experiments	D. Siefman
00:20	07:35	**16:35**	00:35	Nuclear Data Validation using Machine Learning Techniques	D. Neudecker
00:30	**07:55**	**16:55**	**00:55**	**Discussion**	**All**
00:10	08:25	**17:25**	01:25	AOB	
	08:35	**17:35**	01:35	Close	