Benchmark Specifications and Guidelines for the WPEC/SG46 exercise on TAR

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❑ TAR Meeting, April 14,2021

Duration	(NY)	CEST (Paris)	(Tokyo)	Topic	
00:10	07:00	**13:00**	20:00	Welcome and Objectives	O. Cabellos
00:20	07:10	**13:10**	20:10	Overview on TARs: The view of TSO SMR, MSR, VHTR	E. Ivanov
00:20	07:30	**13:30**	20:30	Overview on TARs: The view of Nuclear Reactor Designer SMR and micro-reactors	B. Rearden
00:15	07:50	**13:50**	20:50	SFR	L. Buiron
00:15	08:05	**14:05**	21:05	JSFR	K. Yokoyama
00:15	08:20	**14:20**	21:20	Lead-cooled fast reactors	G. Grasso
00:15	08:35	**14:35**	21:35	ADS	T. Sugawara
00:15	08:50	**14:50**	21:50	MYRRHA	L. Fiorito
00:15	09:05	**15:05**	22:05	LWRs	C. Schneidesch
00:15	09:20	**15:20**	22:20	Fusion, Accelerators, …	I. Kodeli
00:25	09:35	**15:35**	22:35	**Discussion**	**All**
00:15	10:00	**16:00**	23:00	The back-end fuel: mid- and long-term storage	D. Rochman
00:15	10:15	**16:15**	23:15	The back-end fuel: focus on spent nuclear fuel characterization	A. Sjoland
00:15	10:30	**16:30**	23:30	From front-end to back-end nuclear fuel cycle	G. Grassi
00:15	10:45	**16:45**	23:45	**Discussion**	**All**
00:05	11:00	**17:00**	00:00	AOB and close	

Objectives of TAR meeting on April 14, 2021

- To review the status of WPEC/SG26
- *"To **verify the status of design target accuracies** and their potential evolution (reactor operation and fuel cycle parameters)"*
  - *… updated target accuracies for "**ND uncertainty reduction (NDUR)**"*
  - *New reactors concepts are presently explored besides Gen IV, MA burners, and ADS: MSR, SMR, micro reactors, and test reactors*
- **To explore new methodologies/information for NDUR** based on:
  - *New covariance data: ENDF/B-VIII.0, JEFF-3.3, JENDL-4u/5,TENDL2019*
  - *Impact of cross-correlations in energy, reactions and isotopes*
  - *Energy structure: "7 energy groups (based on physical considerations)"*
- *"The **HPRL** will certainly benefit from an update, to motivate and focus new experiments and to meet potential new requirements"*

Outcome of TAR meeting on April 14, 2021

- "*Benchmark Specifications and Guidelines for the WPEC/SG46 exercise on TAR*"

Now…

- "Volunteers" to perform "Uncertainty Quantification"
  - For each candidate reactor system: **collecting sensitivity profiles** in SDF/ 33 groups / **7 groups**
  - **Covariances**: ENDF/B-VII.1, ENDF/B-VIII.0, JEFF-3.1.2, JEFF-3.3, JENDL-4.0,… others?
  - **Processing covariance matrices**: NJOY/Boxer or COVERX format
  - **UQ** with own tools and/or NDaST tool: sensitivity profiles + covariances

- "Volunteers" to perform "ND uncertainty reduction" based on updated TARs
  - Calculations for each reactor system independently
  - For N-integral parameters
  - Variety of isotopes and reactions
  - Different values of "cost parameter", for each type of reaction, energy or isotopes
  - The impact of cross correlations in nuclear data
  - Different sources of covariances: ENDF, JEFF, JENDL, TENDL
  - Calculations jointly with different reactor systems