



Current Status of NUGENIA-TA2: Severe Accidents

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WGAMA Meeting
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1




OUTLINE


- Context
- SNETP/NUGENIA Association
- Current Framework
- Present NUGENIA-TA2
- Final Remarks
- NUGENIA/TA2 In-kind Projects



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2




Context


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Nuclear Generation II & III Association

- The SARNET network (Severe Accident NETWORK of excellence) was co-funded by EC from 2004 to 2013 in FP6-FP7 and then integrated in NUGENIA.
- The main network activities are continuing in the NUGENIA Technical Area N°2; one of the three pillars of SNETP Association.
- EC-funded projects (H2020) & In-kind projects.
- Dissemination of knowledge
 - Textbook on SA.
 - ERMSAR Conferences.
 - SAP Courses.
 - Ranking research priorities


3



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3




SNETP/ NUGENIA Association


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Nuclear Generation II & III Association

- Presently, NUGENIA is one of the pillars of SNETP
 - NUGENIA keeps its “technical identity” and project management
- Overall objectives remain:
 - Integration of efforts of European R&D organisations in definition of research priorities and common research programmes.
 - Capitalizing the knowledge (SOAR, simulation codes, databases).
 - Bringing together top scientists in SA research to constitute a world leadership position,
 - Disseminating knowledge through E&T programmes and papers, to students, young researchers and new nuclear countries.
- Extension to EP&R and SA impact on environment.

4



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4

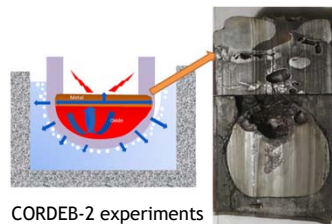
NUGENIA/TA2 Structure

- **Coordination:** CIEMAT (IRSN, Deputy)
- **Sub-TA and leaders:**
 - 2.1 In-vessel corium/debris coolability (KIT)
 - 2.2 Ex-vessel corium interactions-coolability (CEA)
 - 2.3 Containment behaviour, incl. H₂ risk (JSI)
 - 2.4 Source term to the environment (B-T)
 - **2.5 Environmental Impact & emergency management (open)**
 - 2.6 Severe accident scenarios (ENEA)
- **Coordination of dissemination of knowledge:** UNIPI

Project Folder

TA2.1

- **SAFEST, ALISA, FASTNET, IVMR, CORE-SOAR, QUESA**



CORDEB-2 experiments (©NITI, 2015)

TA2.2

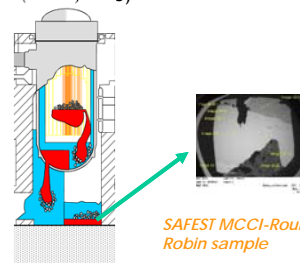
- **SAFEST, ALISA, CORE-SOAR**

Joint annual meetings

TA2.3

- **ALISA, SAMHYCO-Net; AMHYCO**

International Wkshp on H₂ Safety for NPPs (2019)



SAFEST MCCI-Round Robin sample

Project Folder

TA2.4


- MUSA; IPRESCA; **FASTNET**

TA2.5




Alliance with MENA ongoing
Potential H-EUROPE project

TA2.6

FASTNET, MUSA; R2CA; ASCOM
International Wkshp on H2 Safety for NPPs (2019)



7




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7

Education and training (SAP)

- 9 editions of SAP Course (2005)
(France (3), Hungary, Italy, UK, Sweden, Slovenia, China)
 - Open to university students with discount fees and contributed for 3 Credits (ECTS). Strong link with ENEN Association.
 - Last one hosted by CEA in Oct. 2019 at Cadarache: 97 trainees from 15 countries and 20 lecturers); ENEN+ grants for young participants.
 - SAP-course in China-October 2018; in collaboration with Chinese organizations (link with the FP7 Euro-Chinese ALISA project)-
 - Next SAP : planned in Bologna (Italy), June 2021.**
- Scope:
 - SA phenomenology, progression and mitigation in current Light Water-cooled Gen.II and III Nuclear Power Plants (NPP), but also different design solutions in Gen.III NPPs.
 - Special session on Fukushima-Daiichi NPP 2011 accidents and SA uncertainties.

8

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8

Dissemination of Knowledge (ERMSAR)

- Organization of the periodic “European Review Meetings on Severe Accident Research” (ERMSAR conferences)
 - 9 ERMSAR conferences organized since 2005 as an exchange forum for the whole international severe accident community
 - Last one was hosted by the ÚJV Řež in Prague from 18 to 20 March 2019, gathering 163 participants from 23 countries and 73 organizations
 - Proceedings available for free download on SARNET web-site
 - Special Issues on Annals of Nuclear Engineering journal
 - **Next ERMSAR 10th Conference in Autumn 2021 at KIT (D)**

Final Remarks

TA2 Projects Summary

Acronym	Coordinator	Coordinating organisation	Funding scheme
IVMR	Florian Fichot	IRSN	H2020
FASTNET	Isabel DEVOL-BROWN	IRSN	H2020
SAMHYCO-NET	Ahmed BENTAIB	IRSN	in-kind
IPRESCA	Sanjeev GUPTA	BT	in-kind
ASCOM	Patrick Châtelard	IRSN	in-kind
R2CA	Olivier MARCHAND	IRSN	H2020
MUSA	Luis E. Herranz	CIEMAT	H2020
AMHYCO	G. Jiménez	UPM	H2020

11



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11

Perspectives

Severe Accident networking still ongoing & efficient

- **Technical workshops** : essential “brick” for share of R&D progress and brain-storming for new R&D projects...
- **Next events:**
 - ERMSAR-2021, October (KIT, Karlsruhe, Germany)
 - Next SAP education/training course, June 2021 (ENEA, Bologna, Italy)
- **SARP (SA Research Priorities)!**
- **Main challenges to face:**
 - Keeping active the Community (workshops, new projects, publications), despite possible ↘ of R&D funding
 - Identify opportunities in new NPP types, such as SMR, and other financial opportunities.

12



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12

Thank you for your attention!