

PASCAL JOINT WP2- WP4 workshop

13-14 December 2023

Organizers: Ivan Di Piazza (WP4 leader), Philippe Planquart (WP2 leader)
Oliver Martin, Ferry Roelofs (local organizers)

Scope & Aim

A two-day workshop to encourage knowledge transfer and discussion between experts and students/young researchers regarding the safety the HLM reactor coolant and aspects related to integrity and resistance of the structure of HLM reactors in the framework of the PASCAL project.

Topics to be discussed:

- Thermal-hydraulic challenges for HLM reactors
- Fluid-structure interactions
- Sloshing phenomena
- In-service inspection

Outcome:

Confidence with the important aspects of the safety aspects of HLM-cooled systems.

Awareness of the young researchers/PhD students on the thermal-hydraulic needs, and the associated research possibilities in the field of safety-relevant issues towards MYRRHA and ALFRED.

Timing & location

Dates

13/12/2023 from 9.00-18.15

14/12/2023 from 9.00-16.00

Venue

JRC, Petten, The Netherlands

Dinner Venue

To define

Day 1 – 13th of December 2023

Session	Topic	Speaker	Start	End
Introduction	General introduction Thermal-hydraulics challenges Pool-type definition Fuel bundle introduction Q&A	P. Planquart K. van Tichelen D. Martelli K. Litfin all	9:00	10.00
<i>Coffee break</i>			10.00	10:15
Experiments	Exploratory and validation experiments Water experiments and related techniques	D. Martelli P. Planquart	10:15	12:00

	Liquid metal experiments and related techniques Challenges solved in PASCAL Q&A	J. Pacio P. Planquart all		
<i>Lunch break</i>			12:00	13:00
Visit of PALLAS	Introduction + visit of construction site		13:00	14:45
<i>Coffee break</i>			14.45	15.00
Numerical modelling with application (I)	CFD steps and modelling CAD and meshing Momentum & thermal modeling – from water to liquid metal	L. Koloszar S. Keijers L. Koloszar	15:00	16:00
<i>Coffee break</i>			16.00	16:15
Numerical modelling with application (II)	System code Code coupling Subchannel code Challenges solved in PASCAL	P. Breijder K. Zwijsen F. Giannetti H. Uitslag- Doolaard	16.15	18.00
Wrap-up	Summary and perspectives	F. Roelofs and P. Planquart	18:00	18:15
<i>End of day 1</i>			18:15	
			19:00	Dinner TBC

Day 2 – 14th of December 2023

Session	Topic	Speaker	Start	End
General introduction	Integrity and resistance	P. Schuurmans	9:00	9:15
Introductory Lecture	Fluid-structure interaction	J. Degroote	9:15	10:00
<i>Coffee break</i>			10.00	10:15
Flow induced vibrations in HLM	Introduction Wire-spaced fuel pin bundle Description of experimental facilities and numerical domain Flow description and specific measurement and numerical techniques for grid-spaced bundle Conclusions and perspectives	I. Di Piazza J. Pacio I. Di Piazza K. Zwijsen I. Di Piazza	10.15	11.45
In-service inspection	Structures, systems and components	L. Mazeika	11.45	12.30
<i>Lunch break</i>			12:30	13:30
Sloshing of HLM	Seismic signal & numerical simulation Scaling & Experiments with water Q&A	V. Moreau J. Muller all	13:30	15:00
<i>Coffee break</i>			15.00	15.15
Wrap up	Summary and perspectives Interactive session Closing of session	P. Schuurmans & I. Di Piazza	15:15	16:00