

## 2024 GEMINI 4.0 Summer school

- **Location:** NCBJ - 7 Andrzeja Sołtana str., Otwock-Świerk
- **Dates:** 24<sup>th</sup> to 26<sup>th</sup> September 2024

### Day 1: 24<sup>th</sup> September

Time	Topic	Possible lecturers
08h45 – 09h00	<b>Presentation of the programme of the Summer School</b>	M. Pasquet (Framatome) / D. Hittner (HTR)
09h00 - 10h30	<b>Introduction:</b>	
9h00	International Landscape	F. Reitsma (AIEA)
9h15	European Landscape	J. Sobolewski (NCBJ)
9h30	Need of heat for industry / European decarbonization requirements	J. Sobolewski
10h	Why HTGR?	D. Hittner
10h15	European projects + GEMINI Initiative –	M. Pasquet
10h30 – 11h00	Coffee break	
11h00 – 11h30	<b>Introduction:</b> Focus on Polish Project	M. Dabrowski (NCBJ)
11h30 - 12h45	<b>Technology:</b> General presentation of HTGR technology and history	D. Hittner
12h45 -14h00	Lunch	
14h00-14h30	<b>How to perform reactor design</b>	F. Reitsma
14h30 - 16h00	<b>Technology:</b> Reactor physics and core design	F. Reitsma
16h00 - 16h30	Coffee break	
16h30 – 17h00	<b>Technology:</b> Fuel Design & Manufacturing	Olivier Tougait (Framatome)
17h00 – 17H30	<b>Technology:</b> Behavior under irradiation & Qualification	Z. Krajewska (INL)
17h30 – 17h45	<b>Technology:</b> Back end	D. Hittner
17h45 – 18h00	<b>Technology:</b> Questions	All

### Day 2: 25<sup>th</sup> September

Time	Topic	Possible lecturers
09h00 - 10h30	<b>Technology:</b> Safety Analysis and licensing	F. Reitsma
10h30 - 11h00	Break	
11h00 - 11h45	<b>Technology:</b> Components	D. Hittner
11h45 - 12h15	<b>Technology:</b> Safeguards issues	F. Reitsma
12h15 - 13h30	Lunch	
13h30 - 14h45	<b>Applications:</b> Overview of poly-generation applications	M. Fütterer (JRC)
45 - 15h45	<b>Applications:</b> Hybrid systems	Robert Alford (NNL)
15h45 - 16h15	Coffee break	
16h15 - 17h15	<b>Applications:</b> An example of design for non-electric applications, the GEMINI+ design	D. Hittner

## Day 3: 26<sup>th</sup> September

Time	Topic	Possible lecturers
09h00 - 09h45	<b>Applications:</b> Heat Storage technologies and comparison with other energy storage technologies	Tomas Melichar (CVR)
09h45 - 10h15	Coffee break	
10h15 - 11h45	<b>Applications:</b> Technologies for CO2 free hydrogen production (thermo-chemical processes, steam electrolysis (SOEC), low temperature electrolysis)	J. Kupecki & J. Hercog (Institute of Power Engineering)
11h45 - 12h45	<b>Applications:</b> Hydrogen products (synthetic fuel, ammonia,)	M. Ilnicki (Synthos)
12h45 - 14h00	Lunch	
14h00 - 15h15	<b>Socio-economic aspects:</b> Competitors, conditions for competitiveness, adaptability, stability, environmental benefits.	Pierre-Marie Plet (OPIIM)
15h00 - 15h45	<b>Socio-economic aspects:</b> Economy & synergy with renewables and fossils in hybrid Energy system	Blazej Chmielarz (USNC)
16h00 -16h30	<b>Conclusion:</b> Industrial stakeholders' interest and job opportunities	J. Sobolewski