






# Programme of the 17<sup>th</sup> Karlsruhe International School on Fusion Technologies 2025






KIT Campus North, Bldg. 401, Room 410

Draft 18.12.2024




## Wednesday 07/05/2025

9:00-9:15	Opening of the summer school	M. Ionescu-Bujor	
<b>Topic 1: Introduction to fusion</b>			
9:15-10:45	Future energy and fusion power plants	R. Kembleton	
10:45-11:00	coffee break		
11:00-12:15	Basics of magnetic confinement fusion and fusion technology	R. Kembleton	
13:30-14:30	DEMO and the road to fusion power (I)	S. Muldrew	
14:30-14:45	coffee break		
14:45-16:00	DEMO and the road to fusion power (II)	S. Muldrew	


## Thursday 08/05/2025

<b>Topic 2: The fuel cycle of a fusion reactor</b>			
9:00-10:45	Fuel cycle	T. Giegerich	
10:45-11:00	Group Photo		
11:00-12:30	Visit to Tritium Laboratory Karlsruhe	R. Gröbke	
<b>Topic 3: Blankets</b>			
13:30-15:00	Basics of breeding blanket technology I	F. Hernandez	
15:00-15:15	coffee break		
15:15-16:15	Solid breeder and Liquid metal breeder blankets (European concepts)	G. Zhou	
16:15-17:30	Magnetohydrodynamics of liquid metals	L. Bühler	
19:00-22:30	Dinner at Badisch Brauhaus		






## Friday 09/05/2025

<b>Topic 3: Blankets</b>			
9:00-10:45	Tritium Processing in Breeding Blankets and Test Blanket Systems	I. Ricapito	
10:45-11:00	coffee break		
11:00-12:00	Solid tritium breeder materials	J. Leys	
13:15-14:30	Visit to HELOKA	B. Ghidersa	






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<b>Topic 4: Neutronics and activation analysis</b>			
14:30-16:30	Fusion neutronics – methods, data, applications	D. Leichtle	



## Monday 12/05/2025

<b>Topic 5: Plasma physics</b>			
09:00-10:30	Introduction to plasma physics	N. Rivals	
10:30-10:45	Coffee break		
<b>Topic 6: Plasma heating technology and plasma diagnostics</b>			
10:45-12:30	Gyrotrons	S. Illy	
13:30-14:45	Visit to Gyrotron Test Stand	S. Illy	
14:45-16:00	Introduction to neutral beam injection technology	A. Shepherd	
16:00-17:15	Plasma diagnostics in fusion devices	R. Sabot	



## Tuesday 13/05/2025

<b>Topic 7: Technology of magnetic confinement</b>			
09:00-10:30	Superconductivity and magnet technology	K.-P. Weiss	
10:30-10:45	coffee break		
10:45-12:15	High-Temperature Superconductivity	K.-P. Weiss	
<b>Topic 8: Divertors</b>			
13:15-14:45	Manufacturing processes for High Heat Flux Components	P. Lorusso	
14:45-15:00	coffee break		
<b>Topic 9: Remote handling, maintenance scheme</b>			
15:00-15:45	Remote handling maintenance scheme I	M. Mittwollen	
15:45-16:45	Remote handling maintenance scheme II	M. Mittwollen	




## Wednesday 14/05/2025

<b>Topic 10: Materials development for fusion reactors</b>			
9:00-10:15	Basic Course on Irradiation Damage, Part I: Material Properties and Related Mechanisms	M. Rieth	
10:15-10:30	coffee break		
10:30-12:00	Part II: Effect of Neutron Irradiation on Solids	M. Rieth	

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<b>Topic 11: Safety, socioeconomics and waste</b>		
13:00-14:15	Practical Implementation of nuclear safety and licensing aspects within ITER and the TBM project	P. Wouters 
14:15-14:30	coffee break	
14:30-15:45	General safety analysis approach and techniques	D. Dongiovanni 

### Thursday 15/05/2025

9:00-12:00	Visit to Fusion Materials Laboratory	H.-C. Schneider 
<b>Topic 12: Operating and planned facilities</b>		
13:00-14:30	Wendelstein 7-X	H. Laqua 
14:30-14:45	coffee break	
14:45-16:00	ASDEX upgrade	I. Zammuto 
16:00-16:15	Hand-out of certificates	M. Ionescu-Bujor 