















Programme of the 15th Karlsruhe International School on Fusion Technologies

18.01.2023

Monday 08/05/2023








8:30-8:45	Opening of the summer school	M. Ionescu-Bujor	
Topic 1: Introduction to fusion			
8:45-9:20	Future energy and the role for fusion	R. Kembleton	
9:20-9:55	Fusion and the characteristics of fusion power plants	R. Kembleton	
9:55-10:30	Basic physics of a tokamak	R. Kembleton	
10:30-10:45	coffee break		
10:45-11:30	DEMO and the road to fusion power (I))	S. Muldrew	
11:30-12:15	DEMO and the road to fusion power (II)	S. Muldrew	
Topic 2: Plasma physics			
13:30-15:15	Introduction to plasma physics	B. Pégourié	
15:15-15:30	coffee break		
Topic 3: Neutronics and activation analysis			
15:30-16:45	Fusion neutronics – methods, data, applications	D. Leichtle	

Tuesday 09/05/2023







Topic 4: Plasma heating technology and plasma diagnostics			
08:00-9:15	Gyrotrons	S. Illy	
9:15-10:15	Introduction to neutral beam injection technology	A. Shepherd	
10:15-11:15	Plasma diagnostics in fusion devices	R. Sabot	
11:15-12:45	Visit to Gyrotron Test Stand	G. Gantenbein	
Topic 5: The fuel cycle of a fusion reactor			
13:30-15:00	Fuel cycle	C. Day	
15:00-15:15	coffee break		
15:15-16:30	Visit to Tritium Laboratory Karlsruhe	R. Größle	
19:00-22:30	Dinner at Badisch Brauhaus		

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Wednesday 10/05/2023





Topic 6: Blankets			
8:00-9:00	Basics of breeding blanket technology I	F. Hernandez	
9:00-9:45	Solid breeder and Liquid metal breeder blankets (European concepts)	F. Hernandez	
9:45-10:00	Group Photo and coffee break		
10:00-11:00	Tritium Processing in Breeding Blankets and Test Blanket Systems	I. Ricapito	
11:00-11:40	Solid tritium breeder materials	J. Leys	
11:40-12:40	Magnetohydrodynamics of liquid metals	L. Bühler	
Topic 7: Technology of magnetic confinement			
13:30-15:00	Superconductivity and magnet technology	K-P Weiss	
15:00-15:15	coffee break		
15:15-16:30	High-Temperature Superconductivity	K-P Weiss	

Thursday 11/05/2023

Topic 8: Materials development for fusion reactors			
8:00-9:00	Basic Course on Irradiation Damage, Part I: Material Properties and Related Mechanisms	M. Rieth	
9:00-9:15	coffee break		
9:15-10:15	Part II: Effect of Neutron Irradiation on Solids	M. Rieth	
Topic 9: Divertors			
10:15-11:15	Manufacturing processes for High Heat Flux Components	E. Visca	
Topic 10: Safety, socioeconomics and waste			
11:15-12:15	Practical Implementation of nuclear safety and licensing aspects within ITER and the TBM project	P. Wouters	
13:15-14:15	General safety analysis approach and techniques	D. Dongiovanni	
14:15-14:30	coffee break		
14:30-17:00	Visit to Fusion Materials Laboratory	H.-C. Schneider	

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Friday 12/05/2023

Topic 11: Remote handling, maintenance scheme			
8:00-8:40	Remote handling maintenance scheme I	M. Mittwollen	
8:40-9:25	Remote handling maintenance scheme II	M. Mittwollen	
9:25-9:40	coffee break		
Topic 12: Operating and planned facilities			
9:40-10:50	Wendelstein 7-X	R. Wolf	
10:50-11:50	ASDEX upgrade	M. Teschke	
11:50-12:00	Final discussion, hand-out of certificates	M. Ionescu-Bujor	