Programme of the
16th Karlsruhe International School on Fusion Technologies 2024

15.03.2024

Wednesday 10/04/2024

9:00-9:15	Opening of the summer school	M.Ionescu-Bujor
Topic 1: Introduction to fusion		
9:15-10:00	Future energy and the role for fusion	R. Kembleton
10:00-10:45	Fusion and the characteristics of fusion power plants	R. Kembleton
10:45-11:00	coffee break	
11:00-12:15	Basic physics of a tokamak	R. Kembleton
13:30-14:30	DEMO and the road to fusion power (I))	A. Pearce
14:30-14:45	coffee break	
14:45-16:00	DEMO and the road to fusion power (II)	A. Pearce

Thursday 11/04/2024

Topic 2: Plasma physics		
09:00-10:30	Introduction to plasma physics	N. Rivals
10:30-10:45	Group Photo and coffee break	
Topic 3: Plasma heating technology and plasma diagnostics		
10:45-12:30	Gyrotrons	J. Jelonnek
13:30-14:45	Visit to Gyrotron Test Stand	J. Jelonnek
14:45-16:00	Introduction to neutral beam injection technology	A.Shepherd
16:00-17:15	Plasma diagnostics in fusion devices	R. Sabot

Friday 12/04/2024

Topic 4: Technology of magnetic confinement		
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
Topic 5: Neutronics and activation analysis		
13:00-15:00	Fusion neutronics – methods, data, applications	D. Leichtle

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Sunday
14/04/2024
Excursion to
Speyer
11:30-22:00



Registration required

Monday 15/04/2024

Topic 6: The fuel cycle of a fusion reactor		
9:00-10:45	Fuel cycle	C. Day
10:45-12:15	Visit to Tritium Laboratory Karlsruhe	R. Größle
Topic 7: Blankets		
13:30-14:30	Basics of breeding blanket technology I	F. Hernandez
14:30-14:45	coffee break	
14:45-16:00	Solid breeder and Liquid metal breeder blankets (European concepts)	G. Zhou
16:00-17:00	Solid tritium breeder materials	J. Leys

Tuesday 16/04/2024

Topic 7: Blankets		
9:00-10:45	Tritium Processing in Breeding Blankets and Test Blanket Systems	I.Ricapito
10:45-11:00	coffee break	
11:00-12:15	Magnetohydrodynamics of liquid metals	L. Bühler
Topic 8: Divertors		
13:15-14:45	Manufacturing processes for High Heat Flux Components	P. Lorusso
14:45-16:00	Visit to HELOKA	B.Ghidersa

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Wednesday 17/04/2024

Topic 9: Materials development for fusion reactors		
9:00-10:00	Basic Course on Irradiation Damage, Part I: Material Properties and Related Mechanisms	C. Bonnekoh
10:00-10:15	coffee break	
10:15-11:30	Part II: Effect of Neutron Irradiation on Solids	C. Bonnekoh
Topic 10: Safety, socioeconomics and waste		
11:30-12:30	General safety analysis approach and techniques	D. Dongiovanni
13:30-16:00	Visit to Fusion Materials Laboratory	H.-C.Schneider

Thursday 18/04/2024

Topic 10: Safety, socioeconomics and waste		
8:30-9:30	Practical Implementation of nuclear safety and licensing aspects within ITER and the TBM project	P. Wouters
Topic 11: Remote handling, maintenance scheme		
9:30-10:15	Remote handling maintenance scheme I	M. Mittwollen
10:15-11:15	Remote handling maintenance scheme II	M. Mittwollen
11:15-11:30	coffee break	
Topic 12: Operating and planned facilities		
11:30-13:00	Wendelstein 7-X	H. Laqua
14:00-15:15	ASDEX upgrade	M. Teschke
15:15-15:30	Final discussion, hand-out of certificates	M. Ionescu-Bujor