

15th Carolus Magnus Summer School: 24th June - 05th July 2024, Brussels, Belgium (week 1/2)

DRAFT version: 23 April 2024

Time	Monday, 24/06/2024	Tuesday, 25/06/2024	Wednesday, 26/06/2024	Thursday, 27/06/2024	Friday, 28/06/2024
08:00 - 08:45	Breakfast	Breakfast	Breakfast	Excursion day to FZJ (Jülich, Germany)	Breakfast
08:45 - 09:00	Welcome and introduction				
09:00 - 09:45 (35' + 10')	Lecture (L1): J. Ongena <i>Energy for future centuries and fusion</i>	Lecture (L9): Y. Kazakov <i>Plasma heating</i>	Lecture (L17): E. Poli (IPP-Garching) <i>ECRH, ECCD and NTM control</i>		Lecture (L23): F. Louche <i>Coupling of IC waves to the plasma</i>
09:45 - 10:30 (35' + 10')	Lecture (L2): R. Jaspers <i>Thermonuclear burn criteria</i>	Lecture (L10): H. de Blank <i>MHD instabilities</i>	Lecture (L18): K. Crombé <i>Wall conditioning</i>		Lecture (L24): P. Dumortier <i>ICRF antenna design and matching</i>
10:30 - 11:00	Coffee break	Coffee break	Coffee break		Coffee break
11:00 - 11:45 (35' + 10')	Lecture (L3): M. Vergote <i>Fusion machines (1)</i>	Lecture (L11): D. Hartmann (IPP-Greifswald) <i>Stellarators (1)</i>	Lecture (L19): B. Unterberg <i>Transport processes in the plasma edge (1)</i>	<p align="center">Lectures at FZJ:</p> <p>Lecture (FZJ-intro): C. Linsmeier <i>"Overview of fusion activities at FZJ"</i></p> <p>Lecture (FZJ1): W. Biel <i>"Status and outlook of fusion research"</i></p> <p>Lecture (FZJ2): R. Koslowski <i>"Operational limits and limiting instabilities"</i></p> <p>Lecture (FZJ3): D. Borodin <i>"Recycling and transport of neutrals"</i></p> <p align="center">Visit to FZJ facilities</p> <p align="center">FZJ barbecue</p>	Lecture (L25): E. Lerche <i>Overview of D-T experiments at JET</i>
11:45 - 12:30 (35' + 10')	Lecture (L4): Y. Kazakov <i>Fusion machines (2)</i>	Lecture (L12): D. Hartmann (IPP-Greifswald) <i>Stellarators (2)</i>	Lecture (L20): B. Unterberg <i>Transport processes in the plasma edge (2)</i>		Lecture (L26): D. Reiser <i>Introduction to drift wave turbulence models (1)</i>
12:30 - 13:45	Lunch	Lunch	Lunch		Lunch
13:45 - 14:00	Quiz	Quiz	Quiz		Quiz
14:00 - 14:45 (35' + 10')	Lecture (L5): H. de Blank <i>Particle orbits in the magnetic field</i>	Lecture (L13): J. Proll <i>Classical transport</i>	Lecture (L21): M. Vergote <i>Radial electric fields and transport barriers</i>		Lecture (L27): D. Reiser <i>Introduction to drift wave turbulence models (2)</i>
14:45 - 15:30 (35' + 10')	Lecture (L6): H. de Blank <i>Gyrokinetic and drift-kinetic models</i>	Lecture (L14): J. Proll <i>Neoclassical transport</i>	Lecture (L22): A. Krämer-Flecken <i>Microwave diagnostics</i>		Lecture (L28): D. Matveev <i>Erosion and deposition mechanisms</i>
15:30 - 16:00	Coffee break	Coffee break	Coffee break		Coffee break
16:00 - 16:45 (35' + 10')	Lecture (L7): J. Ongena <i>Confinement in tokamaks</i>	Lecture (L15): R. Jaspers <i>Plasma diagnostics</i>	Poster session #1		Lecture (L29): D. Matveev <i>Fuel retention</i>
16:45 - 17:30 (35' + 10')	Lecture (L8): H. de Blank <i>Plasma equilibrium</i>	Lecture (L16): A. Fasoli (EPFL) <i>EUROfusion</i>			Lecture (L30): none <i>contingency slot</i>
17:30 - 17:45	Quiz	Quiz			Quiz
17:45 - 18:15					
18:15 - 19:30	Dinner	Dinner	Dinner	Bus departure from FZJ	Dinner

15th Carolus Magnus Summer School: 24th June - 05th July 2024, Brussels, Belgium (week 2/2)

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Time	Monday, 01/07/2024	Tuesday, 02/07/2024	Wednesday, 03/07/2024	Thursday, 04/07/2024	Friday, 05/07/2024
08:00 - 08:45	Breakfast	Excursion day to DIFFER (Eindhoven, Netherlands)	Breakfast	Breakfast	Breakfast
08:45 - 09:00					
09:00 - 09:45 (35' + 10')	Lecture (L31): D. Terentyev <i>Basics of material science (1)</i>		Lecture (L39): M. Rubel (KTH) <i>Structural and functional materials</i>	Lecture (L47): S. Wiesen <i>Impurity transport and radiation</i>	Lecture (L53): G. Phillips (F4E) <i>JT-60SA: construction lessons and future outlook</i>
09:45 - 10:30 (35' + 10')	Lecture (L32): D. Terentyev <i>Basics of material science (2)</i>		Lecture (L40): M. Rubel (KTH) <i>Tritium breeding and neutron-induced effects</i>	Lecture (L48): C. Linsmeier <i>First wall mixed materials: surface compounds and hydrogen retention</i>	Lecture (L54): T. Wauters (ITER-IO) <i>ITER status and challenges</i>
10:30 - 11:00	Coffee break		Coffee break	Coffee break	Coffee break
11:00 - 11:45 (35' + 10')	Lecture (L33): E. Lerche <i>ICRF waves and plasma heating</i>	<p align="center"><u>Lectures at DIFFER:</u></p> <p>Lecture (DIF-intro): M. de Baar <i>"Overview of fusion activities at DIFFER"</i></p> <p>Lecture (DIF1): M. de Baar <i>"Flying a tokamak"</i></p> <p>Lecture (DIF2): M.J. Pueschel <i>"Drift-wave instabilities in fusion plasmas"</i></p> <p>Lecture (DIF3): M.J. Pueschel <i>"Saturation, turbulence and transport"</i></p> <p>Lecture (DIF4): T. Morgan <i>"Laboratory experiments to study PMI"</i></p> <p align="center">Visit to DIFFER facilities</p> <p align="center">Dinner at DIFFER</p>	Lecture (L41): none contingency slot	Lecture (L49): V. Kiptily (UKAEA) <i>Fast-ion and alpha diagnostics</i>	Lecture (L55): M. Henderson (UKAEA) <i>UK fusion: spherical tokamaks and STEP</i>
11:45 - 12:30 (35' + 10')	Lecture (L34): P. Lamalle <i>Kinetic theory of plasma waves</i>		Lecture (L42): J. Coenen <i>Tungsten and advanced materials</i>	Lecture (L50): S. Sharapov (UKAEA) <i>Energetic-particle-driven instabilities</i>	Lecture (L56): T. Donné <i>EUROfusion DEMO</i>
12:30 - 13:45	Lunch		Lunch	Lunch	Closing ceremony
13:45 - 14:00	Quiz		Quiz	Quiz	
14:00 - 14:45 (35' + 10')	Lecture (L35): S. Brezinsek <i>PWI in all-metal tokamaks</i>		Lecture (L43): M. Van Berkel <i>Data-driven analysis using perturbative experiments</i>	Lecture (L51): J. Ongena <i>Extrapolation to future machines</i>	
14:45 - 15:30 (35' + 10')	Lecture (L36): A. Kreter <i>Diagnostics for PMI studies</i>		Lecture (L44): M. Wirtz <i>High heat flux performance of PFCs</i>	Lecture (L52): Renaissance Fusion (sponsor) <i>Summary of Renaissance Fusion activities</i>	
15:30 - 16:00	Coffee break		Coffee break	Coffee break	
16:00 - 16:45 (35' + 10')	Lecture (L37): S. Brezinsek <i>In-situ PWI diagnostics</i>		Lecture (L45): Y. Liang <i>Stochastic boundary plasmas</i>	Poster session #2	
16:45 - 17:30 (35' + 10')	Lecture (L38): D. Van Eester <i>Modeling of particle heating and diffusion</i>		Lecture (L46): none contingency slot		
17:30 - 17:45	Quiz		Quiz		
17:45 - 18:15					
18:15 - 19:30	Dinner	Bus departure from DIFFER	Dinner	CMSS dinner, sponsored by Renaissance Fusion	