

30th Stralsund Spring School

29th – 30th March 2023 online sessions
11th – 22nd April 2023 in Stralsund



FUSES+
FUTURE Sustainable Energy Supply – based on renewable energy and hydrogen technology

faculty of electrical engineering + computer science
institute for renewable energy systems
University of Applied Sciences
Fakultät Elektrotechnik + Informatik
Institut für Regenerative EnergieSysteme IRES

Attendance Programme in Stralsund: 11th – 22nd April 2023

E-Learning platform:	You will find lecture materials at https://moodle.hochschule-stralsund.de Login-Data will be provided for each participant.	
Lecture rooms:	H4 / HS3 = house 4 / lecture hall 3 = room 118 H4 / HS4 = house 4 / lecture hall 4 = room 208 (2 nd floor) H4 / HS8 = house 4 / lecture hall 8 = room 109	H4 / 210 = house 4 / seminar room 210 (2 nd floor) H4 / 214 = house 4 / seminar room 214 (2 nd floor) H4 / 223 = house 4 / seminar room 223 (2 nd floor) H4 / 322 = house 4 / seminar room 322 (3 rd floor)
Laboratory locations:	KAE = Komplexlabor Alternative Energien (Alternative Energy Lab) House 7 / near wind turbine tower Laboratory FC-1 H-Box in house 4 / room 217 Laboratories Simu 1 and Intro Powtoon: in house 4 / room 324	

11.04. Tue	
Day of arrival	arrival / journey to Stralsund <i>Please send us your arrival times – you will get the keys from us for your accommodation in our guest house upon arrival.</i>

Date	Time	Topic	Location
12.04. Wed			
	09:00 - 09:30 09:30 - 10:30	Registration at lecture hall 3 in house 4 Opening Session incl. group photo - Welcome and Introduction to the University of Stralsund and its Institute of Renewable Energy Systems / Rector Prof. Ralph Sonntag & Prof. Thomas Luschtinetz - Introduction of the International Event Point of the Stralsund University of Applied Sciences	H4 / HS3
	10:30 - 11:30	Carbon free energy supply demands in the future / Prof. Jochen Lehmann	H4 / HS3
	11:30 - 13:00	Introduction in the hydrogen technology / Prof. Thomas Luschtinetz	H4 / HS3
	13:00 - 14:00	Lunch	
	14:00 - 15:30	Laboratory introduction + safety instruction / Christian Sponholz / Prof. Thomas Luschtinetz + visit of the ThaiGer-H2 Racing workshop / Andreas Sklarow	house 7 / KAE
	16:00	Photo Rallye “the way downtown” – discovering useful locations such as shops, pubs etc., Hanseatic highlights and hidden places of Stralsund Meeting Point: 15:30 Bus Station of University between house 19 and house 4 (Golden Cube)	



30th Stralsund Spring School

29th – 30th March 2023 online sessions
11th – 22nd April 2023 in Stralsund



FUSES+
FUture Sustainable Energy Supply – based
 on renewable energy
 and hydrogen technology

faculty of electrical engineering + computer science University of Applied Sciences
 Fakultät Elektrotechnik + Informatik
 institute for renewable energy systems Institut für Regenerative EnergieSysteme IRES

13.04. Thu			
	08:00 - 09:00	Introduction into power electronics in e-mobility / Prof. Michael Bierhoff	H4 / HS4
	09:00 - 10:30	Hybrid Energy Storage: Supercapacitor and Battery Technology Applied to Microgrid / Thiago Soares	H4 / 223
	10:45 - 12:00	Fuel cell technology II / Prof. Hugh Middleton	H4 / 223
	12:00 - 13:00	Lunch	
	13:00 - 17:00	Laboratory 1 + 2	
	18:30	Welcome to participants in front of house 7: Get-together-barbecue with guest students, lecturers and ThaiGer-H2-Racing team	

14.04. Fri			
	08:30 - 09:30	Methods of energy storage in electric power system / Prof. Michal Zeńczak	H4 / HS4
	09:30 - 10:30	The use of unconventional energy sources on water transport means / Prof. Wojciech Zeńczak	H4 / HS4
	10:30 - 12:00	Development in solar energy technics / Prof. Zapałowicz	H4 / HS4
	12:00 - 13:00	Lunch	
	13:00 - 17:00	Laboratory 3 + 4	
	18:00	Lecturers Dinner I (Restaurant "Goldener Löwe" / Alter Markt 1)	

15. – 16.04. Saturday & Sunday	
free time – time for individual excursions to Stralsund and surroundings	<p>On Saturday there is the Campus Day from 10:00 to 14:00 where you can explore the whole university - and see even more labs from the faculties of electrical engineering and computer sciences & mechanical engineering. You can also take a chance getting to know our racing teams. If you show up at our lab in house 7 we can guide you through the campus and other labs.</p> <p>Check out the programme here.</p>



30th Stralsund Spring School

29th – 30th March 2023 online sessions
11th – 22nd April 2023 in Stralsund



FUSES+
FUTURE Sustainable Energy Supply – based
on renewable energy
and hydrogen technology

faculty of electrical engineering + computer science
institute for renewable energy systems
University of Applied Sciences
Fakultät Elektrotechnik + Informatik
Institut für Regenerative EnergieSysteme IRES

17.04. Mo			
	09:00 - 10:00	Selected aspects of green technologies safety / Agata Krystosik-Gromadzińska	H4 / HS8
	10:00 - 11:15 11:15 - 12:00	Operation of wind turbines / Prof. Merja Mäkelä Introduction to the simulation of energy and storage systems / Prof. Merja Mäkelä	H4 / HS8
	12:00 - 13:00	Lunch	
	13:00 - 17:00	Laboratory 4 + 5	

18.04. Tue		
	04:45 - 24:00	<p>Excursion to Hannover Fair</p> <p>Meeting point and departure at the Golden Cube (between house 19 and house 4): Please be there at 04:45 in the morning! We will take a shuttle to the train station. There is enough time to sleep on the train ;o)</p> <p>Take lunch packages with you. We will be back late at night.</p> <p><u>These are the connections:</u></p> <p><i>Stralsund – Hannover Fair</i> departure from Stralsund Hbf at 05:21 (track 4) / arrival at Hannover fair at 10:09 (direct connection) reserved seats at car 24: 41- 48 51- 58 61- 64 65- 68, 72 74-76 78</p> <p><i>Hannover Fair - Stralsund</i> departure from Hannover fair at 18:24 (track 16) / arrival at Stralsund Hbf at 23:57 (2 changes) reserved seats at IC from Hannover to Hamburg at car 6: 31- 35 37- 38 41- 48 51- 57, 61- 68 71- 77</p> <p>>> arrival at Hamburg Hbf at 19:55 (track 12) >> departure from Hamburg Hbf. at 20:21 (track 7A-D) >> arrival at Rostock Hbf. at 22:50 (track 3) >> departure from Rostock Hbf. at 23:00 (track 4)</p> <p>Please find further information here: www.hannovermesse.de/en/conference/ To get a free ticket to the fair, register here beforehand: your free ticket</p>

30th Stralsund Spring School

29th – 30th March 2023 online sessions
11th – 22nd April 2023 in Stralsund



FUSES+
FUture Sustainable Energy Supply – based
 on renewable energy
 and hydrogen technology

faculty of electrical engineering + computer science University of Applied Sciences
 Fakultät Elektrotechnik + Informatik
 institute for renewable energy systems Institut für Regenerative EnergieSysteme IRES

19.04. Wed			
	10:00 - 12:00	We-Energy Game - energy transition on municipality level / Mathieu Przybyla	H4 / 210
	12:00 - 14:00	Lunch and time for preparing presentations	
	14:00 - 17:00	Seminar Prof. Gulden - Home universities and energy situation / renewable energy situation in the home countries of students - short presentations of participants	H4 / HS3
	18:00	Intercultural Evening with cold bring along buffet (Everybody can bring along self-made specialties from their home-countries to be shared with each other) (organised by the students of the International Event Point) >> We gather in house 21, rooms 103 / 104	

20.04. Thu			
	08:00 - 10:00	Nordic electricity markets / Prof. Merja Mäkelä	H4 / HS3
	10:00 - 12:00	Practical hydrogen experiments / Cor Scholte	H4 / HS3 + KAE
	12:00 - 13:00	Lunch	
	13:00 - 16:30	Krafla – Energy Transition Simulation Game: negotiating with the world / Prof. Johannes Gulden & Romy Sommer	H4 / 214
	18:30	Lecturers Dinner II (Restaurant “Burwitz Legendär” / Alter Markt 8)	

30th Stralsund Spring School

29th – 30th March 2023 online sessions
11th – 22nd April 2023 in Stralsund



FUSES+
FUture Sustainable Energy Supply – based
on renewable energy
and hydrogen technology






faculty of
electrical engineering
+ computer science

University of Applied Sciences

Fakultät Elektrotechnik + Informatik

institute for renewable
energy systems

Institut für Regenerative
EnergieSysteme IRES

21.04. Fri			
	09:00 - 10:30	Presentations of lab results <u>by student teams</u> with discussion / Christian Sponholz / Martin Hayduk	H4 / HS4
	10:30 - 12:00	Process control systems in renewable energy production / Prof. Merja Mäkelä	H4 / HS4
	12:00 – 13:00	Lunch	
	13:00 - 14:00	Solar cooling – an innovative application of solar thermal systems / Prof. Johannes Gulden	H4 / HS4
	14:00 - 16:00	Online examination for all participants (attendees can take the exam in the computer-room 317 in house 4 or use their own notebook at the lecture hall 3 in house 4)	
	17:30 – 18:30	Handing-over of certificates / evaluation and farewell	H4 / HS4
	18:30	Farewell barbecue / near house 7	
22.04. Sat			
Departure with shuttle service to the railway station or bus station. Please tell us your departure times.			

30th Stralsund Spring School

29th – 30th March 2023 online sessions
11th – 22nd April 2023 in Stralsund



FUSES+
FUTURE Sustainable Energy Supply – based
on renewable energy
and hydrogen technology

faculty of electrical engineering + computer science
institute for renewable energy systems
University of Applied Sciences
Fakultät Elektrotechnik + Informatik
Institut für Regenerative EnergieSysteme IRES

Laboratory work: In each of the 5 teams are members of different universities/countries.
Preparation of a presentation (.ppt) and / or a short film sequence by each team:

Team 1	FC-1 H-Box	Team 3	Ely 1 Electrolyzer	Team 5	HCC1
Team 2	FC-5 Nexa	Team 4	FC-3 50 W		

Division of the groups into laboratory work:

	Thu		Fri		Mon		Room
	13.04.		14.04.		17.04.		
	13:00 - 15:00	15:00 - 17:00	13:00 - 15:00	15:00 - 17:00	13:00 - 15:00	15:00 - 17:00	
	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	
FC-1 H-Box	1+2	4	5	3			4/217
Simulink 1					1+2+3	4+5	4/324
FC-3 50 W	3	5	1	2	4		H7/KAE
FC-5 Nexa	4	1	2	5		3	H7/KAE
Ely-1 Electrolyzer	5	2	3	4		1	H7/KAE
HCC1 Buderus		3	4	1	5	2	H7/KAE

Locations of the labs: H7 / KAE = house 7 / Komplexlabor (Alternative Energy Lab) > near Windturbine
H4 = house 4 / room 217 and 324

FC 1 – Heliocentris Box H4 / 217	Micro Electrolyzer / PV and FC	Johannes Gulden, Hugh Middleton
Simu - Simulation of energy systems with Simulink H4 / 324	Introduction to modeling energy storage systems with Matlab/Simulink	Merja Mäkelä, Andreas Sklarow
FC 3 - 50W / KAE	Automation of a 50W-FC using a PLC	Thomas Luschtinetz, Andreas Sklarow
FC 5 – Nexa / KAE	Nexa 1,2 kW UPS	Martin Hayduk, Hugh Middleton
ELY 1 – Electrolyser / KAE	Modell electrolyser and windturbine-electrolyser-system (20kW type)	Jochen Lehmann, Christian Sponholz, Johannes Gulden
HCC 1 - H2-combustion / KAE	Catalytic burner (Buderus)	Christian Sponholz

30th Stralsund Spring School

29th – 30th March 2023 online sessions
11th – 22nd April 2023 in Stralsund



FUSES+
FUTURE Sustainable Energy Supply – based
on renewable energy
and hydrogen technology

faculty of electrical engineering
+ computer science
institute for renewable energy systems

University of Applied Sciences
Fakultät Elektrotechnik + Informatik
Institut für Regenerative EnergieSysteme IRES

Organisation:

Dipl.-Business Economist Romy Sommer
Romy.Sommer@hochschule-stralsund.de
Tel.: +49 172 959 1884 / +49 3831 456702

Prof. Dr. Johannes Gulden
Johannes.Gulden@hochschule-stralsund.de
Tel.: +49 176 63439463

Stud. Marc Wilheine
Marc.Wilheine@fh-stralsund.de
Tel.: +49 1631 398 323

Prof. Dr. Thomas Lushtinetz H4/210a
Thomas.Lushtinetz@hochschule-stralsund.de
Tel.: +49 1782 1037 24 / +49-3831 456 583