Physics of Complex Systems and Global Change

French-German WE-Heraeus-Seminar

10 - 15 March 2024

at the

École de Physique
Les Houches, France

WILHELM UND ELSE
HERAEUS-STIFTUNG

Program

Sunday, 10 March 2024

From 15:00	Arrival	
19:30	*DINNER*	

Monday, 11 March 2024

07:45 – 08:45	*BREAKFAST*	
09:00 – 09:15	Hugues Chaté & Theo Geisel	**Welcome and Introduction**
09:15 – 09:30	Stefan Jorda	**About the Wilhelm and Else Heraeus Foundation**
09:30 – 10:30	Ricarda Winkelmann	**Ice matters: The long-term legacy of short-term climate (in)action**
10:30 – 11:00	*COFFEE BREAK*	
11:00 – 12:00	Ulrike Feudel	**Critical transitions in complex systems: theory and applications to climate and ecosystem dynamics**
12:30 – 14:00	*LUNCH*	
14:00 – 17:00	**Discussion groups**	
17:00 – 18:00	TEA BREAK	
18:00 – 19:30	**Flash talks & poster session**	
19:30	*APÉRITIF & DINNER*	
21:00	**Poster session, continued**	

Program

Tuesday, 12 March 2024

07:45 – 08:45	*BREAKFAST*	
09:00 – 09:40	Freddy Bouchet	**New ways for dynamical prediction of extreme heat waves, extremes of renewable electricity production, and abrupt climate change: rare event simulations and machine learning**
09:40 – 10:20	Holger Kantz	**Long range temporal dependence in atmospheric data**
10:20 – 10:40	*COFFEE BREAK*	
10:40 – 11:20	Jérôme Chave	**Is locking up carbon in forests an affordable strategy for mitigating carbon emissions?**
11:20 – 12:00	Fabien Maussion	**Mountain glaciers are disappearing faster than ever observed. What are the remaining big questions in glaciology?**
12:10	*Conference Photo*	
12:30 – 14:00	*LUNCH*	
14:00 – 17:00	**Discussion groups**	
17:00 – 18:00	*TEA BREAK*	
18:00 – 18:20	Lorina Buhr	**The concepts of irreversibility and reversibility in research on anthropogenic environmental changes: a systematic literature review**
18:20 – 18:40	Bryony Hobden	**Dansgaard-Oeschger events: Challenges of predicting abrupt shifts in multiscale systems**
18:40 – 19:20	José Halloy	**The basic concepts of the physics of complex systems illuminate questions of sustainability**
19:30	*DINNER*	
21:00	Fabien Maussion	**From glaciers in Chamonix to the globe: quantifying the ice cost of our greenhouse gas emissions**

Program

Wednesday, 13 March 2024

07:45 – 08:45	*BREAKFAST*	
09:00 – 12:00	**Optional excursions or discussion groups**	
12:30 – 14:00	*LUNCH*	
14:00 - 16:00	**Discussion groups**	
16:10 - 16:50	Joachim Peinke	**Non-equilibrium thermodynamics of extreme events in wind turbulence and water waves**
16:50 – 17:30	Claudia Brunner	**Wind turbine flows: how atmospheric conditions affect tip vortex decay into turbulence**
17:30 – 18:00	*TEA BREAK*	
18:00 – 18:40	Silvia De Monte	**Phytoplankton communities: from strong interactions to macroecological patterns**
18:40 – 19:20	Marc Timme	**Fluctuation-responses and tipping in strongly perturbed nonlinear systems**
19:30	*DINNER*	
21:00	**Optional poster session**	

Program

Thursday, 14 March 2024

07:45 – 08:45	*BREAKFAST*	
09:00 – 09:40	Pascal Yiou	**Statistical challenges to model and simulate climate extremes**
09:40 – 10:20	Florian Sévellec	**Millennial chaotic variability of the Atlantic overturning circulation in an Idealized model**
10:20 – 10:40	*COFFEE BREAK*	
10:40 – 11:20	Günter Radons	**Effects of delay variations in dynamical systems**
11:20 – 12:00	Jin Song von Storch	**A theory of randomness**
12:30 – 14:00	*LUNCH*	
14:00 – 17:00	**Discussion groups**	
17:00 – 18:00	*TEA BREAK*	
18:00 – 18:40	Aglaé Jézéquel	**Broadening the scope of anthropogenic influence in extreme event attribution**
18:40 – 19:00	Johannes Kassel	**Utilizing long-memory and teleconnections for stochastic forecasts of winter temperature extremes**
19:00 – 19:20	Caterina Mosto	**Topological tipping in a low-order Atlantic Meridional Overturning Circulation model**
19:30	*CONFERENCE DINNER & POSTER PRIZES*	

Program

Friday, 15 March 2024

07:45 – 08:45	*BREAKFAST*	
09:00 – 09:40	Angelika Humbert	**Complexity of ice sheets - physical processes of the Greenland Ice Sheet**
09:40– 10:20	Thierry Penduff	**Atmospherically-paced chaotic ocean variability: towards a dynamical system viewpoint**
10:20 – 10:40	*COFFEE BREAK*	
10:40 – 11:20	Bjorn Stevens	**The standard model of climate & what it's missing**
11:20 – 12:00	**Final discussion**	
12:30 – 14:00	*LUNCH*	

End of the seminar and departure