

# Wilhelm and Else Heraeus Seminar

15–18 August 2021

Paulinenhof  
Bad Belzig

## Interacting Tipping Elements in the Natural and Social Components of the Earth System

*Tipping elements are natural and socio-economic components of the Earth system that could be pushed into qualitatively different states by small external perturbations, with profound environmental impacts possibly endangering the livelihoods of millions of people. Examples include climate tipping elements such as the ice sheets of Greenland and Antarctica, the Atlantic ocean's meridional overturning circulation or biomes as well as potential social tipping elements such as processes in public opinion formation, consumption patterns, conflict and migration, or climate policy changes, and their societal implications.*

*There are indications for significant interlinkages between climate tipping elements and even the potential for tipping cascades or domino effects from the climate to the social sphere.*

**This WE Heraeus Seminar will discuss and synthesize physics-based efforts in modelling these natural and socio-economic tipping elements and their complex interaction dynamics using methods from relevant subfields such as statistical physics, nonlinear dynamics and complex network theory.**

A particular focus will be placed on educating early career researchers in physics to be able to work on the forefront of these problems and contribute to efforts in better understanding the options to induce rapid mitigation of anthropogenic climate change and pathways to sustainability transformations.

### Keynotes by

Tim Lenton (U Exeter)  
Ricarda Winkelmann (PIK)  
Rachael Shwom (Rutgers Climate Institute)  
Rupert Way (U Oxford, enquired)

### Invited speakers

Anne-Sophie Crépin (Beijer Inst.)  
Michel Crucifix (U Louvain), Jonathan Donges (PIK)  
Vasilis Dakos (U Montpellier)  
Jobst Heitzig (PIK), Franz Mauelshagen (U Vienna)  
Jürgen Scheffran (U Hamburg)  
E. Keith Smith (ETH Zurich)  
Veronika Stolbova (ETH Zurich)  
Clara Zemp (U Neuchâtel)

### Scientific organizers

Jobst Heitzig (PIK)  
Ricarda Winkelmann (PIK, U Potsdam)

Application **deadline: 13 June 2021**



DominoES  
project



This event is  
generously funded by

**WILHELM UND ELSE  
HERAEUS-STIFTUNG**



POTSDAM INSTITUTE FOR  
CLIMATE IMPACT RESEARCH

[www.we-heraeus-stiftung.de/veranstaltungen/seminare/2021/interacting-tipping-elements-in-the-natural-and-social-components-of-the-earth-system/application/](http://www.we-heraeus-stiftung.de/veranstaltungen/seminare/2021/interacting-tipping-elements-in-the-natural-and-social-components-of-the-earth-system/application/)

or: [tinyurl.com/4npyh2bw](https://tinyurl.com/4npyh2bw)