

Humboldt Kolleg

Hilton Garden Inn Hotel, Doamnei St. 12, Bucharest
18-22 November 2020

Global Challenges of the 21st Century

- 1) Technological development and human health/ quality of life*
- 2) Climate change and environmental sustainability*
- 3) Democracy and cohesion in Europe*

Mathematical Consciousness Science: Perspectives on an Emerging Field of Applied Mathematics

The scientific study of consciousness is a new field, which has emerged as a response to groundbreaking developments in analytic philosophy in the 1990s. Joint efforts of neuroscientists, biologists, philosophers and computer scientists have advanced the field considerably in the past decades and resulted in a plethora of available data and a sizeable number of theories. However, what seems to be missing at present is a comprehensive mathematical approach to the topic, akin to the role theoretical physics or computational biology play in their respective disciplines. In this talk, I will explain some ideas and present some results of a small community of researchers who have engaged in developing this mathematical approach.

Johannes Kleiner is a physicist and mathematician who works at the intersection of foundational physics and mathematics. The main focus of his research is the theory of causal fermion systems, a novel approach to describe fundamental physics which aims at unifying quantum mechanics, quantum field theory and general relativity. In recent years, he became interested in mathematical topics in the Scientific Study of Consciousness and has contributed to the study of formal models of consciousness.