

# Quantum Chaos and Holography

## International Workshop 30 May - 03 Jun 2022

This five-day workshop will facilitate an intensive exchange of ideas between string theorists, condensed matter physicists, atomic physicists, mathematical physicists and researchers with other areas of expertise actively working on theory and applications of quantum chaos. The main goals of the workshop is both to introduce researches from different communities to key models and results and to outline unresolved problems actively investigated by these different communities. Such a meeting should allow us to consolidate new ways of quantifying many-body quantum chaos and highlight their implications for important questions of different disciplines. The main themes include studying signatures of chaos in quantum many-body systems, developing physical applications to thermalization and transport, developing new theoretical techniques for studying quantum chaos in complex systems, and exploring implications of chaos to related fields, such as quantum information and the quantum mechanics of black holes. We now describe key issues of each of these themes more explicitly.

### Topics:

- Chaos, black holes and quantum gravity
- Signatures of chaos in quantum many-body systems
- Chaos and thermalization
- Chaos and transport
- Chaos and quantum information
- Theoretical techniques for studying quantum chaotic systems
- Transition from integrable to chaotic systems

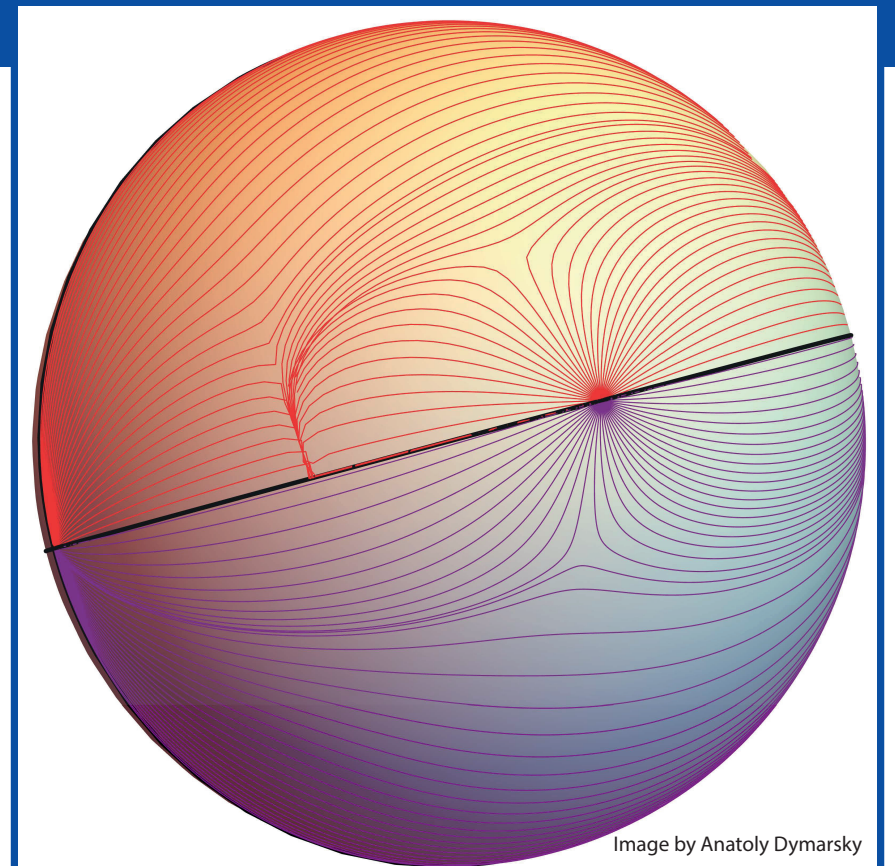


Image by Anatoly Dymarsky

### Invited speakers:

Alexander Altland (DE)  
 Micha Berkooz (IL)  
 Anatoly Dymarsky (US)  
 Netta Engelhardt (US)  
 Johanna Erdmenger (DE)  
 Ben Freivogel (NL)  
 Yan Fyodorov (UK)  
 Olivier Giraud (FR)  
 David Huse (US)  
 Eugene Kanzieper (IL)  
 Stefan Kehrein (DE)  
 Vedika Khemani (US)  
 Thomas Mertens (BE)  
 Tomaz Prosen (SI)  
 Mukund Rangamani (US)  
 Marcos Rigol (US)  
 Julian Sonner (CH)  
 Mark Srednicki (US)  
 Douglas Stanford (US)

### Scientific coordinators:

**Hong Liu**  
 Cambridge, USA  
**Anatoli Polkovnikov**  
 Boston, USA  
**Moshe Rozali**  
 Vancouver, Canada

### Organisation:

Claudia Domaschke  
 MPIPKS Dresden

Applications received before 15th April 2022 are considered preferentially.

**We plan for an in person workshop with all participants on-site.**

Applications are welcome and should be made by using the application form on the event's web page. The number of attendees is limited. The registration fee for the international workshop is 140 Euro and should be paid by all participants. Costs for accommodation and meals will be covered by the Max Planck Institute. Limited funding is available to partially cover travel expenses.

### For further information please contact:

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