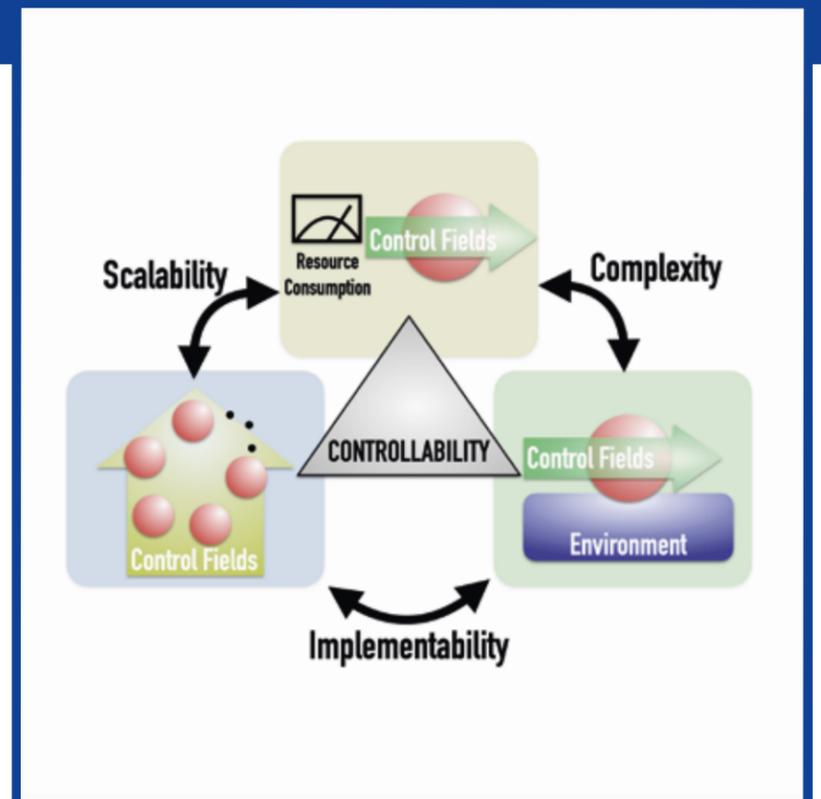


# Advances in Quantum Control: Techniques, Applications, and Challenges

## International Workshop 21 - 25 July 2025

The workshop will bring together the various communities leveraging quantum control. Focussing on the role of coherence, thermodynamics, complexity, and many-body interactions in achieving control, the workshop will provide an overview over the current state-of-the-art tools, techniques, and challenges.



### Topics

#### Quantum Control techniques:

- Shortcuts-to-adiabaticity
- Quantum optimal control
- Open loop vs. feedback control
- Machine learning based control methods

#### Applications of quantum control:

- Manipulation of many-body systems
- Hybrid quantum-classical algorithms
- Quantum reservoir engineering
- Metrology and sensing
- Thermodynamics

#### Advances in controlling specific platforms:

- Rydberg atom arrays
- Superconducting qubits
- Nitrogen-vacancy centres

### Invited speakers:

Sophia Economou (US)  
Nicole Fabbri (IT)  
Yuval Gefen (IL)  
David Guéry-Odelin (FR)  
Christopher Jarzynski (US)  
Henning Kirchberg (SE)  
Misha Lukin (US)  
Simone Montangero (IT)  
Giovanni Morigi (DE)  
Dominique Sugny (FR)  
Birgitta Whaley (US)  
Susanne Yelin (US)

### Scientific coordinators:

Steve Campbell  
Dublin, IE  
  
Christiane Koch  
Berlin, DE

### Organisation:

Christina Kuß  
MPIPKS Dresden

Applications received before 30th March 2025 are considered preferentially.

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 200 Euro and should be paid by all participants. Costs for accommodation and meals for participants will be covered by the Max Planck Institute.

#### For further information please contact:

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