

## Program of WEH Seminar, June 22–26, 2026

### New Trends in Degenerate Gases: Quantum Computation and Simulation

#### Sunday, June 21, 2026

- 17.00 – 21.00 Registration  
18.00 – 21.00 Dinner and informal get-together

#### Monday, June 22, 2026

- 08.40 – 09.00 Carlos Sá de Melo (Atlanta, USA):  
Opening and Welcome
- Session 1: Cavities I**
- 09.00 – 09.45 Georg von Freymann (Hannover, Germany):  
*3D micro-printed potential landscapes for photonic quantum gases*
- 09.45 – 10.30 Francesco Piazza (Augsburg, Germany):  
Laser-Painted Cavity-Mediated Interactions in a Quantum Gas
- 10.30 – 11.00 Coffee Break
- Session 2: Kinetic Magnetism**
- 11.00 – 11.45 Erich Mueller (Ithaca, USA):  
*The Geometry of Kinetic Magnetism*
- Session 3: Quantum Computation**
- 11.45 – 12.30 Jens Eisert (Berlin, Germany):  
*Fault tolerant quantum computing with cold atoms*
- 12.30 – 14.00 Lunch
- Session 4: Contributed Talks I**
- 14.00 – 14.30 Ana Hudomal (Belgrade, Serbia):  
*Ergodicity breaking meets criticality in a gauge-theory quantum simulator*
- 14.30 – 15.00 Lennart Koehn (Glasgow, UK):  
*Quantum-gas microscopy and Talbot interferometry of the Bose-glass phase*
- 15.00 – 15.30 Laurent Longchambon (Paris, France):  
*Route to vortex turbulence in a shell trap*
- 15.30 – 16.00 Coffee Break
- 16.00 – 18.30 **Plenary Poster Flash Presentations**
- 18.30 – 20.00 Dinner
- 20.00 – 21.30 **Poster Session I**  
Poster numbers 1 mod 4

## Tuesday, June 23, 2026

### Session 5: Lattices I

- 09.00 – 09.45 Eugene Demler (Zurich, Switzerland): Online via Zoom  
*Simulating doped Mott insulators on square and triangular lattices*
- 09.45 – 10.30 Christof Weitenberg (Dortmund, Germany):  
*Phase microscopes for quantum gases: from weakly to strongly correlated regimes*
- 10.30 – 11.00 Coffee Break
- 11.00 – 11.45 Imke Schneider (Kaiserslautern, Germany):  
*Tuning Statistics: Multicriticality and Quantum Phases of 1D Lattice Anyons*

### Session 6: Quantum Computation, Simulation, and Sensing

- 11.45 – 12.30 Hannes Bernien (Innsbruck, Austria):  
*Quantum processors and quantum networks – Atom-by-atom*
- 12.30 – 12.40 Group Photo
- 12.40 – 14.00 Lunch
- 14.00 – 14.45 Monika Aidelsburger (Munich, Germany):  
*Many-body quantum dynamics in large-scale, programmable neutral-atom quantum simulators*
- 14.45 – 15.30 David Spierings van der Wolk (Boston, USA):  
*Active and passive control of individual atoms with optical cavities*
- 15.30 – 16.00 Coffee Break
- 16.00 – 16.45 Monika Schleier-Smith (Stanford, USA):  
*Decoded quantum sensing with cavity-coupled and dipolar spins*
- 16.45 – 18.15 **Poster Session II**  
Poster numbers 2 mod 4
- 18.30 – 20.00 Dinner
- 20.00 – 20.15 Video  
*WEH foundation and its activities*
- 20.15 – 21.00 Carlos Sá de Melo (Atlanta, USA):  
*In Memoriam: The Legacy of Tony Leggett*

## Wednesday, June 24, 2026

### Session 7: Dynamics and Dissipation I

09.00 – 09.45 Hui Zhai (Beijing, China): Online via Zoom

*Quantum thermalization dynamics*

09.45 – 10.30 Oded Zeitlinger (Konstanz, Germany):

*Topological classification of quantum driven-dissipative systems*

10.30 – 11.00 Coffee Break

### Session 8: Quantum simulation

11.00 – 11.45 Zala Lenarčič (Ljubljana, Slovenia):

*Neural networks and generalized Gibbs ensembles  
for simulation of light-matter coupled systems*

11.45 – 12.30 Thierry Giamarchi (Geneva, Switzerland):

*Quantum transport in cold atomic gases*

12.30 – 14.00 Lunch

14.00 – 18.30 **Excursion**

18.30 – 20.00 Heraeus Dinner

20.00 – 21.30 **Poster Session III**

Poster numbers 3 mod 4

## Thursday, June 25, 2026

### Session 9: Cavities II

- 09.00 – 09.45 Jean-Philippe Brantut (Lausanne, Switzerland):  
*Cavity-mediated density-waves in correlated Fermi gases*
- 09.45 – 10.30 Ana Maria Rey (Boulder, USA):  
*S, P, D ... BEC ... Easy as I, II, III: Pairing games in a cavity*
- 10.30 – 11.00 Coffee Break
- 11.00 – 11.45 Peter Domokos (Budapest, Hungary):  
*Collective light scattering from atoms into an optical cavity: subradiance and magic frequencies*

### Session 10: Supersolidity

- 11.45 – 12.30 Giacomo Valtolina (Berlin, Germany)  
*New experiments with dysprosium atoms towards cavity-control of dipolar quantum gases*
- 12.30 – 14.00 Lunch
- 14.00 – 14.45 Giovanni Modugno (Florence, Italy):  
*Exploring the supersolid phase of matter with quantum gases*

### Session 11 Contributed Talks II

- 14.45 – 15.15 Claudia Politi (Zurich, Switzerland):  
*Two-photon cooling of calcium atoms*
- 15.15 – 15.45 Manfred Mark (Innsbruck, Austria):  
*Quantum simulation with dipolar quantum gases*
- 15.45 – 16.15 Richard Schmidt (Heidelberg, Germany):  
*Cold-atom based quantum simulation of excitons in two-dimensional materials*
- 16.15 – 17.00 Coffee Break
- 17.00 – 18.30 **Poster Session IV**  
Poster numbers 4 mod 4
- 18.30 – 20.00 Dinner
- 20.00 – Socializing

## Friday, June 26, 2026

### Session 12 Dynamics and Dissipation II

09.00 – 09.45 Chen-Lung Hung (West Lafayette, USA):

*Quench dynamics of interacting Bose gases in low dimensions*

09.45 – 10.30 Wei Zhang (Beijing, China):

*f-sum rules for dissipative systems*

10.30 – 11.00 Coffee Break

### Session 13 Lattices II

11.00 – 11.45 Andrea Bergschneider (Bonn, Germany):

*Controlling pair tunneling in Fermi-Hubbard systems*

11.45 – 12.30 Takeshi Fukuhara (Wako, Japan): Online via Zoom

*Quantum simulation of frustrated systems with bosonic atoms in triangular optical lattices*

12.30 – 12.40 Concluding Remarks

12.40 – 14.00 Lunch

14.00 Departure