

# PhD-Symposium – Many-body Physics in Ultracold Quantum Systems (SYPD)

jointly organised by the Working Group "Young DPG" (AKjDPG)  
supported by all divisions of the section AMOP

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Exploring the fascinating properties of many-body quantum systems demands a well-controlled experimental platform. Because of their low temperature and good isolation from the environment, ultracold neutral atom systems excellently fulfill these requirements. In this session, we will explore a wide range of intriguing effects in these systems. We will look into supersolidity caused by long-range dipolar interactions and non-equilibrium phenomena. We will learn about quantum entanglement and how it can be employed for quantum simulation, where atoms can be used to model complex systems and simulate their behavior. Furthermore, we will discuss applications of ultracold quantum systems where atoms are collectively manipulated to measure real-world properties.

## Overview of Invited Talks and Sessions

(Lecture hall E415)

### Invited Talks

SYPD 1.1	Thu	14:30–15:00	E415	<b>Entanglement and quantum metrology with microcavities</b> — ●JAKOB REICHEL
SYPD 1.2	Thu	15:00–15:30	E415	<b>Many-body physics in dipolar quantum gases</b> — ●FRANCESCA FERLAINO
SYPD 1.3	Thu	15:30–16:00	E415	<b>Quantum Simulation: from Dipolar Quantum Gases to Frustrated Quantum Magnets</b> — ●MARKUS GREINER
SYPD 1.4	Thu	16:00–16:30	E415	<b>Quantum gas in a box</b> — ●ZORAN HADZIBABIC

### Sessions

SYPD 1.1–1.4	Thu	14:30–16:30	E415	<b>Many-body Physics in Ultracold Quantum Systems</b>
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