

PhD Symposium Synthesized Gauge Fields and Experimental Realizations (SYPS)

organized by
the Working Group "Young DPG" (AGjDPG)

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Quickly after the first realization of Bose-Einstein condensates and degenerate Fermi gases, ultra-cold matter has been identified as an ideal quantum simulator for condensed matter problems. However, due to their electric charge neutrality, they fail to emulate systems involving the coupling of the orbital degree of freedom to magnetic fields. This limitation motivated the quest for ways to emulate those orbital effects, and interpret them as synthetic fields acting on effective charges. The PhD symposium comprises an interplay between tutorials and up-to-date research talks, focusing on theoretical strategies to synthesize gauge fields as well as novel experimental realizations.

Overview of Invited Talks and Sessions

(Lecture room e415)

Invited Talks

SYPS 1.1	Tue	14:30–15:00	e415	Artificial magnetism and cold atomic gases — ●JEAN DALIBARD
SYPS 1.2	Tue	15:00–15:30	e415	Gauge fields in multi-level atoms: a tutorial — ●IAN B. SPIELMAN
SYPS 1.3	Tue	15:30–16:00	e415	Controlling and Exploring Topological Bloch Bands Using Ultracold Atoms — ●IMMANUEL BLOCH
SYPS 1.4	Tue	16:00–16:30	e415	Observing edge states with ultracold neutral fermions in synthetic dimensions — ●LEONARDO FALLANI

Sessions

SYPS 1.1–1.4	Tue	14:30–16:30	e415	Synthesized Gauge Fields and Experimental Realizations
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