Symposium New Avenues in Molecular Alignment and Orientation (SYAO)

jointly organised by
the Molecular Physics Division (MO) and
the Atomic Physics Division (A)

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Alignment and orientation of molecules and clusters in the gas phase is a key ingredient of molecular and chemical physics, both for studying steric effects in chemical reactions and for imaging the structure and dynamics directly in the molecular frame. Time-resolved photoelectron spectroscopy in the molecular frame emerged as a promising approach for determining the ultrafast structural dynamics of small molecules. Significant progress was also made toward strong angular confinement of large and complex molecules and clusters, including their laser-field-free alignment to avoid interferences with the molecular dynamics.

Moreover, novel all-optical methods emerged to fully image the alignment dynamics of molecules and novel quantum control schemes have been developed based on molecular alignment for potential quantum simulators at ultracold temperatures.

This symposium gathers experts from experiments and theory and aims to provide an overview of recent developments in this important topic.

Overview of Invited Talks and Sessions

(Lecture hall HS 1+2)

Invited Talks

SYAO 1.1	Fri	14:30–15:00	HS 1+2	**Ultralong-range Rydberg molecules: Rotational hybridization, control of alignment and orientation, and Rydberg blockade** — •Rosario González-Férez
SYAO 1.2	Fri	15:00–15:30	HS 1+2	**Quantum control of molecular rotation** — •Dominique Sugny
SYAO 1.3	Fri	15:30–16:00	HS 1+2	**Strong-Field Ionization and Electron Rescattering Probabilities in the Molecular Frame** — •Jochen Mikosch, Martin Garro, Narayan Kundu, Horst Rottke, Killian Dickson, Varun Makhija, Federico Branchi, Felix Schell, Mark Mero, C P Schulz, Serguei Patchkovskii, Marc Vrakking
SYAO 1.4	Fri	16:00–16:30	HS 1+2	**Coherent rotational control of gas phase molecular dipoles by concerted Terahertz and Near-IR pulses** — •Sharly Fleischer

Sessions

SYAO 1.1–1.4	Fri	14:30–16:30	HS 1+2	**New Avenues in Molecular Alignment and Orientation**