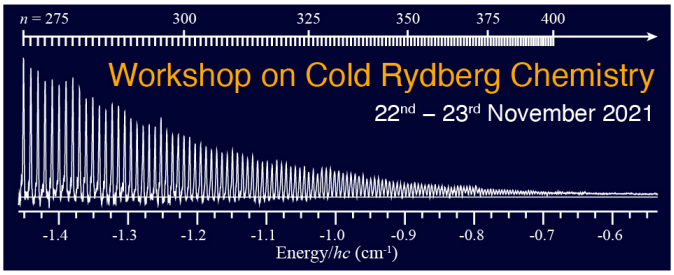

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The Life and Fate of Ultra-Long-Range Rydberg Molecules

Tuesday 23 November 2021 15:30 (30 minutes)

The creation of ultra-long-range Rydberg molecules in an ultracold dense atomic gas combines aspects of physical chemistry, few- and many-body physics. We use this experimental platform to create different types of Rydberg molecules with striking physical properties. We discuss the photo-association of those molecules, their interaction with the surrounding ground state atoms, their use for engineering many-body physics and their decay processes. For the latter, we have built a dedicated reaction microscope, which allows us to measure the momentum distribution of the decay products, thus revealing the internal molecular dynamics.

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Session Classification: Long-Range Rydberg Molecules