



## Antrittsvorlesung Faculty Colloquium

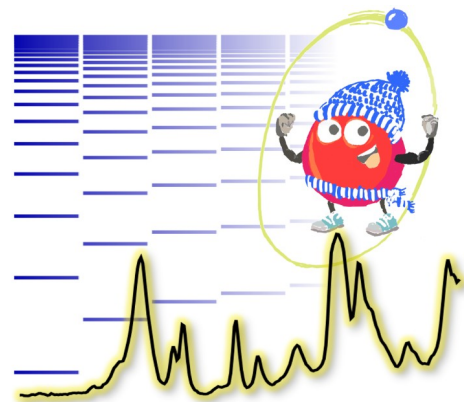
Tuesday, 28 June 2022 at 17:00

**Prof. Dr. Johannes Deiglmayr**

Felix-Bloch Institut, Leipzig University

### Rydberg atoms and molecules: highly excited and exciting

Electronic states of atoms and molecules with high values of the principal quantum number  $n$  are called Rydberg states. Their exaggerated properties, such as electronic radii exceeding tens of nanometers and very large electric dipole moments, have attracted the interest of researchers since their discovery more than hundred years ago. The universal and simple electronic structure of Rydberg



atoms and molecules facilitates precision measurements for the determination of fundamental constants, the controlled study of quantum-mechanical effects in chemical reactions, the creation of exotic molecular species and phases of matter, and many more applications in physics and chemistry.

In this talk, I will introduce these applications and then focus on our current experimental studies on the formation of exotic molecular bonds, using laser-cooled atoms and ultra-stable laser sources from the mid-IR to the UV range. I'll also give an outlook on future research directions.

Venue: Universität Leipzig, Faculty of Physics and Earth Sciences  
04103 Leipzig, Linnéstraße 5, Lecture Hall for Theoretical Physics

Before the lecture, coffee and cookies are offered in front of the lecture hall.  
After the lecture, everyone is invited to a reception in the Aula.

*We kindly ask you to observe the currently applicable measures for infection protection.*