ETH

Eidgenössische Technische Hochschule Zürich
Ecole polytechnique fédérale de Zurich
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Laboratorium für Physikalische Chemie

Invitation to a Seminar on Spectroscopy, Dynamics and Theory

Room HCI J 4
ETH Zürich, Hönggerberg

Date/Time: **Friday, December 4, 2015, 16:45 h**

Speaker: **Prof. W. Ubachs**
Department of Physics and Astronomy, free University Amsterdam, Amsterdam, Netherlands

Subject: **Precision Spectroscopy of Molecular Hydrogen**

Experimental precision laser spectroscopy of molecular hydrogen is ongoing and stimulated by the recent advances of Pachucki and coworkers to calculate the level energies of rovibrational states of H_2 to high precision. Now tests of QED are possible in neutral molecular systems. These tests are in fact tests of the Standard Model of Particle Physics, since contributions of gravity, and the weak and strong forces are negligible in light molecules. Previously, measurements of the dissociation energy, of level energies of states with high angular momentum, as well as the fundamental ground state splitting were performed. Currently, the focus is on preparing highly excited vibrational levels by a photolysis technique, which can similarly be subjected to tests of theory. The precision tests can be applied to search for the existence of extra spatial dimensions, or for constraining their size.

Guests are welcome.

Frédéric Merkt, Ruth Signorell, Martin Quack, Markus Reiher, Hans Jakob Wörner