

Garching, 22.12.2010

Press Release

Professor Theodor W. Hänsch's group among the "Top Ten" of Physics World

The IOP (Institute of Physics, Bristol, UK) website *physicsworld.com* has announced this week the "top 10 breakthroughs" in physics for the year 2010. Place number 9 in the list is held by a new measurement of the proton size carried out by an international team led by Dr. Randolf Pohl, a member of the Laser Spectroscopy Division of Prof. Hänsch at the Max Planck Institute of Quantum Optics. Here the laser spectroscopy of muonic hydrogen in which the electron is replaced by the much heavier muon resulted in a proton radius about 4% smaller than according to previous measurements. The finding could have various implications – from questioning the validity of complicated calculations to questioning even the fundamental theory of quantum electrodynamics itself.

Also the experiment elected as number 6 is connected to Prof. Hänsch. Prof. Martin Weitz, who earned his PhD in the Laser Spectroscopy Division from Prof. Hänsch and is now a physics professor at the University of Bonn, has for the first time succeeded in creating a Bose-Einstein condensate made purely out of light quanta. In this very special quantum state all particles behave exactly the same way. These massless photons however usually resist the manipulations required to reach this state, for example laser cooling etc., because they are so easily destroyed. Besides representing a quite exotic new state the result may have influence e.g. on the design of future solar cells.

Last but not least Prof. Hänsch is even involved to some extent in the number 1 experiments. This "Physics World Breakthrough of the Year" was attributed to two international teams of physicists at CERN who are concerned with the investigation of antimatter, i.e. antihydrogen, the ALPHA collaboration and the ASACUSA team. From these experiments the scientists hope to gain new insight into the nature of the fundamental forces. Among the physicists of the ASACUSA collaboration is also Dr. Masaki Hori, leader of the research group "Antimatter Spectroscopy" which is affiliated with the Laser Spectroscopy Division of Prof. Hänsch. [OM]

Contact:

Prof. Dr. Theodor W. Hänsch
Chair of Experimental Physics,
Ludwig-Maximilians-Universität,
München
Max Planck Institute of
Quantum Optics
Hans-Kopfermann-Straße 1,
85748 Garching
Phone: +49 - 89 / 32905 702/712
Fax: +49 - 89 / 32905 312
e-mail: t.w.haensch@mpq.mpg.de

Dr. Randolf Pohl
Max Planck Institute of Quantum
Optics
Hans-Kopfermann-Straße 1
85748 Garching
Phone: +49 - 89 / 32905 281
Fax: +49 - 89 / 32905 200
e-mail: randolf.pohl@mpq.mpg.de

Press & Public Relations,
Dr. Olivia Meyer-Streng

Phone:
+49(0)8932 905-213
E-mail: olivia.meyer-streng@mpq.mpg.de

Hans-Kopfermann-Str. 1
D-85748 Garching

Phone: +49(0)8932 905-0
Fax: +49(0)8932 905-200