Scientist of the University of Ghent discovers natural atom antihydrogen

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On February 15, 2005 of the Physics/Einstein Year, the complete story of the discovery of natural atom antihydrogen, started in 1985, was published on-line.
The antihydrogen problem has become a highly mediatic issue, both in the specialized physics and the more general press [1]. A real hype started at the end of 2002 when rivalling CERN-based groups ATHENA and ATRAP both claimed the production of large quantities of artificial antihydrogen. Scientists, wondering about a signature for the presence of this mysterious species antihydrogen, were disappointed as no direct signature whatever was presented. In fact, a spectral identification of antihydrogen is impossible since measuring its spectrum is exactly the goal of ATHENA and ATRAP collaborations.

Strangely, the same media failed to report that on October 21 2002, a paper was published with a signature for the antihydrogen atom in the observed line spectrum of natural H [2], an essential step in the discovery of natural antihydrogen by G. Van hooydonk, science professor at and former Chief-Librarian of the Ghent University. This signature would not make sense if it was not confirming an earlier signature in the band spectrum of natural molecular hydrogen [3]. Both types of complementary signatures for natural antihydrogen, as well as a Mexican hat-type potential [4], were left unnoticed since the time of Bohr.

The information published online is available in print in the 2005 March issue of the European Physical journal D [5]. With its sound theoretical

basis, this discovery has drastic repercussions for physics at large and for atomic and molecular physics (chemistry) in particular. According to the referees, the story is fascinating to read. The existence of natural antihydrogen not only flaws the CERN-experiments on artificial antihydrogen [6]; it is also important for the three fundamental symmetries CPT in physics and for Einstein's WEP. The existence of natural antihydrogen also immediately solves the long standing problem of the so-called matter-antimatter asymmetry of the Universe, where natural hydrogen is the most abundant species. As a matter of fact, in natural stable molecular hydrogen, the amounts of atom hydrogen and of its mirrored counterpart antihydrogen must be exactly the same for old-fashioned stochiometric reasons.

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