



# Improved Measurement of the Hydrogen 1S - 2S Transition Frequency

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We have measured the 1S - 2S transition frequency in atomic hydrogen via two photon spectroscopy on a 5.8 K atomic beam. We obtain  $f_{1S-2S} = 2\,466\,061\,413\,187\,035\,(10)$  Hz for the hyperfine centroid. This is a fractional frequency uncertainty of  $4.2 \times 10^{-15}$  improving the previous measurement by our own group [M. Fischer et al., Phys. Rev. Lett. 92, 230802 (2004)] by a factor of 3.3. The probe laser frequency was phase coherently linked to the mobile cesium fountain clock FOM via a frequency comb.

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