Post Doc Position at LKB - Laboratoire Kastler Brossel

Pierre et Marie Curie University, Paris France

« Trapped ions » team

http://www.lkb.upmc.fr/-Metrologie-de-l-ion-H-_2-

Precision measurements with cold trapped H_2^+ molecular ions

Research project

The *Trapped Ions* team is developing an experimental setup aiming at performing a direct optical determination of the proton to electron mass ratio at the 0.01 ppb level through Doppler free two-photon vibrational spectroscopy in H_2^+ molecular ions. Spectroscopy will be performed by Resonance Enhanced Multiphoton Ionisation (2+1 **REMPD**) on state selected ions.

The H_2^+ ions are confined in a **linear Paul trap** and **sympathetically cooled** by laser cooled **Be^+** ions. The H_2^+ ions are created by Resonance Enhanced Multiphoton Ionisation (**REMPI**) at 303 nm. The H_2^+ spectroscopy laser is an utrastable quantum cascade laser (**QCL**) phase-locked on a CO_2 laser matched to a Fabry-Perot cavity surrounding the ion cloud.

The work of the post doctoral scientist will first consist in characterising the temperature and the ro-vibrational populations of the state selected H_2^+ ion sample. It will then consist in achieving the first observation of the (v=0,L=2) → (v=1,L=2) two-photon transition in H_2^+ towards a m_p/m_e determination by comparison with highly accurate calculations.

Profile

The applicant should have a strong background in experimental physics, in the fields of molecular, atomic, ion and laser physics. An experience in the field of cold matter and especially cold ions is desirable.

Starting date

Between april and september 2016

The position is funded for one year by the French Research Agency (ANR) and can be extended to a second year.

Application Candidate should provide a CV, motivation letter an publication list and obtain two reference letters directly sent to hilico@spectro.jussieu.fr

Contacts

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