# The value of ether is function of temperature

We know that the speed of molecules in a ideal gas, slows down as the temperature decreases.
We analyze one of these gas molecules:
the P molecule.
Let $V_p$ its volume and $M_p$ its mass; then we introduce the following principle of equivalence:
i) the volume density per unit of mass $V_p/M_p$ of molecules, is equivalent to the ether $J_p = V_p/M_p$.
Then the decrease of the molecule's velocity as the temperature decreases, must be equivalent to increasing the ether from $J_p$ to $J'_p$, for the following reason:
I) because we have established that the ether $J_p$ is equivalent to the volume density per unit of mass of the P molecule
I I) because for t > 1 must be ( see point 1[(1)])
in the article Vixra 1711.0299) :

$$\frac{J_p}{\left(\frac{1}{t}\,sec\right)^2}\left(\frac{1}{t}\,sec\right)^2 = J'_p\left(\frac{1}{t}\,sec\right)^2$$

t =1sec, is the time of the obser who analizes the molecule.
In the experiment conducted by scientists from the Max Planck Institute of Quantum Optics, in order to get the charge radius of proton, they got the following measure: 0,8335 (95) fm; compared to previous experiment, which used room temperature atoms,

the atoms probed here have a substantially lower temperature of 5.8 ° K and consequently, a much lower velocity:
http://www.mpq.mpg.de/5557421/17_10_06
ORIGIN PUBLICATION, science 6 October 2017
DOI: 10.1126.science.aah6677.
The Rydberg constant and proton size from atomic hydrogen.

The Boiling point of Hydrogen is -252,879°C and the Melting point is -259,16°C, i. e. , 13,99°K.
Therefore the experiment was conducted with solid Hydrogen, and the molecules can only vibrate.

For Maxwell ' distribution, the most likely velocity of molecules in a ideal gas is: $v = 1{,}41\,(RT/M)^{1/2}$.
Maxwell's distribution law is valid for ideal gas, but it doesn't tell us anything about the speed of the molecule's if the gas is frozen.
Then, replacing in the formula 1(6)) of article Vixra 1711.0299 the muon by electron and using the value of proton radius 0,8335 (95) fm,
we get it the value of $J'_p$. Let:
$V_p^f = \frac{4\pi}{3}(0{,}8335\cdot 10^{-15})^3\,m^3$, $V_p^i = \frac{4\pi}{3}(0{,}8751\cdot 10^{-15})^3\,m^3$
$M_e = 9.10938\cdot 10^{-31}$ Kg;
Then, from $V_p^f = V_p^i - J'_p M_e$ we obtain:

$$J'_p = \frac{V_p^i - V_p^f}{M_e} = 4{,}189\cdot 10^{-16}\,\frac{m^3}{Kg}$$

Then: $J'_p/J_p = 249{,}607$ and $J'_p = 249{,}607 \, \frac{m^3}{Kg} J_p$.

email: giampaolo.piscedda@yahoo.it

Piscedda Giampaolo

Piscedda Giampaolo