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A note on exponentially variable rest mass and its standard (etalon)

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This note is mainly to shed a new light on one of the old author's comments [1]. In that regard, with minor reformatting and referencing, let us insert here the relevant part:

//**Jan. 16, 2008:**
2.) http://news.yahoo.com/s/ap/20070912/...ing_kilogram_3**
"The 118-year-old cylinder that is the international prototype for the metric mass, kept tightly under lock and key outside Paris, is mysteriously losing weight - if ever so slightly. Physicist Richard Davis of the International Bureau of Weights and Measures in Sevres, southwest of Paris, says the reference kilo appears to have lost 50 micrograms compared with the average of dozens of copies."
"The mystery is that they were all made of the same material, and many were made at the same time and kept under the same conditions, and yet the masses among them are slowly drifting apart," he said. "We don't really have a good hypothesis for it."

Well, if we exclude all the other more-less possible ordinary reasons, this could be a first direct proof of one fundamental law (Addendum in [2], [3] with list of References)

$$m = m_0\exp(-HeaM/r) \sim= m_0(1- HeaM/r) \qquad (1)$$

where m_0 is mass of the etalons far of any M, Hea = G/c^2 and M would be mass of Earth in this case. The above law we can see in two ways: 1. as an expression of mutual dependence of all cosmic masses and 2. as sort of a gravitational decaying process of each and every mass in a given static g-potential. To be clear, in this particular case, mass m of each etalon depends on its geographic altitude relative to geoid. Or in other words, static g-potential is not in the form of -k/r but in the form of exp(-k/r). Surprisingly, these about 50 micrograms per kilogram(~5E-8) are in significant agreement with Earth's HeaM/R (~ E-8). As to our best knowledge, this is for the first time that we are able to make the conclusions on this precision in gravity. It is amazing by itself we do that on the quantum gravity-space level and with the kilogram's etalon.

As last but not least, this also could be one of the first direct evidences to our claim that

$$Hea = 7.4E\text{-}28 \text{ m/kg} \qquad (2)$$

is the natural constant but neither **G** nor **c** by themselves [4]. Or in other words, it seems quite clear that neither Newton's nor Einstein's physics could really be the rightful description of the cosmic dynamics. //.

*"Wave Cosmodynamics"
**not active anymore; alt. see: https://www.nbcnews.com/id/wbna20744160

Even now the above looks like pretty actual and more than relevant. However, during this period of time official scientific community finally decided to redefine mass standard via **h** and **c** so called universal constants [5]. Although from the author's perspective [6] all that opens up some general questions about the classical measuring process, it seems we now get an useful experimental tool such as the watt (Kibble) balance [7]. In order to verify (1) it should be quite possible to measure some mass (being the old 1 kg standard cylinder or not) on different altitudes. Precision of the setup goes at least on the same level of magnitude as above mentioned (~ E-8). What is interesting, any outcome does make a difference and would be highly scientifically significant.

Finally, the author here likes to mention that such an endeavors in many ways, even symbolically using some "balance", reminds of famous Cavendish experiment [8]. Back then and for the first time, at least indirectly, mass of Earth (later on Newton's G) had been estimated by pretty high accuracy. Now, with here proposed setup we would be able to make some fundamental conclusions regarding the **Hea*** (2) and all that even on the cosmic scales.

References

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*in honor of O. Heaviside