Change of density of quantum vacuum

might generate mass

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Recent report of CERN does not give much chance to the existence of Higgs boson. An alternative solution for mass generating is change of density of quantum vacuum.

Planck density is: $\rho_p = \frac{m_p}{l_p^3}$ **(1).**

Out of (1) follows in empty cosmic space without mass density of a given volume of quantum vacuum V_{qv} **is:** $\rho_{qv} = \frac{\sum_1^n m_p}{\sum_1^n l_p^3}$ **(2), where** $V_{qv} = \sum_1^n l_p^3$ **(3).**

Out of (2) and (3) follows: $\rho_{qv} = \rho_p$ **(4).**

By the presence of a given mass of massive particle or massive object m **in a given volume** V_{qv} **of quantum vacuum number of Planck volumes** l_p^3 **will diminish respectively to the amount of mass** m **for number** Δ **and** ρ_{qv} **will remain constant:**

$\rho_{qv} = \frac{\sum_1^{n-\Delta} m_p + m}{V_{qv}}$ **(5), where** $\sum_1^{\Delta} m_p = m$ **(6).**

Out of (5) and (6) follows: $\Delta\rho_{qv} = \frac{\sum_1^{\Delta} m_p}{V_{qv}}$ **(7).**

Mass m **of particle or massive object is the result of diminishing of density of quantum vacuum in the area where mass** m **exists for the** $\Delta\rho_{qv}$ **(7).**

Photon has no mass, because photon does not diminish density of quantum vacuum. Shapiro delay shows that photon moving through the quantum vacuum with low density loses some of its velocity.

This understanding of mass is giving an alternative interpretation of diminishing of orbital velocity of neutron binary stars. It seems stability of neutron requires certain density ρ_{qv} of quantum vacuum. Where density ρ_{qv} is extremely low as for example on the surface of binary stars, neutron in this area is not stable and disintegrates into quantum vacuum energy. This is an alternative interpretation for diminishing of orbital velocity of binary neutron stars PSR B1913+16 which is caused by mass transforming into quantum vacuum energy. This interpretation does not predict that mass can have emission of gravitational waves which have not been observer experimentally yet.