



# Universality of the self gravitational potential energy of any fundamental particle

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Using the relation proposed by Weinberg in 1972, combining quantum and cosmological parameters, we prove that the self gravitational potential energy of any fundamental particle is a quantum, with physical properties independent of the mass of the particle. It is a universal quantum of gravitational energy, and its physical properties depend only on the cosmological scale factor  $R$  and the physical constants  $\hbar$  and  $c$ . We propose a modification of the Weinberg's relation, keeping the same numerical value, but substituting the cosmological parameter  $H/c$  by  $1/R$ .

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