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Relationship between the gravitational constant G and the fine structure constant reduced Planck constant light speed and mass of electron

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A formula connecting the fundamental physical constants G (gravitational constant), α (fine structure constant), m_e (electron rest mass), \hbar (reduced Planck constant), c (speed of light in vacuum) and m_p/m_e (proton-electron mass ratio), and Earth's length of day and orbital period is deducted. The values of fundamental physical constants calculated from this formula match very well with the known values of said constants. Particularly, using CODATA's current recommended values for all fundamental physical constants, the calculated gravitational constant G is $6.67409325 \times 10^{-11} [\text{kg}]^{-1} \text{m}^3 \text{s}^{-2}$ compared with the recommended value of $G = 6.67408 \times 10^{-11} [\text{kg}]^{-1} \text{m}^3 \text{s}^{-2}$. The implication of this interconnection between these fundamental physical constants directly indicates that there is an underlying relationship between gravitational and electromagnetic scales which may have meaningful physical significance in the search for a unified theory.

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