Calculating π using the speed of light and the Compton wavelength of the proton

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Abstract

This paper uses a small calculation example to demonstrate how deeply π permeates our world. The formula can be easily derived from projection theory (Ref. 1) and is intended to pique the curiosity of those who are not yet familiar with this theory, as such a calculation seems almost impossible according to conventional physical models.

Calculation

The following formula actually yields the value of π, with a relative deviation of only 2 10^{-7}, although neither the Compton wavelength of the proton $\lambda_{CP,}$ (only the length is relevant here) nor the speed of light c can be associated in any way with a circular geometry or sine function, nor can the factor f_{time60}, which is explained below.

$$\pi_{cal} = \sqrt[8]{\frac{\lambda_{CP} c^3}{4^2 f_{time_{60}}{}^3}} = 3{,}1415932991$$

$$\pi = 3{,}1415926536$$

$$\Delta_{rel} = 2 \cdot 10^{-7}$$

$$\lambda_{CP} = 1{,}321409853[m]$$

$$c = 299792458\left[\frac{m}{s}\right]$$

The time factor f_{time60} represents the conversion factor between time and length, whereby the number 60, which is so important for our measurement of time, i.e., the base of the sexagesimal system, and the conversion factor from the sexagesimal to the decimal system, 1.666666, play a decisive role. For a precise derivation and fine-tuning of this factor, please refer to Ref. 2.

$$f_{time_{60}} = 61{,}66801801\left[\frac{m^{\frac{4}{3}}}{s}\right]$$

Ref.1 viXra:2104.0093

Ref.2 viXra:2112.0016