

Abstract Submitted
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Harmonic Fractions and an Integer Power Law to Demonstrate a Relationship of the Neutron to the Properties of Hydrogen and Cosmic Observables D. W. CHAKERES, Department of Radiology, The Ohio State University, Columbus, OH, 43210, R. VENTO, Retired, Columbus State Community College, Columbus, OH, 43215, D. I. PANCHENKO, J. A. TOBAR, S. S. MOSES, V. M. ANDRIANARIJAONA, Department of Physics, Pacific Union College, Angwin, CA, 94508 — Power laws and harmonic oscillator systems represent a ubiquitous relationship among many physical phenomena. This study demonstrates a close power law relationship of the annihilation frequency of the neutron, approximately $2.27 \cdot 10^{23}$ Hz, when used as a dimensionless base, to fundamental quantum properties of hydrogen and present-day cosmic observables. The following set of the three smallest integers: $\{-1, 0, 1\}$, and the set of partial harmonic fractions: $\{3/2, 1/2, 2/3, -3/4, 4/5\}$, are associated with each physical entity investigated as a frequency equivalent. They are listed as follows: twice the maximum energy of a cosmic ray, $3/2$; the base identity of the neutron, 1 ; the Bohr radius, $4/5$; Rydberg's constant, $2/3$; twice the peak spectral radiance of cosmic microwave background radiation, $1/2$; Planck's constant, 0 ; the Sun's galactic radius, $-1/2$; the Sun's galactic period, $-2/3$; Hubble's constant, $-3/4$; the dimension of the observable universe, $-4/5$; and twice the gravitational binding energy of the electron in hydrogen, -1 . When viewed in the physically equivalent frequency domain, the neutron partitions an abundance of physical constants from the very small to the very large.

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