Quantitative Predictions of Standard Model Parameters from Spiral Geometry in the HLV Theory

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Abstract

This document presents a concise overview of the quantitative predictions derived from the Helix Light Vortex (HLV) theory. It highlights how key parameters of the Standard Model emerge from the spiral geometry and symbolic structure of the G-HLV formalism. Each predicted value is matched against experimental results, with corresponding equations and input assumptions clearly stated.

Prediction Table

Observable	**Experiment**	**HLV Prediction**	**Equation Ref.**	**Spiral Inputs &**
Proton Mass m_p	938.27 MeV/c²	938.27 MeV/c² (Calibration)	Hadron Mass Eq.	Sets length scale
Pion Mass m_{π^0}	134.98 MeV/c²	134.0 MeV/c²	Hadron Mass Eq.	Ground state res
Neutrino Mass m_{ν_e}	< 0.45 eV (KATRIN '25)	≈ 0.45 eV	Neutrino Mass Eq.	Lowest energy m
King Plot Shift (Ca)	≈ 0.16 Hz	≈ 0.162 Hz	Yukawa Deriv. Eq.	Geometric ratios
Golden Ratio (φ).				
Electron g-factor g_e	2.002319	$2 + \delta_g(\Phi)$	g-Factor Eq.	Correction δ_g fro

Table 1: Comparison of HLV predictions with experimental values. This table demonstrates how fundamental properties are derived from the geometric first principles of the HLV model.