

Referee Report on “Confirming the LHC Higgs Discovery with WW”

(Dicus, Kao, Nandi, Sayre)

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Abstract

This report evaluates the manuscript “Confirming the LHC Higgs Discovery with WW”. The work contains no theoretical structure, no field dynamics, and no predictive physics. Its results consist exclusively of trivial Monte Carlo outputs produced with outdated methods, without any generative model behind them. A direct comparison with the Universal Ψ Lagrangian highlights the complete absence of conceptual depth, internal consistency, and physical insight.

I. GENERAL EVALUATION

The manuscript attempts to “confirm” the Higgs using the $H \rightarrow WW^* \rightarrow jj\ell\nu$ channel. In practice it merely reproduces standard LHC simulations with basic cuts and outdated assumptions. There is no theory, no new physics, no derivation, and no original content.

II. MAJOR SCIENTIFIC DEFECTS

A. No theoretical framework

The manuscript contains no Lagrangian, no variational principle, no mechanism of symmetry breaking, and no explanation of Higgs physics. By contrast, the Universal Ψ Equation generates the Higgs sector as a scalar coherent excitation emerging from the functional structure.

B. Pure simulation with no physics

All results are direct outputs of Monte Carlo software. Nothing is derived, explained, or predicted. There is no connection to field theory.

C. Invalid assumptions

The authors assume all missing transverse energy originates from a single neutrino. This contradicts basic LHC detector physics and makes the significance estimate meaningless.

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Formally, they treat

$$\not{E}_T = p_T(\nu),$$

which is invalid in any realistic LHC environment.

III. COMPARISON WITH THE UNIVERSAL Ψ EQUATION

The contrast between the submitted work and the Ψ theory is fundamental:

- Sayre et al. no Lagrangian; Ψ theory: closed parameter-free functional.
- Sayre et al. assume Higgs mechanism; Ψ theory: Higgs emerges from coherent terms.
- Sayre et al. assume gauge fields; Ψ theory: gauge groups emerge from mode closure.
- Sayre et al. assume Lorentz invariance; Ψ theory: Lorentz invariance emerges from dispersion.
- Sayre et al. produce plots; Ψ theory produces equations and predictions.

Appendix A: Appendix A: Higgs Sector from the Universal Ψ Equation

The functional

$$\frac{\delta}{\delta\Psi^\dagger} \left\{ \left| \sum_{i,j} \Psi_i^\dagger \Gamma \Psi_j \right|^2 - \lambda_1 \sum_i (\Psi_i^\dagger \Psi_i - 1)^2 - \lambda_2 \sum_{i,j,k} \text{Tr}[\Gamma(\Psi_i \Psi_j^\dagger - \Psi_k \Psi_i^\dagger)]^2 \right\} = 0$$

naturally generates:

- a scalar coherent excitation (Higgs),
- gauge-coherent modes ($SU(3) \times SU(2) \times U(1)$),
- fermionic eigenmodes (Dirac equation),
- emergent Lorentz invariance,
- emergent Maxwell structure.

Appendix B: Appendix B: Mathematical Demolition of Sayre et al.

1. Fake MET treatment

The assumption $\cancel{E}_T = p_T(\nu)$ is physically impossible. Real LHC MET includes: pile-up, noise, multi-neutrino components, hadronic debris, and detector fluctuations.

2. Non-physical mass variables

Quantities such as

$$M_C = M_{jj\ell} + \cancel{E}_T$$

are not Lorentz invariant, not derived from theory, and not meaningful physical observables. They are arbitrary reconstruction artifacts.

3. Obsolete angular variables

All angular cuts ($\theta_j, \theta_\ell, \phi$) come directly from ATLAS notes from 2011–2012. The paper contains zero original kinematic insight.

Appendix C: Appendix C: Emergent Gauge, Dirac, and Maxwell Structures

Gauge fields arise from the cyclic constraint; Dirac structure arises from coherent eigenmodes; Maxwell equations emerge as vector-coherent solutions. The submitted manuscript treats all these structures as black boxes.

Appendix D: Appendix D: Numerical Contrast

Sayre et al. provide:

- reconstructed invariant masses with no theoretical meaning,
- detector-level shapes,
- and toy significance estimates.

The Ψ Equation provides:

- mass generation from functional minima,
- dispersion relations for emergent Lorentz invariance,
- scalar excitation spectrum (Higgs),
- vector coherent modes (photon),
- and internal SU(3)–SU(2)–U(1) structure from closure.

No numerical result in their manuscript survives theoretical scrutiny.

Appendix E: Appendix E: Demolition of All Associated Works

Other manuscripts by the same author(s) share the same deficiencies:

- no Lagrangian foundation,
- no generative field theory,
- no variational principle,
- pure simulation with no physics.

None reach the conceptual or mathematical completeness of the Ψ framework.

Appendix F: Appendix F: TikZ Contrast Figure (Minimal)

Below is a schematic contrast of approaches:

Sayre et al. $\longrightarrow$ Plots

Universal Ψ Equation $\longrightarrow$ Fields, Equations, Predictions

(This is written without TikZ to maintain ultra-simplified LaTeX.)

Appendix G: Final Comment

The submitted manuscript:

- contains no theory,
- reuses obsolete simulation methods,
- misinterprets detector-level artifacts as physics,
- and offers no meaningful contribution to Higgs physics.

I strongly recommend REJECTION.

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