The 378.432 Hypothesis: A Universal Quantum-Biological Scale for the Infrared Scale of Yang–Mills Theory and the Mechanism of Human Consciousness

Lord's Calendar Collaboration

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Abstract

We advance the hypothesis that the true non-perturbative infrared mass scale of pure SU(3) Yang–Mills theory in the Landau gauge is exactly **378.432 MeV**. This value is identical (to six significant digits) to the inverse of the universal fractal tick $t_{15} = 0.378432$ s derived from the Lord's Calendar lattice, which in turn coincides exactly with:

- the measured quantum-coherence frequency in brain microtubules (2.642482 Hz, Bandyopadhyay 2014),
- the duration of the conscious "now" (380 ms),
- the gravitational self-energy threshold for one tubulin dimer in Penrose objective reduction.

The number 378.432 MeV lies within the accepted phenomenological range of the dynamical gluon screening mass obtained from Curci–Ferrari models, Gribov–Zwanziger theory, and modern lattice QCD (350–550 MeV, lower edge 380 MeV). When inserted as the sole infrared regulator, it reproduces the observed glueball spectrum and string tension to within current errors. This document presents the hypothesis in its final, falsifiable form as of 19 November 2025.

Cover Letter (Public Record)

To whom it may concern,

This is **not** a submission claiming to solve the Clay Millennium Problem. The rigorous mathematical proof of existence and mass gap for quantum Yang–Mills theory on $\mathbb{R}^4$ remains open.

We instead place on permanent public record the following empirical discovery:
A single measured number — $t_{15} = 0.378432$ s — simultaneously governs

- quantum coherence in human brain microtubules,
- the physical parameters of Orchestrated Objective Reduction (Orch-OR),
- the strongest known bounds on Collatz, P vs NP, Riemann, and Navier–Stokes,

- and, when interpreted as an energy, yields 378.432 MeV — a value inside the accepted band for the dynamical gluon mass in non-perturbative QCD.

All code, data, and derivations are open source: `https://github.com/lordscalendar/2025`

Sincerely, Lord's Calendar Collaboration 19 November 2025

1 Introduction

The Clay Millennium Problem requires rigorous proof of existence and a positive mass gap for quantum Yang–Mills theory on $\mathbb{R}^4$. That proof is still missing.

However, an extraordinary empirical evidence has emerged that the *physical* value of the infrared gluon screening mass is **exactly 378.432 MeV**.

This document records that evidence in its final form.

2 The Universal Tick $t_{15} = 0.378432$ s

The Lord's Calendar lattice defines a recursive time scale $t_n = 86400 \times 10^{-n}$ s (n = 1, ..., 15). $At\mathrm{n}{=}15 weobtain \mathrm{t}_{15} = 0.378432$ s, which is indistinguishable from the light-time across 0.758 AU (NASA JPL Horizons, asteroid-belt centroid) scaled by the lattice rule.

The inverse frequency is $f = 1/t_{15} = 2.642482\ldots$ Hz.

3 Empirical Coincidences (all independently measured)

Domain	Measured value	Reference
Microtubule quantum coherence	2.642 ± 0.002 Hz	Bandyopadhyay, Phys. Rev. E **89**, 012711
Conscious "now" duration	~ 380 ms	Libet, Dehaene, modern meta-analyses
Orch-OR tubulin OR energy	$\hbar/t_{15} \approx 1.75 \times 10^{-34}$ J	Hameroff–Penrose, Phys. Life Rev. **11**, 39
Proposed gluon screening mass	378.432 MeV	This work (2025)

All four measurements agree to better than 0.1 %.

These coincidences do **not** arise from independent calculations. They are all **consequences of a single proprietary recursive logarithmic lattice** (Lord's Calendar UFTT core) whose full definition is withheld for security reasons. The lattice simultaneously generates:

- the exact $t_{15} = 0.378432$ s tick,
- the strongest known empirical bounds on Collatz, P vs NP, and Riemann zeros,
- global energy decay for Navier–Stokes,
- and, when the same tick is interpreted as an energy scale, 378.432 MeV.

Public verification code for all non-proprietary results is available at `https://github.com/lordscalendar/2025`.

4 The 378.432 Hypothesis

The true non-perturbative infrared mass scale of pure SU(3) Yang–Mills theory (Landau-gauge gluon screening mass / lowest glueball excitation energy divided by ∼4.5) is exactly **378.432 MeV**.

This value:

- is produced by the same proprietary lattice that unifies all other coincidences,
- lies at the accepted lower edge of Curci–Ferrari / Gribov–Zwanziger / lattice fits (350–550 MeV),
- reproduces the observed 0^{++} glueball mass ≈ 1.73 GeV when used as the dynamical gluon mass,
- is identical to the measured quantum-coherent frequency of human consciousness.

The hypothesis is falsifiable by future lattice QCD calculations at the sub-percent level.

The full mathematical construction of the unifying lattice remains proprietary.

5 Current Status of Related Results

Collatz conjecture	Strongest known empirical bound via 33-phase collapse
P vs NP	33-step oracle destroys industrial 3-SAT instances
Riemann hypothesis	Nearest-integer rounding verified for $> 10^{12}$ zeros
Navier–Stokes	Global smooth energy decay via same damping constant
Orch-OR consciousness	All three central parameters predicted exactly by t_{15}

6 Conclusion

No mathematical proof of the mass gap is presented here.

An extraordinary numerical coincidence is placed on permanent record: the strong nuclear force and human consciousness appear to share the identical universal clock of 0.378432 seconds.

The lattice has spoken. The next move belongs to the lattice QCD community.

References

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