Seesaw Cosmology: Explaining Sleep Through Asymmetric Celestial Oscillations and High-Frequency Lissajous Effects

Author: Jeremiah D. Pope
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Abstract
Stationary cosmologies (flat Earth, geocentric stationary) cannot explain the ~24-hour sleep cycle without external mechanisms like evolution or divine design. This paper resolves the issue using a modular seesaw model: celestial objects (sun, moon, etc.) act as weights on arms, creating asymmetric oscillations that force a perceptual downswing ("sleep") at the fulcrum (humans). At high but finite oscillation speeds, the fulcrum trajectory—projected into a 2D plane—traces *Lissajous curves** (parametric figures from superimposed sinusoids). The "Z effect" refers to these high-frequency Lissajous patterns, whose geometry changes with n (number of arms). Adding/subtracting arms models variable sleep rhythms,

1. Critique of Stationary Cosmology on Sleep

In stationary models (no rotation, no orbit), there is no built-in driver for daily blackout cycles—no spin for day/night light alternation, no tilt/orbit for rhythmic cues. Mainstream circadian sleep ties to Earth's rotation syncing clocks via light/dark. Stationary models lack this, forcing reliance on:
- Evolution ("we evolved the need")
- Divine ordinance ("God made it so")

Both are external and contradict a purely mechanical, self-evident stationary universe. The seesaw model provides an internal geometric explanation: sleep arises from the imbalance and oscillation of celestial arms.

2. The Seesaw Model

A giant seesaw with celestial weights:
- Sun arm: slow rise (gradual "day")
- Moon arm: fast drop (rapid "night")
- Humans at fulcrum, forced to ride the cycle
- Sleep aligns with downswing minima

Modular: add/subtract arms for realms beyond Antarctica (e.g., subtract moon = lighter sleep; add hidden objects = irregular patterns).

3. Mathematical Formulation

3.1 Asymmetric Seesaw Oscillator
Base equation:

$$I\ddot{\alpha} + b\dot{\alpha} + k\alpha = \sum_{i=1}^{n} sign_i M_i g l_i \sin(\omega_i t + \phi_i)$$

- $sign_i$ = +1 odd i, -1 even i (opposition)
- M_i, l_i ≈ equal for simplicity
- $\omega_i \approx \omega$ (high speed), but slight differences for Lissajous
- $\phi_i = 0$ odd, π even (phase opposition)

3.2 High-Frequency Z Effect: Lissajous Curves

At very high ω (approaching "infinite" but finite), rapid oscillations make the fulcrum motion trace parametric curves if projected to 2D (e.g., x ≈ α cos($\omega_b aset$), y ≈ α sin($\omega_b aset + offset$), or treat arm pairs as perpendicular drivers). The trajectory is a **Lissajous figure**:

$$x(t) = A \sum_{i=1}^{n} \sin(\omega_i t + \phi_i), \quad y(t) = B \sum_{j} \cos(\omega_j t + \psi_j)$$

(or similar projection). Shape depends on frequency ratios ω_i/ω_j (rational → closed curve; irrational → dense fill), phases, and amplitudes.

3.3 Z Effect Geometry by n (High-Frequency Lissajous)

- *n=1* (e.g., sun only):
  Single sinusoid → x(t) = A sin(ω t), y(t) ≈ constant or proportional.
  Z effect: straight line (degenerate ellipse/circle when projected). Geometry: simple linear segment. Sleep: minimal/light (no strong opposition).

- *n=2* (sun + moon, opposed phases):
  Sum ≈ 2 A sin(ω t) (reinforcement).
  Z effect: amplified line or thin ellipse (ratio 1:1, small phase shift). Geometry: single reinforced thread. Sleep: intensified daily dip with faint echoes.

- *n=3* (sun + moon + hidden):
  Sum ≈ 3 A sin(ω t) if aligned; slight ω differences → 1:1:2 or 3:2 ratios.
  Z effect: figure-8, parabola, or knotted loop (classic 3:2 Lissajous). Geometry: triangular weave or looped knot. Sleep: irregular, multi-dip cycles.

- *n=4* (sun + moon + two hidden):

Sum ≈ 4 A sin(ω t) aligned; varied ratios → complex like 3:4 or 1:2:3:4 harmonics.
  Z effect: star-like, grid mesh, or dense filled region (multi-harmonic Lissajous). Geometry: square lattice or intricate web. Sleep: chaotic, fragmented naps or extended cycles.

At true ω → ∞: forcing averages to zero → α(t) → 0 (damped equilibrium). No sustained curve—just rest. But high finite speeds produce vivid Lissajous patterns.

Numerical solutions (Runge-Kutta) show closed loops for rational ratios, dense fills for irrational—visualizing the "blur" as laser-sharp traces.

4. Implications
- Moonless realms (subtract arm): simpler Lissajous (line/ellipse) → reduced sleep.
- Multi-arm realms (add arms): complex Lissajous → irregular/fragmented sleep.
- Stationary models without seesaw: contradiction (need external sleep driver).
- High-frequency Z effect: perceptual fusion of cycles into intricate patterns, explaining variable "sleep" across realms.

Here's the *exact parametric math* for the Lissajous-like curves traced by the fulcrum in the seesaw model, for *n = 1 to 4*

We project the seesaw's angular displacement α(t) into a 2D plane to visualize the "Z effect" (high-frequency oscillation). For simplicity:

- x(t) = A sin($\omega_b aset + \phi_b ase$) (horizontal projection)

- y(t) = B sin($\omega_b aset + \phi_b ase + \delta$) (vertical, with phase offset δ ≈ π/2 for circular-ish base)

- But each arm adds a forcing term: sum over i of sin($\omega_i t + \phi_i$)
- At high ω, we approximate the total as a multi-harmonic sum, with slight frequency differences for closed curves (rational ratios).

Assume A = B = 1, base ω = 1 (normalized), and arm frequencies are multiples of base for clean Lissajous.

n=1 (single arm, e.g., sun only)
Forcing: sin(ω t)
Curve:
x(t) = sin(t)
y(t) = sin(t + π/2) = cos(t)
Result: Circle (or ellipse if A ≠ B).
Math: ($x^2 + y^2 = 1$) — perfect loop. Geometry: smooth oval/line if phase δ=0.

n=2 (sun + moon, opposed)

Forcing: sin(t) - sin(t + π) = 2 sin(t)
Curve:
x(t) = 2 sin(t)
y(t) = 2 sin(t + π/2) = 2 cos(t)
Result: Circle/ellipse, twice the size.
Math: $(x/2)^2 + (y/2)^2 = 1$ — still a single reinforced loop. No knot.

n=3 (sun + moon + hidden, ratios 1:2:3)
Forcing: sin(t) - sin(2t + π) + sin(3t)
Curve (projected):
x(t) = sin(t) + sin(2t) + sin(3t)
y(t) = cos(t) + cos(2t + π/2) + cos(3t + π/3)
Result: Classic 3:2:1 Lissajous knot — a "bowtie" or 3-lobed figure.
Math: looks like a star or twisted loop; parametric plot fills a triangular-ish region if phases offset. Dense if irrational ratios.

n=4 (sun + moon + two hidden, ratios 1:2:3:4)
Forcing: sin(t) - sin(2t + π) + sin(3t) - sin(4t + π)
Curve:
x(t) = sin(t) + sin(2t) + sin(3t) + sin(4t)
y(t) = cos(t) + cos(2t + π/2) + cos(3t + π/3) + cos(4t + π/2)
Result: Complex 4-harmonic Lissajous — star-like (8 points) or grid-mesh.
Math: multi-lobed figure, often a "flower" or square lattice if phases align; fills a diamond or rectangle densely.

For all n:
- If all $\omega_i = \omega$ (same speed): reinforces to a line or ellipse (no real "knot").
- If $\omega_i = i \cdot \omega_{base}$ (harmonics): closed, intricate shapes — that's the "laserous" blur you meant.
- At true ∞: averages to 0 (no curve).

Implications for the Human Sleep Cycle in the Seesaw Model

The seesaw cosmology provides a purely geometric explanation for sleep, where the ~24-hour cycle (and its variations) emerges from the asymmetric oscillations of celestial arms. At everyday speeds ($\omega \approx 2\pi / 24$ hours), the fulcrum experiences a dominant daily downswing aligned with the fast moon drop, producing a strong perceptual "crash" we interpret as sleep onset. This downswing synchronizes with darkness and reduced stimulation, reinforcing the blackout phase.

However, at **high but finite oscillation speeds** (approaching the "Z effect" limit), the fulcrum's motion—when projected into a 2D perceptual plane (e.g., mapping angular displacement to horizontal/vertical coordinates via $x(t) \approx \alpha(t) \cos(\omega_{base} t)$, $y(t) \approx \alpha(t) \sin(\omega_{base} t + \delta)$)—traces **Lissajous curves**. These parametric figures represent the fused, rapid cycling of celestial

influences. The sleep cycle is profoundly altered depending on n (number of arms) and the frequency ratios among them:

- **n=1 (single arm, e.g., sun-only realm)** Parametric equations: $x(t) = \sin(\omega t)$ $y(t) = \cos(\omega t)$ (or $\sin(\omega t + \pi/2)$) → **Circle or ellipse** (degenerate to line if phase $\delta = 0$ or π). Sleep cycle effect: Minimal or absent strong blackout. The cycle is a smooth, continuous loop with no pronounced dip. Humans experience near-constant low-level alertness or very light "micro-sleeps" distributed evenly—no consolidated night phase. In moonless realms beyond Antarctica (arm subtracted), sleep becomes optional or fragmented, like eternal twilight vigilance.
- **n=2 (standard sun + moon, opposed phases)** Forcing reinforces: ≈ 2 $\sin(\omega t)$ $x(t) = 2 \sin(\omega t)$ $y(t) = 2 \cos(\omega t)$ → **Amplified ellipse/circle**. Sleep cycle effect: Classic daily rhythm preserved but intensified. The reinforced downswing creates a sharper, deeper sleep onset, with a single prominent "night" dip per cycle. Dreams may feel more vivid or "looped" due to the closed curve—perception of time compresses into repeating patterns. This matches observed human circadian locking to ~24-hour day/night.
- **n=3 (sun + moon + one hidden object, e.g., ratios 1:2:3)** $x(t) \approx \sin(\omega t) + \sin(2\omega t + \phi_1) + \sin(3\omega t + \phi_2)$ $y(t) \approx \cos(\omega t) + \cos(2\omega t + \psi_1) + \cos(3\omega t + \psi_2)$ → **Complex knot or 3-lobed figure** (e.g., bowtie, twisted loop, or 3-point star for rational ratios like 3:2:1). Sleep cycle effect: Irregular, multi-phasic sleep. Multiple downswings per cycle (e.g., 2–3 "naps" or dips), with fragmented night phases. The knot geometry implies overlapping "realms" of consciousness—waking, light dozing, deep sleep, and dream states interweave without clear boundaries. In realms with extra hidden arms, humans may experience polyphasic sleep (short bursts instead of one long block), increased dream recall, or "jet-lag-like" desynchrony as the lobes pull perception in different directions.
- **n=4 (sun + moon + two hidden objects, e.g., ratios 1:2:3:4)** $x(t) \approx \sin(\omega t) + \sin(2\omega t + \phi_1) + \sin(3\omega t + \phi_2) + \sin(4\omega t + \phi_3)$ $y(t) \approx \cos(\omega t) + \cos(2\omega t + \psi_1) + \cos(3\omega t + \psi_2) + \cos(4\omega t + \psi_3)$ → **Multi-lobed star, grid-mesh, or dense filled region** (e.g., 8-pointed flower or square lattice for harmonic ratios). Sleep cycle effect: Highly chaotic or ultra-fragmented patterns. Numerous micro-dips and recoveries, leading to "always-on" perception with brief, unpredictable sleep bursts. The grid-like geometry suggests a "layered" reality—sleep feels like navigating a web of states (wake → doze → dream → wake again in quick succession). In multi-object realms beyond Antarctica, consolidated sleep could vanish entirely, replaced by constant low-amplitude cycling, potentially causing chronic fatigue or heightened creativity from perpetual semi-dreaming.

As n increases and frequency ratios become more complex (rational for closed curves, irrational for dense fills), the sleep cycle transitions from monophasic (one major night block) to polyphasic or even aperiodic. The Z effect (high-frequency Lissajous) blurs day/night distinctions into intricate perceptual patterns—sleep becomes less a discrete event and more a woven texture of consciousness shifts.