

RECURSIVE WAVES

A Case Study for a Mathematics of Affect



Recursive Waves: Modeling an Ontology of Affect

Recursive Waves is an ongoing experimental musical performance and mathematical framework (or maybe a bet-test performance) that attempts to transcend interpretation and share a new space (like a hilbert space or island of stability) by telling a story, working with the evolving capacities of computation and cryptography, and an evolving curiosity for sound and music. In collaboration with the audience, the work attempts to construct a group affective manifold a relatively predictable shared emotional topology through recursive processes of memory, sound, and computational translation. By mapping applied affect into sound, Recursive Waves explores how individual experience can resonate outward into collective states, producing an unfolding collective cycle of reflection and emergence.

Eye Movement Desensitization and Reprocessing

In EMDR therapy, the 'safe space' is a guided visualization used to ground and stabilize during trauma centered work. It creates an affective anchor, a predictable return to calm when arousal rises too high: rhythmic, predictable, sensory-rich, and inherently regulating.

Recursive Waves, my original anchor story (EMDR 'safe space')

"I am looking out of my eyes at a rippling ocean surrounded by the blue black night. The moonlight shattering the surface of the water and cascades across the endless sea. The sand is cold and sings the scratching of my bare feet as I walk down the beach and lean into the glistening water. I steadily enter into a reverie of a new kind of euphoria and sensation, like the world has shattered into an infinite scalable quantity of worlds all at once. Swimming out into the icy water is a searing exhilaration of cold that awakens the skin and the breath. I glide seamlessly onto my back, drifting at the threshold of the open sea and the endless skies."

Resonance of the Casimir Effect

The Casimir effect shows that even “empty” space resonates with hidden forces, a quantum hum between boundaries. Like a gap at the fermi level. In my safe space, this is mirrored by the stillness between wave crests: silence that is not empty, but alive with potential. This resonance grounds my feelings or affect in both physics and affective ontology — an infinite calm that holds the body and mind.

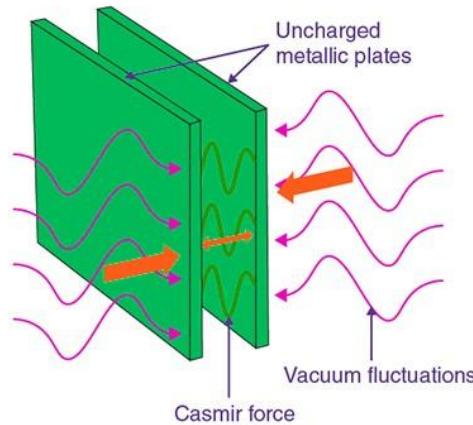
Below: Rough garble the LLM spit out_V1

CTL Music Notation

Hu + Fe Jo + II Os + Ns Aw + Un × En

mf

subito pp



The Case for an Affective Mathematics

The Affective Mathematics Framework

The **Periodic Table of Affect (PTA)** functions as the overarching framework.

It describes **universal affective patterns** that emerge in nature and human systems.

These patterns are not arbitrary — they are grounded in and **analogous to the laws of nature** (e.g., heavy-tailed distributions, conservation principles, symmetry, entropy).

The PTA serves as a **map of affective forces**, showing how emotions and states follow structural logics similar to those found in physics, biology, and network science.

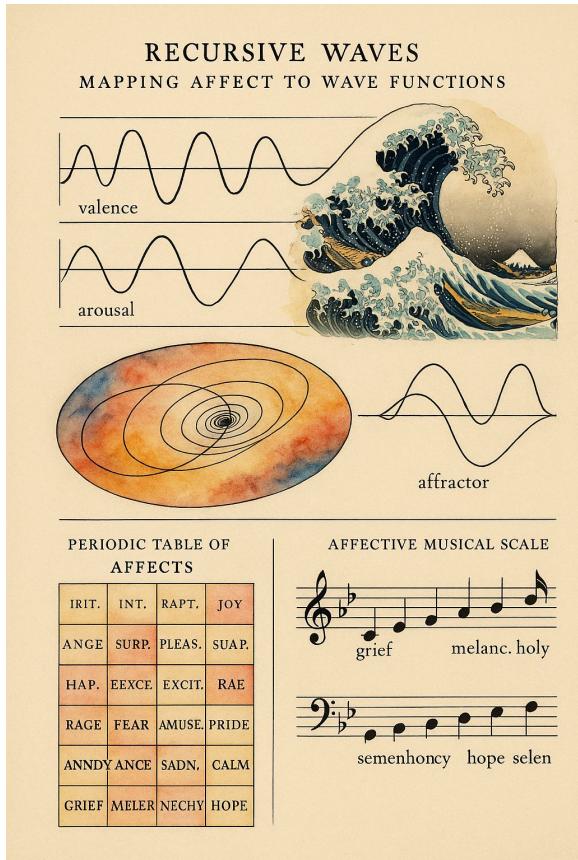
CONSTELLATION TERMINAL LEXICON						
	BALANCE	RADIANCE	FORCE	NETWORK	INFINITY	
BALANCE	Hu $E_{\text{deficit}} = \text{Conductance} - I_{\text{displaced}}$ A deficit in energy, longing for replenishment.	Eq $P_{\text{displaced}} = \rho_{\text{displaced}} \Delta V_{\text{displaced}}$ Buoyancy as the feeling of being held.	Il $I = \frac{I}{4 \pi r^2}$ Awe, the light, or perception diminishing yet infinite.	Re $\Delta E = \mu_2 g m / \hbar$ Zeeman splitting as relational pull, the affect of longing.	Ns $x(t) = A \cos(\omega t + \phi)$ Harmonic oscillation; memory as rhythmic return.	Aw $G_{\mu\mu} + \lambda G_{\mu\mu} = \frac{8\pi G}{c^4}$ Spacetime curves; give before infinite cosmos.
RADIANCE	Sl $A(i) = A_0 e^{-\lambda i}$ Buoyancy as the longing for being held.	Wm $Q = mc \Delta T$ Heat transfer as intimacy; the body held by fire or embrace.	Il $I = \mu_1 \frac{\mu_2 g}{p^2}$ Awe, the light of perception diminishing yet infinite.	Fe $F = ma$ The sudden force of acceleration; body moved by unseen threat.	Gr $N(t) = N_0 e^{-\lambda t}$ Decay; fading presence, the echo of exponential.	Em $Dx^{-\Delta x} \frac{\hbar}{2}$ Uncertainty principle; freedom in indeterminacy.
	Balance	Force	Time	Network		
	$E \propto \dim \left[\pi \cdot \frac{\Delta O \cdot X}{\Delta t} \right]$	Force	Time	Network		

 CONSTELLATION TERMINAL PROTOCOL

CTL MUSIC SCALE				CONSTELLATION TERMINAL LEXICON
Eq Equilibrium	Il Illumination	Re Resonance	Gr Grief	
				
Hu Hunger	Fe Force	Wm Warmth	Oscillation Emergence	
				
Um Force	Emergence Belongung			
				

Affective Ontology (AO) – Foundational Lexicon & Ladder

1	Subatomic → Affective Charges	Physics: quarks, gluons, spin. Langen - Operator
2	Nucleus → Affective Core	Proto-clusters of safety, trust as elemental affects
3	Atom → Affective Element (PTA Unit)	Love, Fear, Awe, Grief as elemental affects Operator
4	Molecule → Covalent/ionic/metallic bonds Affective: Thrill (Fear Arousal), Bittersweet	Thrill (Fear Arousal); Bittersweet (Love Grief) Sublime (Awe Terror) Operator: entanglement
5	Protoplasm → Proto-Affective Medium	Autocatalysis, reaction-diffusion Operator
6	Cell → Affective Unit	Circulating textures, baseline moods Operator
7	Tissue → Affective Pattern	Specialization routing Operator
8	Organ → Affective Circuitry	Phase alignment o; coherence x Operator
9	Organism → Individuated Psyche	Self with personality, affective style Operator
10	Biobgy: Attractors, stress-response	Contagion of joy, panic Infestation p Operator
11	Community → Cultural Field	Rituals, Institutions stabilize heavy affects Operator
12	Ecosystem Complex → Symbolic Landscape	Art, media, narratives encoding affects Operator
14	Biome → Civilizational Narrative	Shared myths, ethics, cosmologies Operator
15	Ecosphere/Earth → Planetary Affective Sphere	Planetary moods, collective affective waves Operator
16	Universe → Universal Affective Field	signal>noise: trust as universal metric coherence
15	Universe → Universal Affective Field	Signal>noise, trust as universal metric coherence
16	Universe → Universal Affective Field	Coherence fields, nonlocal assembly acneracen



SECTION 1: Sorrow SECTION 2: Lead (26 BPM) SECTION 3: Fear (26 BPM) SECTION 4: Hope → Anticipation SECTION 5: Shock → Crash SECTION 6: Anticipation SECTION 7: Shock → Crash

Violin I (Melody)

Violin II

Viola

Cello (Pedal/Bass)

Flutes/Clarinets (Fear Runs)

Horns/Trumpets (Storm)

Harp (Hope Arpeggios)

Timpani/Cymbal

Piano (Final Hit)

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Harp Arpeggios (lift)

Crash

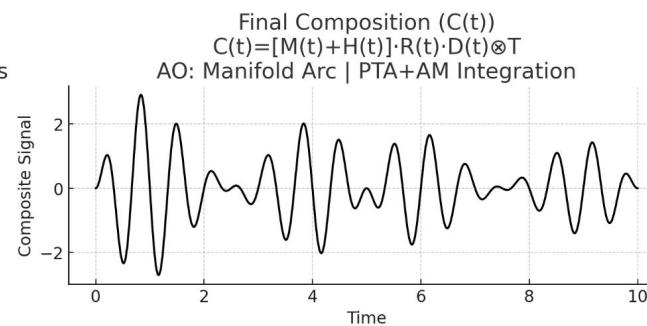
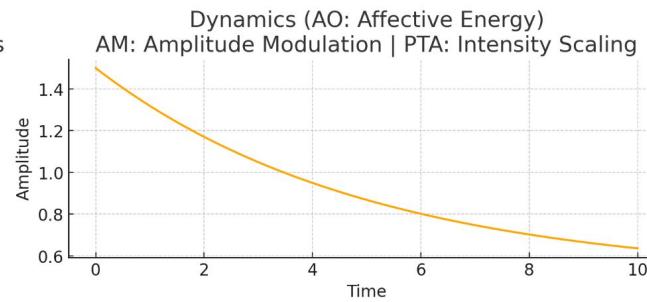
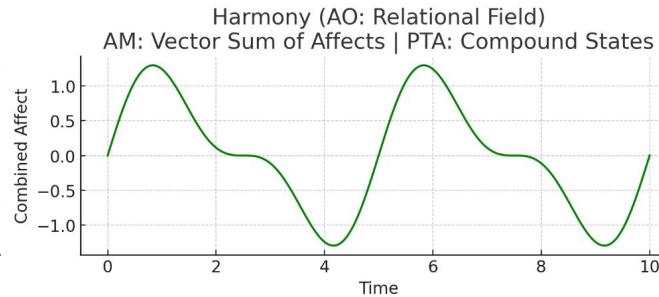
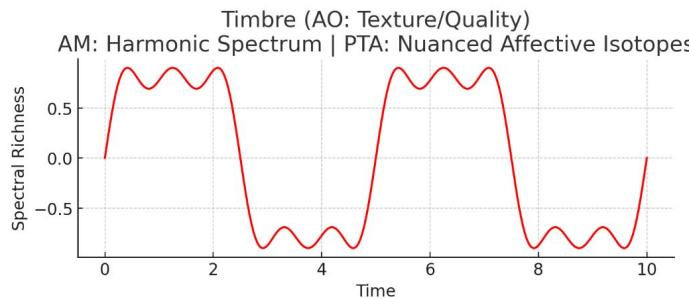
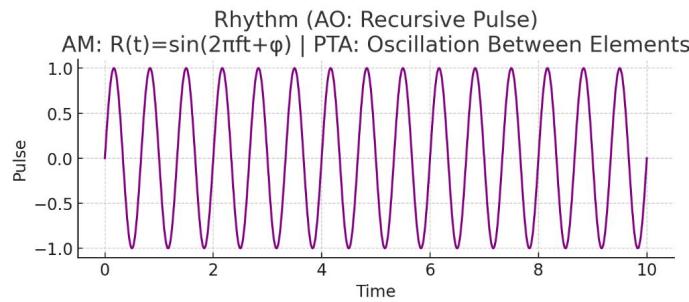
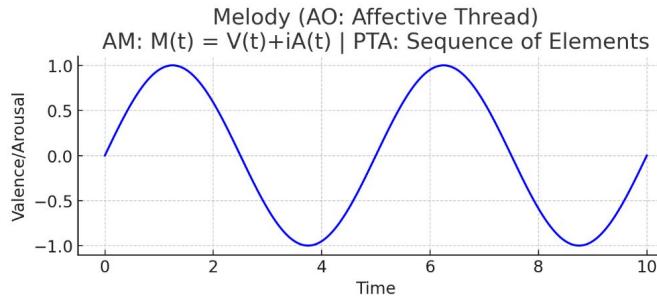
Final Hit → Silence

- AO Lexicon [Link](#)
- Periodic Table of Affect (PTA) [Link](#)
- Comparison Standard Periodic Table Elements to PTA [Link](#)
- Ontology of Affect proposed mapping [link](#)
- AI Training Manual_V1 [Link](#)
- Musical Scale chart [Link](#)
- PTE Mapping w/ reasoning [Link](#)

AO113 - Affect Ontology -- Core Periodic Table of Affect (AO113)

Legend:

- Period 1: Legend
- Period 2: Neutral
- Period 3: Neutral
- Period 4: Neutral
- Period 5: Neutral
- Period 6: Neutral
- Period 7: Neutral
- Period 8: Neutral
- Period 9: Neutral
- Period 10: Neutral
- Period 11: Neutral
- Period 12: Neutral
- Period 13: Neutral
- Period 14: Neutral
- Period 15: Neutral
- Period 16: Neutral
- Period 17: Neutral
- Period 18: Neutral



affect to musical scale
initial ideas - currently
working with a sort of
'applied' compositional
grammar or syntax for
composing scripts or
scores using this
affective ontological
framework

<https://docs.google.com/spreadsheets/d/1Y9FUYEbG7jbYVNXACO3xfaoYinSeoxfu/edit?usp=sharing&ouid=11095367812900240791&rtpof=true&sd=true>