BIOGLOW™
— Provisional Patent Application

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Version: 6.1.0

Title:
BioGlow™: Architectural Resonance-Based Illumination System With Integrated Photonic-Acoustic Activation Layers (PAAL)

I. TITLE OF THE INVENTION

BioGlow™ — Architectural Surface Luminescence System Using Resonant Dielectric Excitation and Photonic-Acoustic Activation Layers

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II. ABSTRACT

The present invention provides an illumination system that generates visible light directly from architectural surfaces without the use of traditional light-emitting devices such as bulbs, LEDs, filaments, panels, or externally visible sources. The BioGlow™ system utilizes a multilayer resonance architecture comprising a dielectric excitation substrate, a frequency-coupled conductive mesh, a photonic activation layer containing doped crystalline, nano-phosphor, or rare-earth infused microstructures, and an embedded array of micro-acoustic stimulation elements.

When activated through controlled electrical excitation and synchronized acoustic modulation, the layered structure produces distributed luminescence across walls, ceilings, panels, or architectural materials.

The system allows tuning of brightness, spectral characteristics, and spatial gradients by adjusting drive waveforms, phosphor composition, and acoustic patterns. In certain embodiments, pulsed, resonant, or duty-cycled operation increases perceived brightness while maintaining low power consumption. BioGlow™ enables seamless, fixture-free interior or exterior illumination with no visible hardware and introduces a new class of resonance-driven architectural lighting.

III. BACKGROUND OF THE INVENTION

1. Technical Field

The invention relates to illumination technologies and architectural materials, specifically systems enabling non-localized lighting through surface-integrated photonic activation, dielectric resonance, and acoustic stimulation.

2. Limitations of Existing Lighting

All modern lighting technologies rely on explicit, visible emissive elements, including:

- incandescent bulbs
- LEDs
- fluorescent tubes
- OLED surfaces
- fiber optic endpoints
- electroluminescent strips
- phosphor-based lamps
- integrated panel lighting

Regardless of form, these technologies share a fundamental trait: light is generated at a discrete, identifiable source.

No known widely used technology produces practical room illumination distributed across a surface without a defined emissive device or fixture.

3. Lack of Resonant Architectural Lighting

Current materials science and building systems do not provide:

- frequency-stimulated luminescent walls
- architecture-as-light systems
- resonance-driven distributed illumination
- room-scale, fixture-free light generation

Past civilizations have left evidence and anecdotal descriptions of resonance-based architectural effects, but no modern commercial framework reproduces or explains such phenomena in a controlled, engineered manner.

4. Need for a New System

There remains a need for:

- seamless architectural lighting integrated into surfaces
- low-energy luminescence with tunable brightness
- distributed wall, ceiling, and panel illumination
- thin, installable layers that glow when stimulated
- systems requiring no bulbs, fixtures, or visible hardware
- controllable gradients, patterns, and color from the same surface

BioGlow™ provides this new category of illumination.

IV. SUMMARY OF THE INVENTION

BioGlow™ is a multi-layer surface system that utilizes dielectric resonance, photonic activation, and acoustic modulation to produce visible light from architectural materials.

A. Layer Stack

The invention comprises a multilayer structure including:

- Base Material Layer — drywall, wood, polymer, composite, masonry, or architectural panel
- Dielectric Resonant Substrate — tuned for standing-wave excitation
- Conductive Resonance Mesh — controlled electromagnetic oscillation
- Photonic Activation Layer — doped crystalline, nano-phosphor, or rare-earth materials

● Acoustic / Ultrasonic Drivers — micro-transducers for lattice vibration
● Surface Seal Layer — protective, optically transmissive architectural finish

B. Activation Method

Light emission occurs when:

● low-voltage electrical excitation passes through the resonance mesh
● oscillating electromagnetic fields form in the dielectric substrate
● standing-wave resonance patterns are established
● micro-acoustic drivers introduce controlled vibration
● combined electromagnetic and acoustic energy triggers photon release

C. Result

The entire surface becomes a luminescent panel producing:

● ambient glow or high-intensity zones
● directional gradients and patterns
● dynamic temporal effects
● tunable color temperature and spectrum
● architectural illumination without visible fixtures

V. BRIEF DESCRIPTION OF THE DRAWINGS

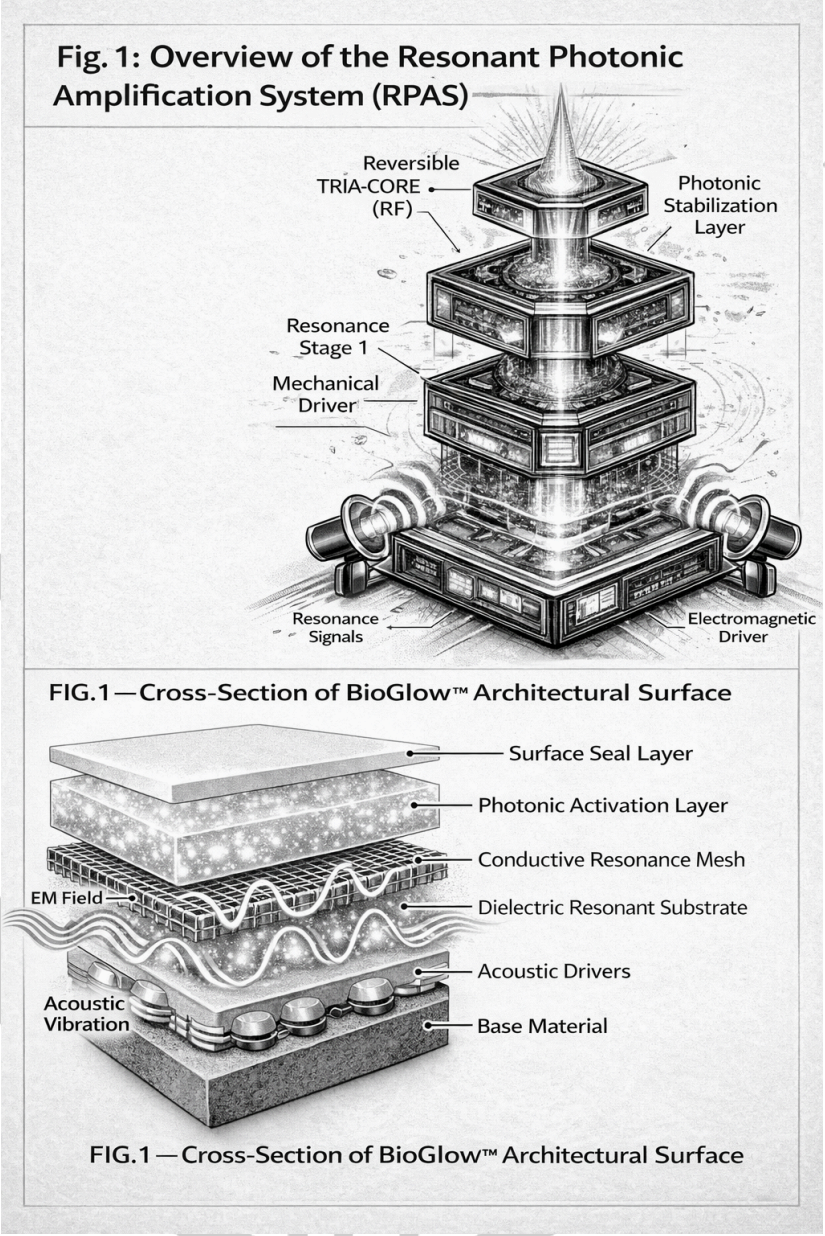


FIG. 1 — Cross-section of BioGlow™ architectural surface.

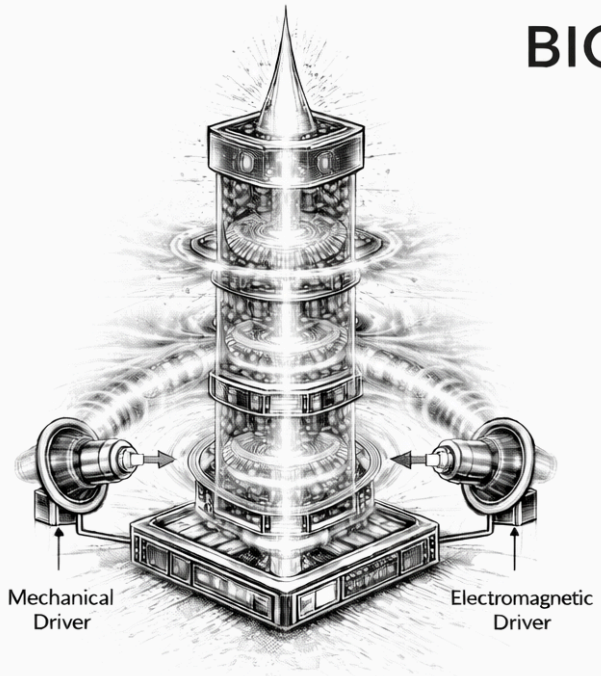


Fig. 2 Core Resonance Amplification Mechanism

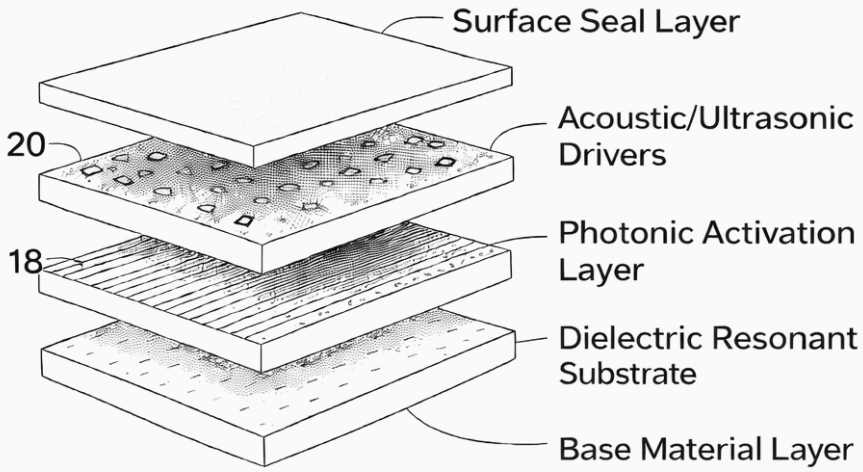


Fig. 2A Layer-by-Layer Resonance Stack

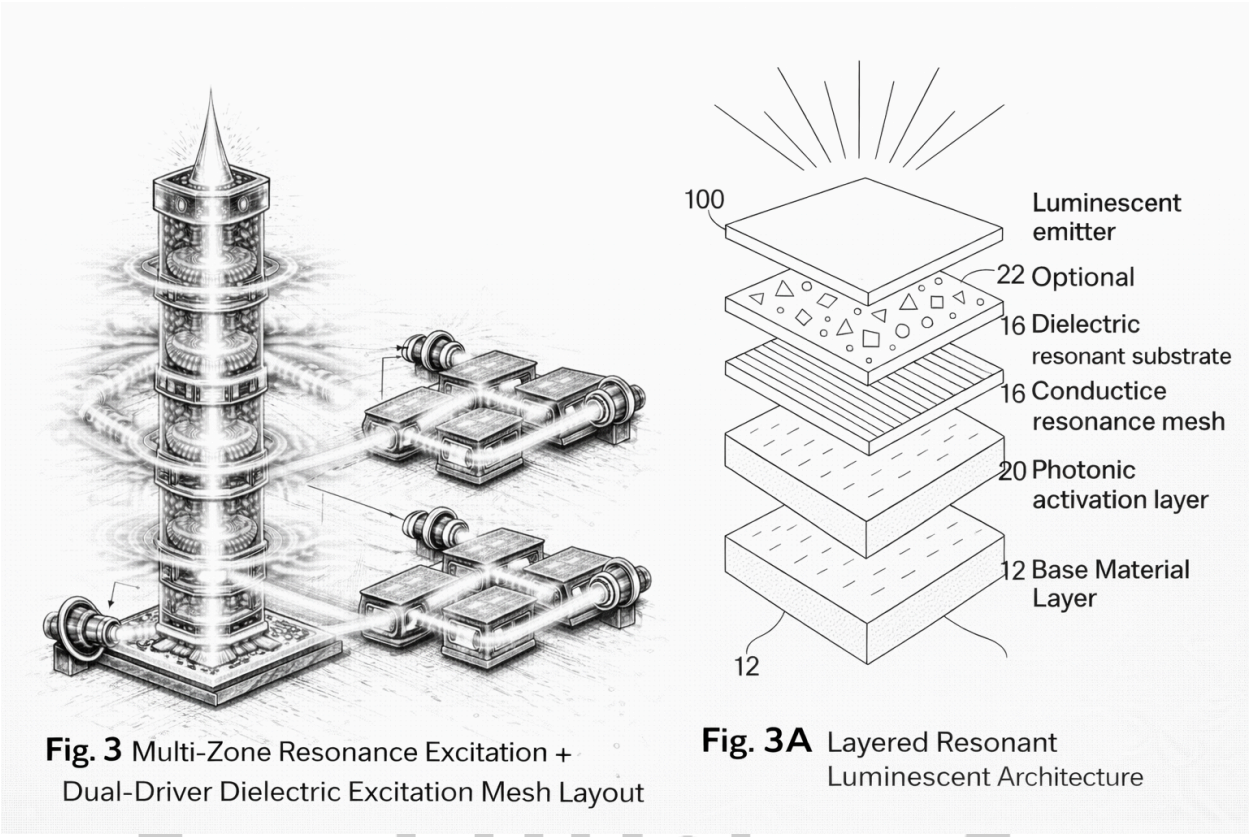


Fig. 3 Multi-Zone Resonance Excitation + Dual-Driver Dielectric Excitation Mesh Layout

Fig. 3A Layered Resonant Luminescent Architecture

FIG. 3 — Embedded acoustic driver grid.

Fig. 4 Compression to Planar Resonance Ampiifier

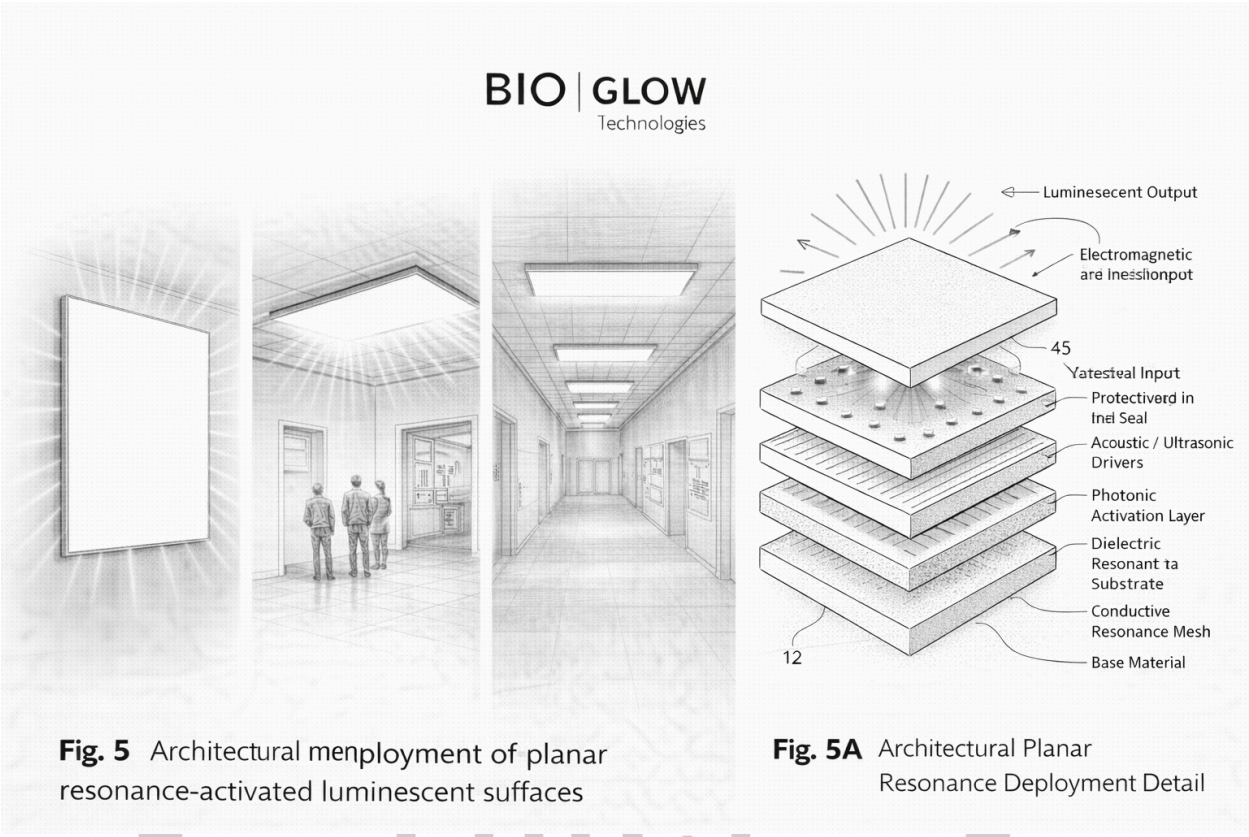


FIG. 5 — Photonic activation layer microstructure arrangement.

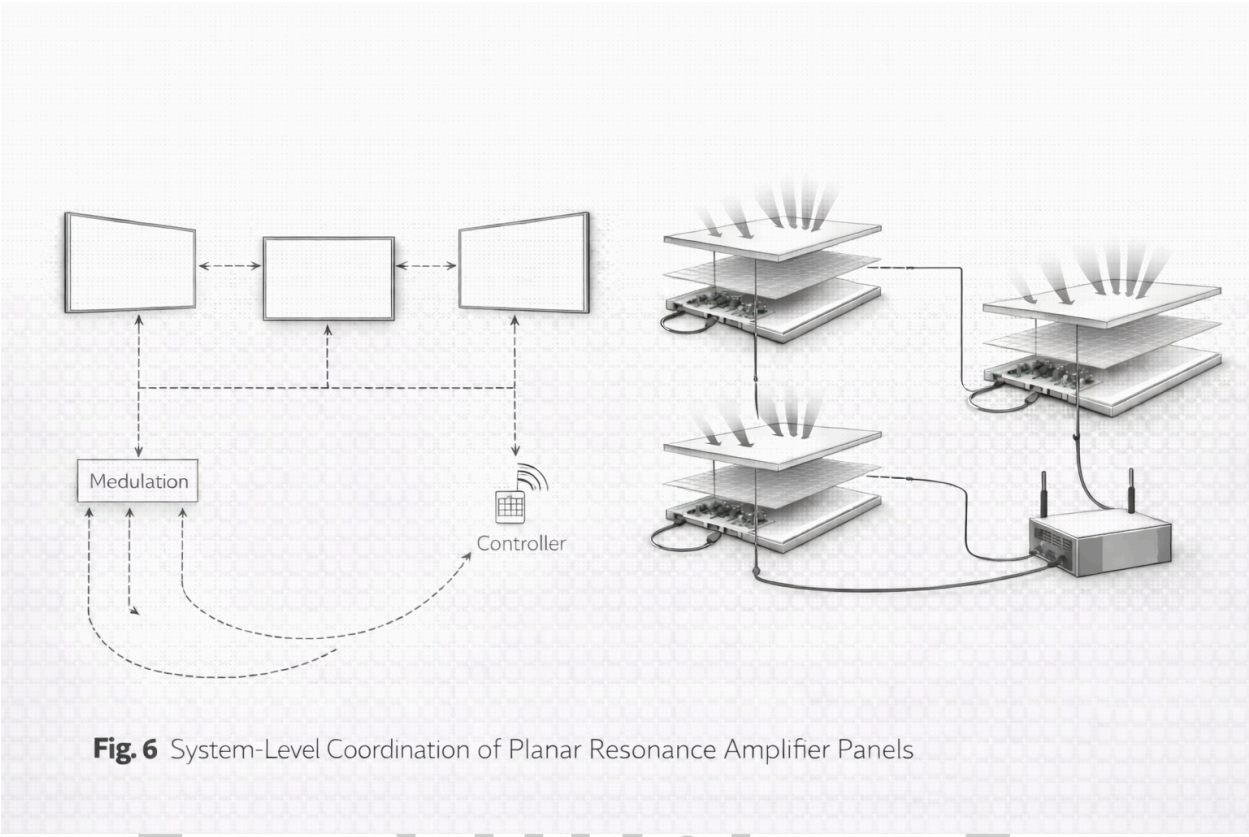


Fig. 6 System-Level Coordination of Planar Resonance Amplifier Panels

FIG. 6 — Illumination gradient and brightness behavior.

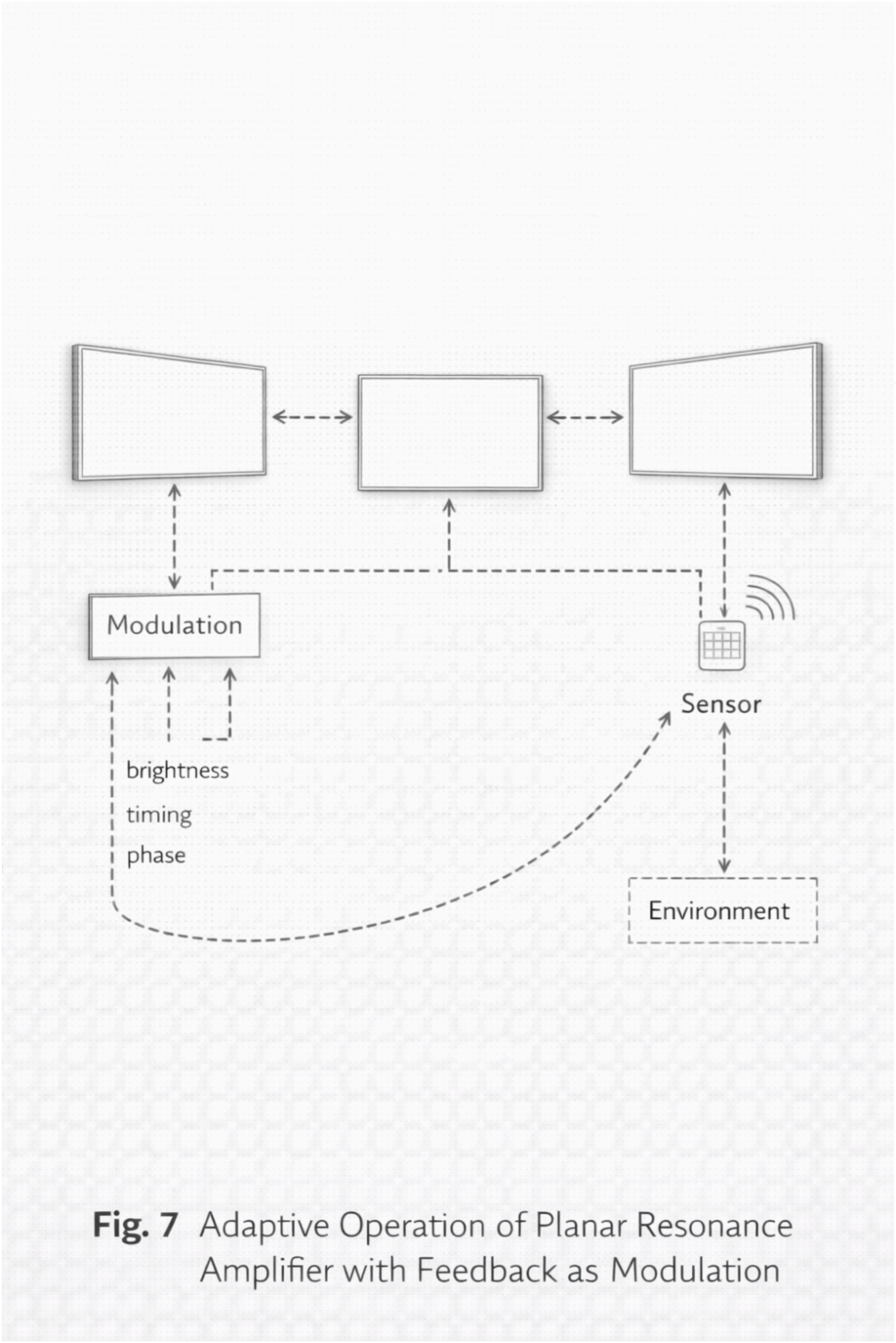


Fig. 7 Adaptive Operation of Planar Resonance Amplifier with Feedback as Modulation

FIG. 7 — Control circuitry and modulation patterns.

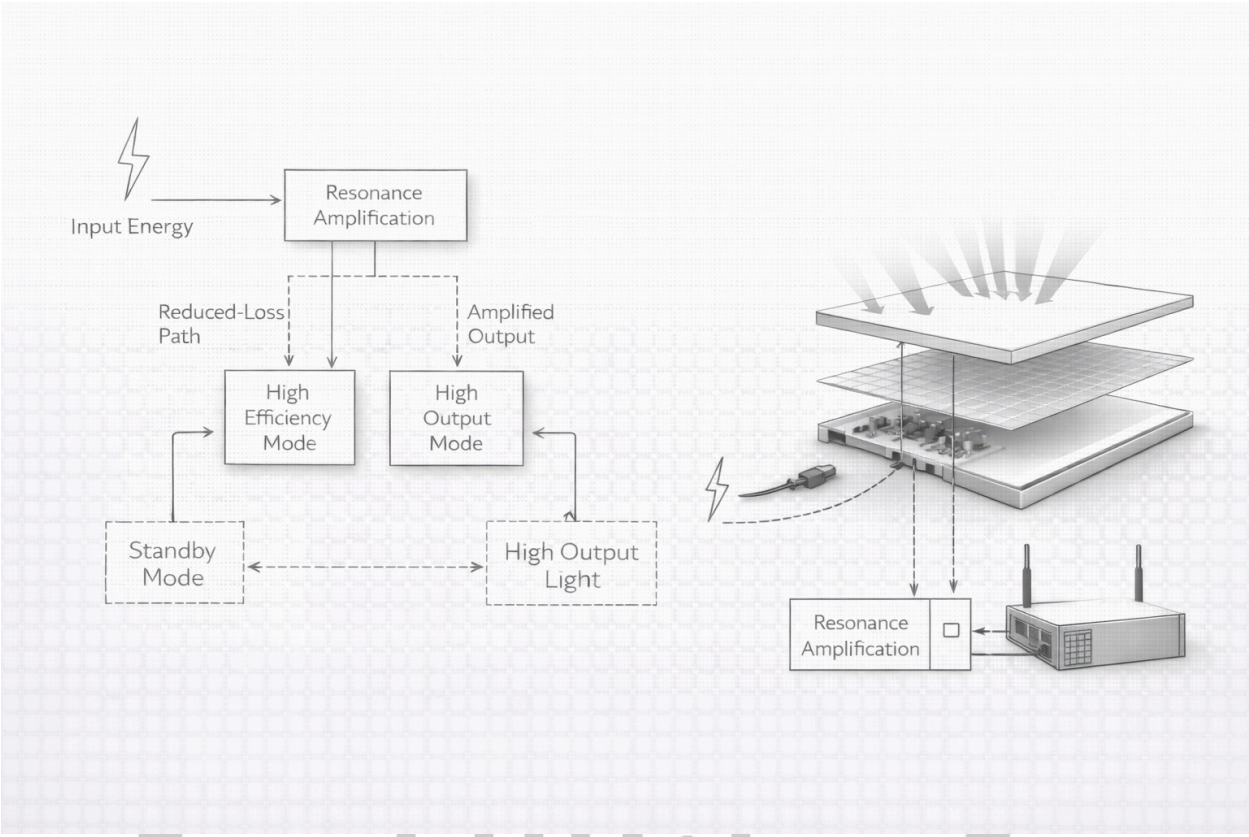


FIG. 8 — Implementation in a standard room environment.

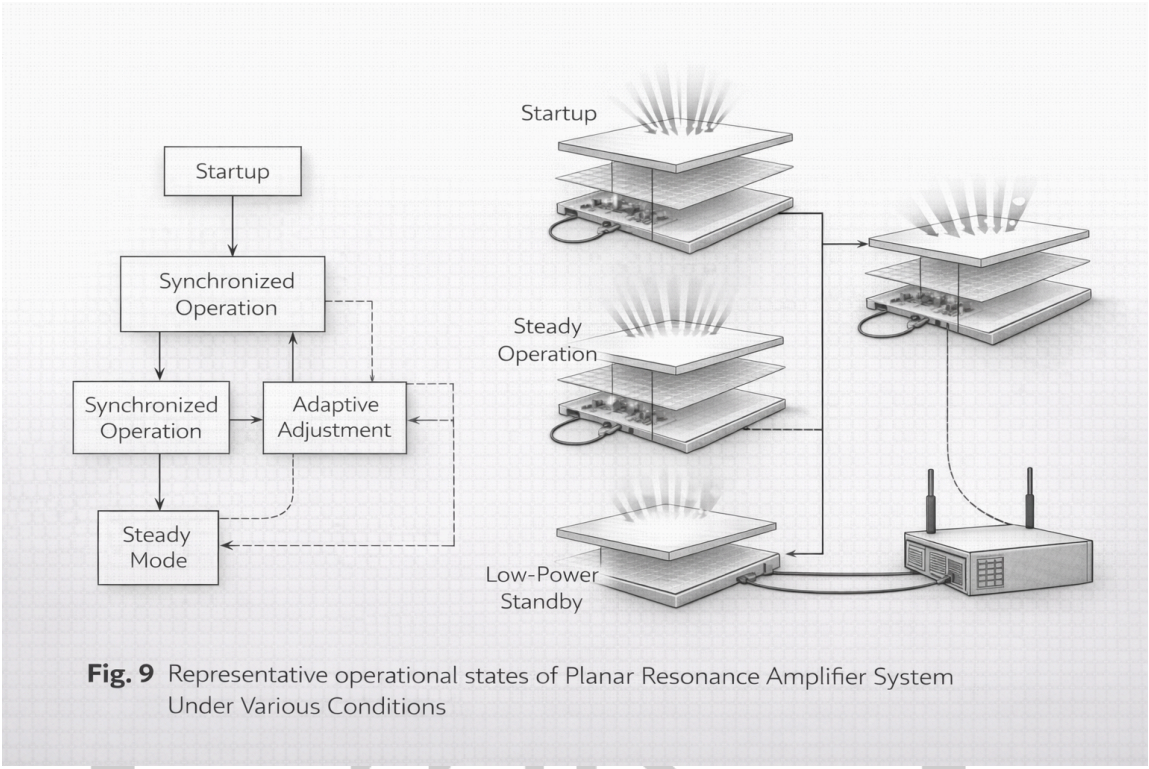


Fig. 9 Representative operational states of Planar Resonance Amplifier System Under Various Conditions

FIG. 9 — Energy efficiency and activation curves.

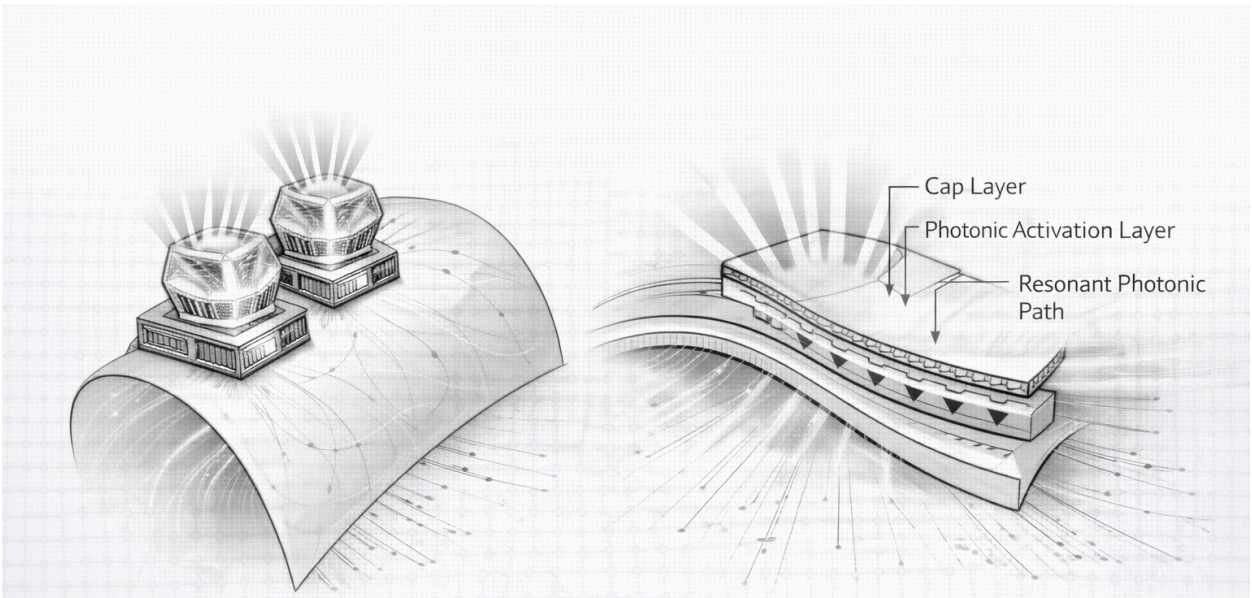
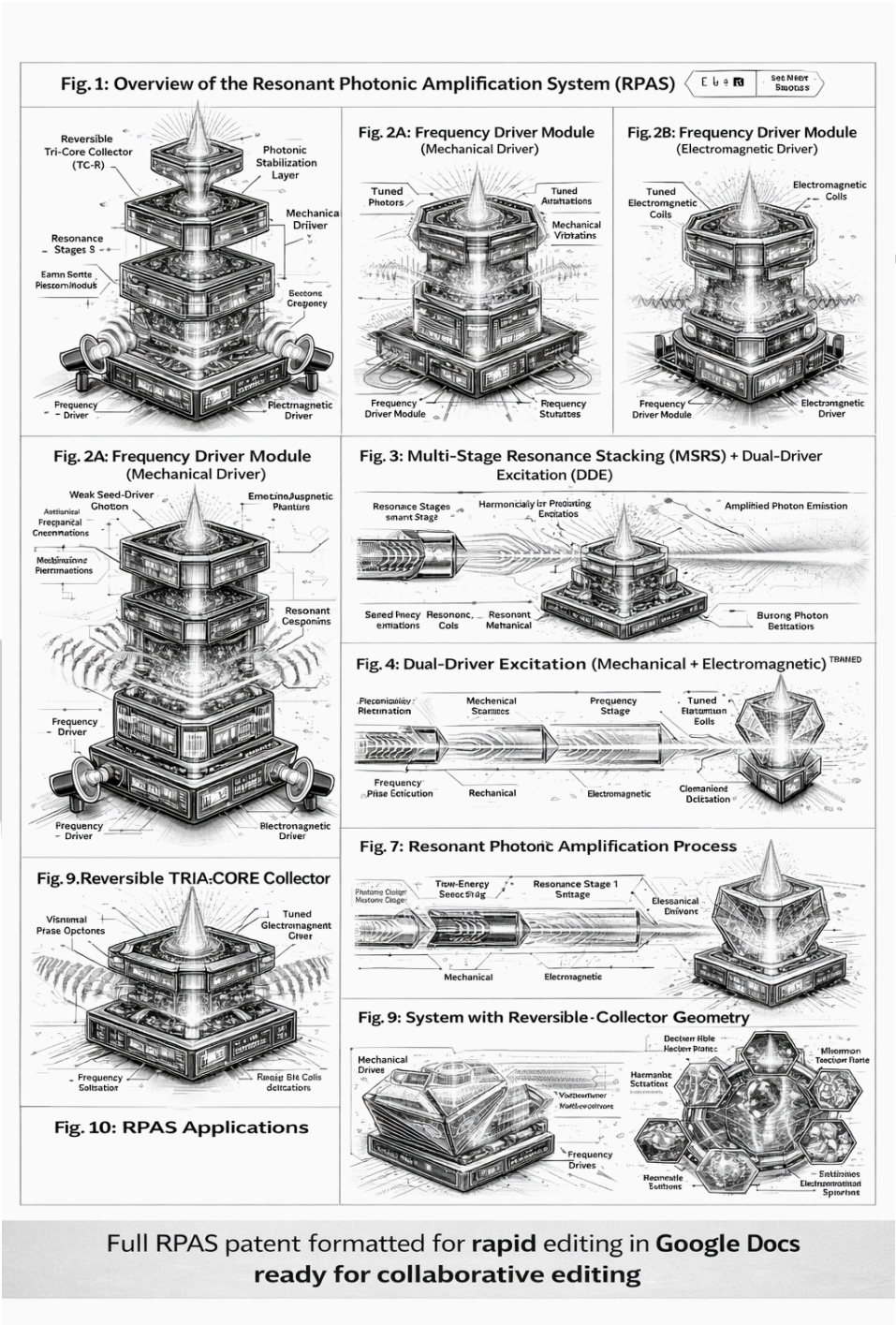


Fig. 10A: Alternative geometries and conformal embodiments for RPAS



Full RPAS patent formatted for **rapid** editing in **Google Docs**
ready for collaborative editing

FIG. 11 — Consolidated overview of representative RPAS embodiments, excitation modules, and resonance stages.

BioGlow™
— Architectural Resonant Illumination System
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VII. CLAIMS

Claim 1:
A system for generating illumination from an architectural surface, comprising a multilayer structure including a dielectric resonant substrate, a conductive excitation mesh, a photonic activation layer, and an acoustic driver array, wherein the architectural surface emits visible light when stimulated by electrical and acoustic inputs.

VIII. CONCLUSION

BioGlow™ introduces an architectural surface lighting system capable of producing illumination without discrete light sources such as bulbs or LED fixtures. By combining dielectric resonance, photonic activation, and synchronized acoustic modulation, the invention establishes a new category of resonance-driven architectural lighting.