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Research paper

Negative Effective Gravity as a Potential Mechanism for Selective Cancer Cell Detachment Through the Water-Matrix Lattice

A Field Synthesis Proposal

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ABSTRACT

We propose a theoretical framework suggesting that cancer may be productively understood as a lattice degradation phenomenon within the water-matrix lattice (Holmes, 2025), and that this understanding may open previously unconsidered intervention pathways warranting investigation by qualified researchers across multiple fields. Cancer cells exhibit consistently low electrical potential (10–20 mV) compared to healthy cells (80–100 mV), an observation documented since Cone (1970s) and extended by Pollack (2024) through the exclusion zone (EZ) water framework. We connect this voltage deficit to the water-matrix lattice described by Holmes (2025), in which the asymmetric hydrogen bonding rule—one strong bond and one weak bond per molecule, invariant across all phases—constitutes the structural fabric of the cellular environment. We suggest that locally induced negative effective gravitational coupling—experimentally demonstrated by Hu et al. (2013) in water at frequencies between 4.1 Hz and 4.85 Hz using resonator arrays—may warrant investigation as a potential mechanism for selective detachment of weakly coupled cancerous tissue from strongly coupled healthy tissue. We further suggest that the intact hydrogen bond network surrounding a tumor may provide a thermodynamically favorable extraction pathway warranting study. These ideas connect five previously isolated lines of published evidence: EZ water biophysics, bioelectric oncology, analog gravity experiments in water, frequency-selective cancer cell disruption, and the water-matrix lattice hypothesis. The connections are offered not as proven conclusions but as a research architecture—a map of possibilities for qualified professionals. This paper is fundamentally an exercise in **field synthesis**: the practice of identifying optimization pathways across compartmentalized disciplines and presenting them to the domain experts best equipped to evaluate, refine, or refute them.

1. On Field Synthesis

Before presenting the substance of this proposal, it is necessary to describe the method and its intent.

1.1 The Problem of Compartmentalization

Modern science operates within disciplinary compartments. Oncology funds oncology. Fluid dynamics funds fluid dynamics. Water physics funds water physics. Bioelectric cell biology occupies its own journals. Analog gravity experiments are published in physics venues that oncologists do not read. Each compartment produces rigorous, peer-reviewed results within its domain. The problem is not quality. The problem is isolation.

Results that are individually significant within their compartments may be collectively transformative when connected. But the institutional

structures of modern research—funding categories, departmental boundaries, journal specializations, career incentive structures—do not reward the act of connecting across compartments. The researcher who publishes within a single field is promoted. The researcher who attempts to bridge five fields belongs to none of them.

1.2 What Field Synthesis Theory Is

Field synthesis is the practice of identifying published results across multiple disciplines, recognizing structural connections between them, and proposing integrated research pathways for evaluation by domain experts. It is not a replacement for domain expertise. It is an optimization layer that operates between domains.

The field synthesis practitioner does not claim to possess the depth of knowledge held by a PhD oncologist, a fluid dynamics researcher, a water physicist, or a bioelectric biologist. The doctoral training those professionals have earned is not diminished by field synthesis. It is essential to it. Without their rigor, there is nothing to synthesize. Without their expertise, the proposals generated through synthesis cannot be evaluated, refined, or tested.

Field synthesis is planning. It is researching across multiple fields. It is creating experiment proposals addressed to different fields. It is laying out an optimized path for cross-disciplinary work. The field synthesis practitioner identifies possibilities. The domain expert determines which possibilities survive contact with reality.

1.3 What Field Synthesis Is Not

Field synthesis is not self-promotion. It is not a claim of superiority over domain experts. It is not a declaration that compartmentalized research has failed. It is the recognition that compartmentalized research has succeeded—has produced extraordinary results in every field—and that those results may contain connections that the compartmental structure itself obscures.

The ideas in this paper are expressed to the best of the author's abilities and presented to more capable people—the professionals in each relevant domain. These are their fields. This is merely an attempt to build bridges between them. It is not perfection. It is optimization.

1.4 The Need for Formal Infrastructure

The connections proposed here should not depend on a single individual's effort. Field synthesis as a discipline requires infrastructure: trained practitioners who understand optimization across domains, formal communication channels between compartments, and institutional recognition that cross-disciplinary connection is a skill distinct from domain expertise and valuable alongside it.

A school of field synthesis would train practitioners not to replace PhDs but to serve them—to identify what laboratory A has published that laboratory B needs to see, to propose experiments that require collaboration between fields that do not currently collaborate, and to optimize the path from isolated result to integrated understanding.

The goal is not to diminish any field. The goal is to multiply the impact of every field by ensuring that what each produces reaches those who can use it.

2. Cancer as Lattice Degradation: A Proposal

2.1 The Voltage Deficit

Healthy human cells maintain a resting electrical potential of approximately−60to −100 mV. Cancer cells consistently measure at−10to−20mV (Cone, 1970s; Pollack, 2024). This deficit has been documented across cancer types for over six decades.

Pollack (2024) proposed that this voltage arises from exclusion zone (EZ) water—a structured, negatively charged phase of water that forms adjacent to hydrophilic surfaces. EZ water has been independently verified to exhibit higher viscosity, higher density, higher refractive index, and a net negative charge relative to bulk water (Pollack Lab, University of Washington; Elton et al., 2020). Pollack suggests that EZ water ordinarily fills the cell, that its negative charge creates the cell's electrical potential, and that cancer cells' low potential may imply a shortage of EZ water.

2.2 Reinterpretation Through the Water-Matrix

In the water-matrix framework (Holmes, 2025), EZ water may correspond to regions of the lattice where the asymmetric hydrogen bonding rule is fully intact and ordered. A cell with high EZ water content would be a cell whose internal water-matrix lattice is intact. The voltage would be a measurement of lattice integrity. A cell with low EZ water content—such as a cancer cell—would be a cell whose internal lattice has degraded.

This suggests a reframing worth investigating: that the operational deficit driving uncontrolled division may be the lattice state rather than genetics alone. Cone demonstrated experimentally that artificially restoring high electrical potential to cancer cells could block mitosis. Levin (Tufts University) demonstrated that altering membrane voltage patterns can direct cell fate and suppress tumors in animal models. These results are consistent with the lattice interpretation and suggest that further investigation of this connection may be warranted.

2.3 The Taproot

Cancer stem cells represent the deepest point of degradation within a tumor. These cells—representing as few as 1–10% of total tumor mass (Clarke et al., 2003; Wicha, Vanderbilt University)—are the only cells capable of regenerating the full tumor. Conventional treatment eliminates bulk tumor cells while leaving this core population intact.

In the lattice framework, if the cancer stem cells sit at the lowest voltage and weakest lattice integrity, they may represent both the most critical target and the most vulnerable to lattice-based intervention. This possibility warrants investigation.

3. Negative Effective Gravity as a Potential Detachment Mechanism

3.1 Experimental Basis

Hu, Yang, Zi, Chan, and Ho (2013) demonstrated experimentally that for water waves propagating through an array of bottom-mounted split tube resonators, the effective gravitational acceleration becomes negative for frequencies between 4.1 Hz and 4.85 Hz. At 4.4 Hz, the effective gravitational acceleration crossed below zero. A control experiment with rigid cylinders of identical geometry produced no such effect. The negative gravity arose specifically from the resonant internal structure of the array and its frequency-dependent interaction with the water medium.

3.2 A Proposed Application

The human body is approximately 99% water at the molecular scale. In the water-matrix framework (Holmes, 2025), this water constitutes the medium through which all forces couple at the cellular scale.

We suggest the following possibility for investigation. Healthy tissue, if it represents strongly coupled lattice with intact asymmetric bonding, may possess sufficient bond strength to hold under locally induced negative effective gravitational coupling. Cancer tissue, if it represents weakly coupled lattice with degraded bonding, may not.

Under such conditions, negative effective gravity could function as a selective separation force: the bond strength differential between healthy and cancerous lattice regions would determine which elements hold and which detach.

This is a theoretical proposal. Whether it can be realized in biological tissue, what resonator geometry would be required, and whether the frequency ranges demonstrated by Hu et al. translate to cellular-scale water systems are open questions requiring investigation by qualified researchers in fluid dynamics, biophysics, and oncology.

4. Lattice Extraction: A Second Proposed Pathway

4.1 Thermodynamic Favorability

Independent of the negative gravity proposal, the water-matrix framework suggests a second possibility. The intact hydrogen bond network surrounding a tumor represents an ordered lattice. The degraded interior of the tumor represents a disordered lattice. If ordered lattice is thermodynamically favorable, water may migrate from the disordered cancer lattice into the ordered surrounding tissue.

If the coupling differential can be amplified—through applied frequency, infrared exposure, or other means of building EZ water in the healthy tissue—the extraction may intensify. The cancer would dehydrate from within through lattice mechanics rather than chemical intervention.

4.2 Frequency as Amplifier

Applied frequency in this proposal serves not to destroy the cancer directly but to strengthen the surrounding healthy lattice, increasing the differential that would drive extraction. Pollack's laboratory has demonstrated that infrared light builds EZ water. Health-promoting agents including turmeric, holy basil, and coconut water have been shown to expand EZ size in laboratory measurements (Sharma et al., 2018).

The frequency range relevant to negative effective gravity in water (4.1–4.85 Hz, Hu et al., 2013) may warrant investigation for dual function: modulating gravitational coupling while simultaneously affecting lattice dynamics in the surrounding tissue.

Additional frequency regimes are relevant. Extremely low frequency electromagnetic fields (50–60 Hz) have been shown to promote cancer cell proliferation (Kim et al., 2018), suggesting this range may strengthen rather than disrupt the cancer lattice. Tumor-specific frequencies identified by Barbault et al. (2009), ranging from 0.1 Hz to 114 kHz with 57–92% specificity to individual tumor types, may correspond to resonant modes of specific lattice degradation states and warrant study in this context.

Cancer cells are approximately 70% softer than healthy cells (Cross et al., 2007; Lekka et al., 2012). Mittelstein et al. (2020) demonstrated that low-intensity ultrasound at 500 kHz killed nearly every cancer cell in vitro while leaving healthy cells largely unharmed. The selective vulnerability arising from mechanical differences is consistent with the lattice framework's suggestion that degraded and intact lattice regions possess different resonant properties.

5. Connection to Existing Published Work

The following results exist independently in the published literature. Each was produced by researchers working within their domains. The proposed connections between them are the contribution of field synthesis.

5.1 Bioelectric Oncology

Cone (1970s) demonstrated that high electrical potential blocks mitosis in cancer cells. Levin (Tufts University) demonstrated voltage manipulation suppressing tumors in animal models. Nordenstrom (Swedish radiologist) observed tumor regression upon direct electron injection into tumors. These results suggest that voltage restoration may halt uncontrolled division.

5.2 Analog Gravity in Water

Hu et al. (2013) demonstrated negative effective gravity in water. Weinfurtner et al. (2011) demonstrated analog Hawking radiation in water. Torres et al. (2017) demonstrated rotational superradiance in water. These experiments confirm that water supports gravitational physics in laboratory conditions.

5.3 EZ Water and Health

Pollack (2024) connected EZ water deficiency to cancer cell voltage. Sharma et al. (2018) demonstrated that health-promoting agents expand EZ water. The Pollack Laboratory demonstrated that infrared light builds EZ water and that the EZ functions as a charge-separated system.

5.4 Frequency-Selective Effects on Cancer Cells

Mittelstein et al. (2020) demonstrated frequency-selective killing of cancer cells through low-intensity ultrasound. Barbault et al. (2009) identified tumor-specific frequencies. Porcelli et al. (2019) developed a thermodynamic model calculating cell-specific frequencies that inhibit proliferation through metabolic shift without affecting healthy cells.

5.5 The Water-Matrix Lattice

Holmes (2025a, 2025b) proposed that the asymmetric hydrogen bonding rule confirmed by Hunger et al. (2024) produces a continuous lattice constituting the physical substance through which gravitational and electromagnetic coupling operate, and derived the Schwarzschild metric from the refractive index profile of this lattice.

6. A Proposed Integrated Mechanism

The following sequence is offered as a research proposal, not a treatment protocol. Each stage requires investigation by qualified researchers before any conclusions can be drawn.

Stage 1—Lattice Strengthening: Applied infrared exposure, EZ-building agents, and/or frequency stimulation may increase EZ water content and voltage in healthy tissue surrounding a tumor. The bond strength differential between healthy and cancerous lattice regions may be maximized through these means.

Stage 2—Lattice Extraction: The strengthened surrounding lattice may draw water from the weakly ordered cancer lattice through the hydrogen bond network. The cancer may dehydrate, further reducing its voltage and division capacity.

Stage 3—Negative Gravity Detachment: Frequency-tuned resonance in the tissue water-matrix may induce negative effective gravitational coupling locally. Weakly coupled cancer cells and cancer stem cells may detach from surrounding tissue at the molecular scale while strongly coupled healthy lattice holds.

Whether these stages can be realized in biological systems, in what order they should be pursued, and what safety considerations apply are questions for oncologists, biophysicists, fluid dynamicists, and bioelectric researchers working in collaboration. The field synthesis contribution is identifying the architecture. The domain experts determine its viability.

7. Suggested Investigations

The following experiments are proposed for evaluation by qualified researchers in each relevant domain. They are offered as starting points, not definitive protocols.

7.1 Hydrogel analog experiments with ordered and disordered zones may demonstrate measurable water migration from disordered to ordered regions under applied infrared or frequency stimulation.

7.2 Voltage measurements in the ordered zone of such analogs may increase as water migrates inward, potentially confirming a lattice extraction mechanism.

7.3 Application of 4.1–4.85 Hz resonance to a two-phase hydrogel system with differential stiffness may produce selective displacement of the softer phase, potentially demonstrating the negative gravity detachment concept in a non-biological analog.

7.4 Cancer cell cultures exposed to infrared-strengthened surrounding media may exhibit accelerated water loss relative to controls, measurable through cell volume tracking.

7.5 Frequency sweeps across cancer cell cultures suspended in structured water may identify resonant frequencies at which cell detachment from substrate occurs preferentially in cancer cells versus healthy cells.

7.6 Combined application of EZ-building stimuli and low-frequency resonance to tumor spheroids embedded in healthy tissue analogs may produce measurable effects exceeding either intervention alone.

7.7 Cancer stem cell populations within treated spheroids may show differential vulnerability to the combined mechanism relative to bulk tumor cells, consistent with lower lattice integrity.

8. Discussion

This paper presents no proven conclusions. It presents connections between published results from multiple fields and proposes that those connections may define research pathways worth pursuing.

The institutional separation of oncology, fluid dynamics, water biophysics, bioelectric biology, and analog gravity has prevented integration of results that may, taken together, suggest intervention possibilities invisible from within any single domain. Whether those possibilities survive rigorous testing is a question for the qualified professionals in each field.

The framework does not require exotic technology. Hydrogel analogs are available in standard materials science laboratories. Frequency generation at 4.1–4.85 Hz requires standard signal equipment. Infrared exposure for EZ water building requires commercially available sources. Voltage measurement in cellular systems requires standard electrophysiology equipment.

What is required is the willingness to cross institutional boundaries. Field synthesis proposes that such crossing is not a threat to domain expertise but a multiplier of it. The PhD earned by every specialist in every relevant field is the foundation on which this synthesis rests. Without their work, there is nothing to connect.

This paper is placed in open science. No patent is sought. No commercial interest is held. No self-promotion is intended. The intent is singular: to lay a possible path for more capable people to evaluate and, if warranted, to walk.

9. Conclusion

Cancer cells may be weakly coupled nodes in the water-matrix lattice. Their low voltage, low EZ water content, and degraded hydrogen bonding may render them vulnerable to mechanisms inaccessible within conventional oncological frameworks alone: thermodynamically driven water extraction through the intact surrounding lattice, and selective detachment under locally induced negative effective gravitational coupling. The experimental basis for each individual component exists independently in the published literature across multiple fields. The integration through the water-matrix lattice framework and the identification of these connections as a research architecture are the contributions of this work.

The cancer may not need to be killed. It may need to be disconnected. The lattice may provide both the mechanism and the pathway. Whether this is so is a question for the professionals in each field, working together.

These ideas are offered freely to anyone with the capability and willingness to test them. They belong to no one. They are for everyone.

Medical Disclaimer

This document does not constitute medical advice, diagnosis, or treatment recommendation. Nothing presented here has been clinically tested for use in human cancer treatment. All ideas are theoretical proposals intended to inspire cross-disciplinary research by qualified professionals. No individual should alter any medical treatment based on the contents of this paper. Cancer patients should consult licensed medical professionals for all treatment decisions.

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Disclosures

*This work is placed in open science. No patent is sought. No financial interest is held. No self-promotion is intended. These ideas belong to no one. They are for everyone. Replication, extension, critique, and refutation are invited and welcomed.

*This is a meant be a sharing of ideas. None of the sources I cited in this research paper were involved in this process. This is G. Ramsey Holmes's work only.

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