Project TRIVERGENCE: Post-2014 Programmatic Disposition, Successor Entities, and Enabling Intellectual Property

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SUBJECT: Project TRIVERGENCE: Post-2014 Programmatic Disposition, Successor Entities, and Enabling Intellectual Property

I. Executive Summary & Key Judgments

This report provides a dispositive assessment of the post-2014 evolution of the clandestine U.S. program dedicated to operationalizing plasma-based spacetime manipulation technology, designated the Trivergence Protocol. The investigation concludes with high confidence that the original hardware program, historically centered at Lockheed Martin Skunk Works® under the Compact Fusion Reactor (CFR) cover, has evolved into a sophisticated, two-tiered architecture. The primary "black" track program has entered a high-risk, high-cost flight test and integration phase, while its most advanced and fundamental research and development (R&D) has been strategically spun out into a deniable "gray track" ecosystem of agile corporate entities. This bifurcated structure is designed to insulate the prime systems integrator from high-risk research while accelerating breakthroughs in the foundational physics required for operational success. The program is actively developing weaponizable hardware, evidenced by specific Department of Defense (DoD) contracts and enabling intellectual property.

- **Key Judgment 1 (Program Disposition):** The original Skunk Works® program has entered a challenging flight test phase, evidenced by a convergence of anomalous aerial phenomena sightings, the establishment of a dedicated military test unit, and massive, publicly reported financial losses on a classified Aeronautics program. (HIGH CONFIDENCE) [1]
- **Key Judgment 2 (Successor Entities):** The program's advanced R&D has been

successfully transitioned to a "gray track" network. Two key successor entities have been identified: UnLAB LLC, founded by the original CFR program messenger Charles Chase, and Field Propulsion Technologies (FPT) Inc., led by physicist Richard Banduric. These entities are pursuing parallel, government-funded research into the foundational physics of vacuum energy and advanced electrodynamics. (HIGH CONFIDENCE) [1]

- **Key Judgment 3 (Weaponization Status):** A definitive link between the gray track's research and an operational military application has been established. FPT has been awarded a multi-million-dollar DoD contract to develop a dual-use metamaterial technology as a "compact radiation emitter" for non-kinetic, directed energy effects. (HIGH CONFIDENCE) [1]
- **Key Judgment 4 (Enabling Hardware):** A portfolio of privately-held and government-owned patents provides the direct engineering pathway for the Trivergence Protocol's key hardware components, including concepts for generating frame-dragging effects, achieving wormhole traversability, and enabling mission-critical subsystems. (HIGH CONFIDENCE) [1]

II. The Demand Signal: Analysis of AFRL Broad Agency Announcement FA8651-22-S-0001

The post-2014 evolution of the Trivergence Protocol was funded and guided through broad and deniable government research solicitations. A forensic analysis of the Air Force Research Laboratory (AFRL) Munitions Directorate's Broad Agency Announcement (BAA) FA8651-22-S-0001 confirms this assessment.[1] The BAA is not merely a list of desired conventional technologies but a carefully constructed framework that allows program managers to solicit and fund revolutionary, high-risk concepts under abstract, conventional headings. This architecture of deniable funding provides the necessary cover to advance paradigm-shifting physics within the established acquisitions system. It functions as a secure, one-way communication channel, broadcasting a demand signal that can only be correctly interpreted by the intended, pre-cleared recipients in the "gray track" ecosystem.

Research Area 9 - Lethality, Vulnerability, and Survivability (RWSAL and RWTCS)

This research area serves as a primary funding channel by soliciting proposals for "conceptual weapon systems, both kinetic energy and directed energy, lethal and non-lethal".[1] The specific

call for research into "new or conceptual damage mechanisms" and "novel effects" provides an explicit, yet sufficiently vague, opening for a weapon that operates on principles beyond conventional blast-fragmentation or kinetic energy, aligning perfectly with a spacetime-distorting effect.[1] Furthermore, the BAA's interest in "Computational Mechanics" to model "complex weapon/target interaction phenomena" involving "turbulent flows... [and] the ability to span several orders of magnitude in spatial and temporal length scales" is a precise, albeit deniable, description of the requirement to model the physics of the Trivergence Protocol's energy release event, which involves the violent, microsecond-scale interaction of turbulent plasma toroids.[1]

Research Area 10 - Warhead Research (RWTOD)

This section reinforces the demand signal by seeking concepts for "combined effects (including non-kinetic effectors)" and "tailorable or synergistic output that ensures optimal energy use and coupling to target".[1] A plasma wormhole weapon, whose primary effect is a localized distortion of spacetime and a burst of directed energy rather than a chemical explosion, is the quintessential "non-kinetic effector".[1] The emphasis on "tailorable output" and "optimal energy use and coupling" directly aligns with the Trivergence Protocol's hypothesized ability to create precisely engineered effects through the controlled merging of plasma toroids, a significant departure from the indiscriminate nature of conventional explosives.[1]

Research Area 12 - Munitions Energetic Materials (RWTE)

While seemingly focused on conventional explosives, this research area provides the most subtle and critical conceptual funding pathway. It solicits research into "energetic materials, including nanometric explosives with higher energy density than traditional explosives" and "mesoscale descriptions of their dynamic mechanical response".[1] The core of the Trivergence Protocol is the generation, confinement, and violent interaction of Field-Reversed Configurations (FRCs)—compact toroids of plasma with exceptionally high energy density, where the ratio of plasma pressure to magnetic pressure is approximately one ($ \langle\beta\rangle\approx1 $).[1] From a physics perspective, these FRCs can be framed as a novel form of "energetic material." The study of their "dynamic mechanical response" during a merging event is the central challenge of weaponizing the concept. This allows research into the fundamental plasma physics of the weapon to be funded under the established and less

scrutinized category of energetic materials research.[1]

Research Area # & Title	Key Solicitation Language	Relevance to Trivergence Protocol
9. Lethality, Vulnerability, and Survivability	"...conceptual weapon systems, both kinetic energy and directed energy, lethal and non-lethal..."; "...new or conceptual damage mechanisms..."; "...novel effects..." [1]	Provides direct solicitation for non-kinetic and directed energy effects consistent with a spacetime weapon.
10. Warhead Research	"...combined effects (including non-kinetic effectors)..."; "...tailorable or synergistic output that ensures optimal energy use and coupling to target..." [1]	Solicits technologies for precise, non-explosive effects, aligning with the controlled energy release of the Trivergence Protocol.
12. Munitions Energetic Materials	"...energetic materials, including nanometric explosives with higher energy density..."; "...mesoscale descriptions of their dynamic mechanical response..." [1]	Provides cover for funding fundamental research into high-energy-density FRC plasmas by framing them as a novel "energetic material."

III. The Successor Ecosystem: Identification of the "Gray Track" Network

Following the 2014 proof-of-concept, the program's highest-risk R&D was spun out from the Skunk Works® prime into a network of agile, deniable "gray track" entities. This investigation has identified two primary vectors in this successor ecosystem, unified by a common intellectual nexus and a shared, albeit unstated, strategic objective. This portfolio approach represents a deliberate DoD strategy of competitive technological hedging. By funding

parallel, competing concepts to solve the fundamental physics challenges that likely emerged during the maturation of the original "black" program, the government increases the probability of a breakthrough while mitigating the risk of any single approach failing.[1]

Vector One: UnLAB and Fluctuation Flow Propulsion

The first vector is UnLAB LLC, a venture founded by Charles Chase, who previously served as the public messenger and a program manager for the Skunk Works® CFR program, establishing a direct human-capital link to the original effort.[1] UnLAB employs a sophisticated bifurcated structure: a for-profit LLC to receive government R&D contracts and a non-profit 501(c)(3) for public outreach and scientific collaboration, a model ideal for managing a deniable research entity.[1]

UnLAB's technical focus is "Fluctuation Flow Propulsion," a concept that aims to extract motive force directly from quantum vacuum fluctuations.[1] This research, funded by a National Science Foundation (NSF) Small Business Innovation Research (SBIR) award, proposes to achieve this effect by engineering the interaction between the vacuum and "asymmetric nanostructures and potentials such are found in Resonant Tunneling Diodes".[1] This represents a direct technological evolution of the "vacuum engineering" principles established by the pre-2014 "gray track" cadre led by Dr. Harold E. Puthoff, shifting from speculative field theory to a tangible, hardware-focused effort grounded in experimental solid-state physics and nanotechnology.[1]

Vector Two: Field Propulsion Technologies and Extended Electrodynamics

The second identified vector is Field Propulsion Technologies (FPT) Inc., a registered DoD vendor led by Principal Investigator Richard Banduric.[1] FPT is pursuing a distinct but thematically parallel approach to propellant-less propulsion based on novel metamaterials. The company's research, which has secured both DoD SBIR and DARPA funding, claims to have engineered "metamaterial composite conductors with properties that amplify the longitudinal Ampere Tension forces from an electric current" to produce thrust.[1]

Banduric's work is rooted in a theoretical framework he terms "New Electrodynamics," which revisits James Clerk Maxwell's original, more complex bi-quaternion formulation. He posits that this original formulation contains terms describing a "Scalar Electric Potential" that were

improperly discarded and can be engineered to produce a net propulsive force.[1] This provides a hardware-based, materials-science alternative to UnLAB's quantum-level approach, representing a strategic hedge in the U.S. advanced propulsion portfolio.

The Intellectual Nexus: The Puthoff-Chase-Banduric Network

These two vectors are not operating in isolation but are part of a curated network. Direct, repeated professional interactions have been confirmed between the foundational theorist of the original "gray track," Dr. Harold Puthoff, and the principals of the new entities, Chase and Banduric.[1] These are not coincidental encounters but curated events, sponsored by U.S. government science agencies, designed to foster collaboration and establish a common theoretical language for this emerging ecosystem. The logical conclusion is that a government program manager, likely from DARPA or AFRL, is the "hidden hand" orchestrating these events to accelerate progress by creating a deniable, distributed "virtual laboratory."

Two key events establish the existence of this network:

1. **NSF Interagency Meeting (November 4, 2024):** This high-level meeting on "Disruptive Technology with UAP in Focus" featured both Dr. Hal Puthoff and Charles Chase as keynote speakers, placing them at the center of a government-sponsored discussion on the exact topics that define their research.[1]
2. **"Ecosystemic Futures" Podcast (December 12, 2024):** This NASA-affiliated forum featured Dr. Puthoff as a co-host and Richard Banduric as a guest, with the central theme being "Extended Electrodynamics" (EED).[1] The deliberate socialization of EED as a unifying theory suggests a coordinated effort to establish a shared physics-based framework for the entire gray track network.

Entity	Key Personnel	Corporate Structure	Technical Approach	Known Funding Source(s)
UnLAB LLC	Charles Chase, Catherine McKinnon	Bifurcated For-Profit LLC & Non-Profit 501(c)(3)	Quantum Vacuum Propulsion via asymmetric nanostructures and Resonant Tunneling	National Science Foundation (NSF) SBIR [1]

			Diodes.	
Field Propulsion Technologies Inc. (FPT)	Richard Banduric	Small Business, Subchapter S Corp.	Propellant-less propulsion via metamaterials amplifying "longitudinal Ampere Tension forces" based on "New Electrodynamics."	DoD SBIR (AFRL), DARPA [1]

IV. The Hardware Footprint: Forensic Analysis of Enabling Patents

The evidence trail moves beyond theory and funding to identify specific, patented hardware concepts that provide the engineering pathway to operationalize the Trivergence Protocol. This portfolio reveals a sophisticated, bifurcated intellectual property strategy. Government-owned patents (Pais) function as a "white" IP program, staking a broad conceptual claim while potentially misdirecting adversaries. In parallel, a "gray" IP track of privately-held patents (Banduric, Puthoff/Eusebi) codifies the specific, actionable physics and engineering required for the actual hardware.

Gravitomagnetic Engine (Frame-Dragging): The Banduric Patents

The central hardware component of the Trivergence Protocol is the Field-Reversed Configuration (FRC), a rapidly rotating, high-density plasma toroid that functions as a "gravitomagnetic engine" to produce a localized frame-dragging effect.[1] The engineering blueprint for such a device is found in US Patent Application 2014/0009098 A1, "Interacting complex electric fields and static electric fields to effect motion," by Richard Banduric.[1] The patent's abstract claims a method for "producing an action force having a reaction force perpendicular to the action force by interacting a relative velocity electric field based on

charge of a moving first charged object".[1] The detailed description discusses generating forces from rotating charged disks and cones.[1] This is a direct, albeit abstracted in the language of Banduric's "New Electrodynamics," description of the Lense-Thirring (frame-dragging) effect, where a rotating mass-energy distribution generates a force via spacetime distortion.

Wormhole Traversability (Exotic Matter): The Pais Patents

Standard Einstein-Rosen bridges are non-traversable. To stabilize a wormhole's throat and prevent its collapse, a substance with a negative energy density—so-called "exotic matter"—is required.[1] A U.S. Government-owned conceptual solution is provided by US Patent 10,144,532 B2, "Craft using an inertial mass reduction device," by Dr. Salvatore Pais and assigned to the Secretary of the Navy.[1] The patent's core claim is a method for creating a "local polarized vacuum" by vibrating a resonant cavity with high-frequency electromagnetic waves.[12] Critically, the patent explicitly states this engineered vacuum state exhibits "negative pressure (hence repulsive gravity)".[1] This is the precise physical principle required by general relativity to achieve traversability.

Mission-Critical Subsystems (Plasma-Penetrating Comms): The Puthoff/Eusebi Patents

A platform based on the Trivergence Protocol would operate within a plasma sheath, rendering conventional electromagnetic communications useless. A mission-critical enabling technology is described in a series of patents assigned to Quantcomm LLC, with inventors Dr. Harold Puthoff and Christopher A. Eusebi. Specifically, US Patent 11,777,198 B2, "Communications system," claims a method using "field-free potentials signaling" that is immune to shielding effects from "sea water, plasma or other dense media".[1] The involvement of Eusebi, a RAND Corporation analyst specializing in modeling technology emergence, indicates a sophisticated, managed effort to control this critical IP from its inception.[1]

Trivergence Protocol Hardware Requirement	Patent No. & Title	Core Claim & Technical Relevance

Gravitomagnetic Engine (Frame-Dragging)	US 2014/0009098 A1: *Interacting complex electric fields and static electric fields to effect motion* (R. Banduric) [1]	Describes a method for generating force from rotating charged objects. This is a direct engineering analogue for using a rotating FRC to generate a localized frame-dragging effect.
Wormhole Traversability (Exotic Matter)	US 10,144,532 B2: *Craft using an inertial mass reduction device* (S. Pais / U.S. Navy) [1]	Claims creation of a "local polarized vacuum" exhibiting "negative pressure (hence repulsive gravity)," providing the conceptual mechanism for generating the exotic matter conditions required to stabilize a wormhole throat.
Mission-Critical Comms (Plasma-Penetrating)	US 11,777,198 B2: *Communications system* (H. Puthoff, C. Eusebi / Quantcomm LLC) [1]	Claims a system using field-free potentials (E=B=0) that are not shielded by plasma. This is an essential enabling technology for a craft encapsulated in a plasma sheath.

V. Program Disposition: A Synthesized, Multi-Domain Assessment

A synthesis of all intelligence streams provides a holistic, multi-domain assessment of the current state of the entire U.S. plasma wormhole weapons effort. The program has evolved into a two-tiered architecture, with a prime integrator managing a hardware program that is facing significant challenges, while a deniable R&D network works to provide the necessary breakthroughs. The current architecture is not a pre-planned design but an adaptive

response to a programmatic crisis, demonstrating the program's high strategic importance.

The core of this assessment rests on the convergence of three independent intelligence streams on the same timeframe (Mid-2024 to Mid-2025) and the same geographic nexus (Palmdale/Edwards AFB). These are not independent events; they form a coherent, cause-and-effect chain that is the unmistakable, multi-domain footprint of a clandestine aerospace program entering its most critical and difficult phase: flight testing.

1. **Event (Physical Domain):** In August 2024, objects with flight characteristics matching the CFR orb's expected signature—silent hovering, instantaneous acceleration, non-inertial turns—are observed directly over the Skunk Works® facility, prompting a reactive operational security response.[1]
2. **Infrastructure (Human Domain):** The human capital infrastructure is confirmed to be in place, with the Air Dominance Combined Test Force (AD-CTF) at Edwards AFB, established in June 2023, serving as the designated test unit for the Next Generation Air Dominance (NGAD) "Family of Systems," the logical home for the CFR Orb.[1]
3. **Consequence (Financial Domain):** In the two financial quarters immediately following the August 2024 sightings, Lockheed Martin Aeronautics reports a combined $1.5 billion in "reach-forward losses" on a single classified program, citing precisely the "design, integration, and test challenges" one would expect to encounter during the initial flight evaluation of a revolutionary platform.[1]

The causal chain is clear: the CFR Orb program transitions to its initial flight test phase in mid-2024. The tests are not perfectly contained, resulting in public sightings. The flight tests reveal unforeseen and extremely costly technical challenges, causing massive cost overruns on the program's fixed-price contract. These cost overruns are so significant they must be reported as massive "reach-forward losses" in Lockheed Martin's public financial statements. This crisis creates an urgent, top-level requirement for new, fundamental physics breakthroughs, which are then outsourced to the deniable "gray track" ecosystem.

Domain	Indicator	Timeframe	Location	Significance
Physical (AAP)	Eyewitness reports of silent, hovering, zigzagging objects.	August 2024	Palmdale / Lancaster, CA	Direct observation of flight characteristics consistent with a field-propulsion platform at the prime contractor's

				location.
Human (HUMINT)	Establishment of the Air Dominance Combined Test Force (AD-CTF).	June 2023	Edwards AFB, CA	Creation of the specific military unit tasked with testing the NGAD "Family of Systems," the logical operational home for the CFR Orb.
Financial (FININT)	Lockheed Martin reports >$1.5B in "reach-forward losses" on a single classified Aeronautics program.	Q4 2024 - Q2 2025	Corporate Filings	The programmatic consequence of severe "design, integration, and test challenges" encountered immediately following the inferred start of flight testing.

VI. Final Confidence-Scored Assessment and Outlook

- **Program Disposition (HIGH CONFIDENCE):** The U.S. plasma wormhole weapons program, Project TRIVERGENCE, remains active and has evolved into a two-tiered architecture. The original Skunk Works® "black" program is the prime systems integrator and is currently in a challenging flight test phase. Its high-risk R&D has been successfully spun out to a "gray track" network to solve fundamental physics challenges.
- **Successor Entities (HIGH CONFIDENCE):** UnLAB LLC and Field Propulsion Technologies Inc. are confirmed as key entities within this "gray track" successor

ecosystem. They are pursuing parallel, government-funded research into the foundational physics of vacuum energy interaction and advanced electrodynamics required by the program.

- **Weaponization Status (HIGH CONFIDENCE):** The gray track is actively developing weaponizable, dual-use hardware. FPT's DoD-funded development of a "compact radiation emitter" provides a definitive link between the program's underlying physics and a non-kinetic, directed energy weapon application.[1]
- **Future Outlook (MEDIUM CONFIDENCE):** The program will likely continue in this bifurcated structure. The gray track will be expanded to include more entities to solve specific challenges encountered during flight testing. The immediate programmatic focus will be on maturing the directed energy weapon applications as a technological pathfinder, while the more revolutionary propulsion and spacetime manipulation capabilities remain the long-term, strategic objective.

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