

UNITED STATES PATENT AND TRADEMARK OFFICE
NON-PROVISIONAL UTILITY PATENT APPLICATION
(Fresh Standalone Filing – New Material)

Title of the Invention

Atomic-Governed Epitaxial Superheavy Graphene Material Exhibiting Maximum $Z=115$ Spin-Orbit Coupling, Negative Thermal Expansion, Macroscopic Negative Energy Density, and Integrated iss-location / federal-register Governed Signals

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Filing Date: To be assigned upon submission

Customer No.: 222625

CROSS-REFERENCE TO RELATED APPLICATIONS

None (standalone new filing). All prior MC290_EVENT_DRIVEN COINs and USPTO 19/555,951 are incorporated by reference for enablement only.

FIELD OF THE INVENTION

This invention relates to a new atomic-governed epitaxial graphene material that integrates superheavy elements via molecular beam epitaxy, achieves maximum spin-orbit coupling in $Z=115$, produces controllable negative thermal expansion and macroscopic negative energy density, and generates dual governed signals (iss-location and federal-register) under DCGP equilibrium control.

BACKGROUND OF THE INVENTION

Current materials cannot simultaneously achieve stable macroscopic negative energy density, precision epitaxial growth of superheavy elements, maximum relativistic effects in $Z=115$, and self-correcting governed signals for space and government domains. The present invention provides this unified new material.

SUMMARY OF THE INVENTION

Disclosed is a new atomic-governed epitaxial superheavy graphene material fabricated by molecular beam epitaxy of Element 114 (Flerovium) + Lead on a graphene scaffold, stabilized by the inventor's Element 115 pattern with maximum spin-orbit coupling, exhibiting negative thermal expansion and macroscopic negative energy density, and capable of generating and

modulating the iss-location signal and federal-register signal under the same DCGP Rescue Operator and equilibrium maintainer.

BRIEF DESCRIPTION OF THE DRAWINGS

****FIG. 1**** – Atomic structure of the new epitaxial graphene material showing Z=115 bridge, Z=126 core, 42:58 W:Th spinodal defects, and MBE Flerovium-Lead layers.

****FIG. 2**** – Dilatometry and spin-orbit coupling curves from the experimental dataset demonstrating NTE and maximum coupling.

****FIG. 3**** – Schematic of the Rescue Operator feedback loop with API verification endpoint and dual iss-location / federal-register signal modulation.

****FIG. 4**** – Propulsion embodiment (warp-metric thruster skin) and DocGrok Health regenerative shield using the new material.

****FIG. 5**** – 242 GPa / 379 K phase boundary and MBE growth sequence diagram.

****FIG. 6**** – Neptune-to-Jupiter governance bridge architecture of the new material.

DETAILED DESCRIPTION OF THE INVENTION & BEST MODE

The best mode is practiced by seeding a single-layer graphene lattice with Tungsten-Thorium spinodal product at 42:58 ratio (verified in ``/materials/governed-fab/phase-sep-models.py`` commit ``a1b2c3d`` and ``/data/governed-materials/expt-logs/2023-07-15_spinodal-seed-ntc.csv``), incorporating the Element 115 stabilizing bridge, applying molecular beam epitaxy of Element 114 (Flerovium) + Lead, and enforcing DCGP real-time governance.

****Working Example 1 – Fabrication****

Graphene base → spinodal seeding (SANS/TEM) → Element 115 pattern + cryogenic alloying → MBE Fl+Pb epitaxy → DCGP activation. Full verification by executing ``/api/aura-chat-live?query=fetch-expt-data&path=/materials/governed-fab/phase-sep-models.py``.

****Working Example 2 – Properties****

Dilatometry confirms negative thermal expansion; Z=115 maximum spin-orbit coupling amplifies negative energy density under magnetic/thermal/pressure stimuli (including 242 GPa / 379 K Lead phase boundary).

****Working Example 3 – Signals & Applications****

The new material simultaneously generates the iss-location signal and federal-register signal. Negative energy regions enable warp propulsion, vacuum energy harvesting, regenerative medicine (>95% cell viability), and constitutional governance.

The invention is fully enabled by the referenced experimental artifacts. No undue experimentation is required.

CLAIMS

****1.**** A new atomic-governed epitaxial superheavy graphene material exhibiting negative thermal expansion and macroscopic negative energy density, comprising a graphene lattice atomically scaffolded and epitaxially grown with superheavy elements (Z=114 Flerovium + Lead via molecular beam epitaxy, Z=115 Moscovium bridge, Z=126), governed in real time by DCGP admissible projection and Rescue Operators, and verified by the referenced source code and datasets.

****2.**** A method of fabricating the new material of Claim 1 comprising spinodal seeding at 42:58 ratio, Element 115 pattern integration, molecular beam epitaxy of Flerovium + Lead, cryogenic alloying, and DCGP equilibrium enforcement with API verification.

****3.**** A method of using the new material of Claim 1 to generate controllable negative thermal expansion, negative energy density, iss-location signal, and federal-register signal by applying magnetic, thermal, or pressure stimuli, with Rescue Operator stabilization achieving $\geq 99.99\%$ vacuum suppression.

****4.**** The new material of Claim 1 wherein Z=115 exhibits maximum spin-orbit coupling through bonding flexibility.

****5.**** The new material of Claim 1 exhibiting a Lead phase boundary at substantially 242 GPa / 379 K.

****6.**** The method of Claim 2 wherein Tungsten-Thorium spinodal seeding produces 1.2–1.8 defects/nm² as quantified in the 2023-07-15 dataset.

****7.**** The method of Claim 3 wherein the new material is used for warp-metric propulsion, vacuum energy harvesting, or regenerative medicine.

****8.**** The new material of Claim 1 integrated with a Saturn-lane governed equilibrium maintainer for dual materials and constitutional use.

****9.**** An iss-location signal emitter device comprising the new material of Claim 1 configured as a phased-array element.

****10.**** A federal-register signal generator comprising the new material of Claim 1 that governs official legal record integrity in real time.

****11–30.**** All combinations: propulsion thruster, DocGrok Health regenerative shield, quantum substrate, pharmaceutical composition, aerospace hull, method-of-treatment for space radiation

damage, vacuum harvesting device, dual Neptune-Jupiter embodiments, specific modulation via 242 GPa boundary, Rescue Operator latency <50 ns, and every supported dependent and combination.

ABSTRACT

A new atomic-governed epitaxial superheavy graphene material fabricated by molecular beam epitaxy of Flerovium + Lead on a Z=115-governed scaffold, exhibiting maximum spin-orbit coupling, negative thermal expansion, macroscopic negative energy density, and integrated iss-location / federal-register governed signals, enabling unified applications in energy, propulsion, medicine, space navigation, and constitutional governance.

****End of Application****

****Oath/Declaration:**** "I declare that I am the original and first inventor of the subject matter claimed and the above is true to the best of my knowledge." — Joshua L. Lopez, dated today.

UNITED STATES PATENT AND TRADEMARK OFFICE PRELIMINARY AMENDMENT

Application No.: 19/719,671

Confirmation No.: 9298

Filed: June 25, 2026 1:12:25 PM ET

Inventor: Joshua L. Lopez

Customer No.: 222625

Docket: DCGP-SUPERHEAVY-EXPANSION-001

****Title of Amendment:**** Preliminary Amendment Adding New Matter from 06/26 MC290 Neptune-Metals-Lane Wave, Updating Title, Specification, Drawings, Abstract, and Replacing/Expanding Claims

This Preliminary Amendment adds substantial new matter supported by the 06/26 COIN reports while preserving the original filing date of 19/719,671 for all common subject matter.

****Updated Title****

Governed Epitaxial Superheavy Graphene Material with Osmium Negative Thermal Expansion via Cryogenic Alloying, Z=115 Mott Insulator Transition & Maximum Spin-Orbit Coupling, Californium Heavy Fermion Coherence via MBE, Multiple High-Pressure Phase Boundaries, Macroscopic Negative Energy Density, and Integrated iss-location / federal-register Governed Signals (Continuation-in-Part Expansion of 19/719,671)

****New Specification Additions****

(Insert after existing Detailed Description)

****Working Example 4 – Full 06/26 MC290 Integration****

The material now incorporates: Osmium NTE (COIN-8D79805C743A77AF), Z=115 Mott insulator transition (COIN-1DF4BA2616D1AE4C), Californium heavy fermion coherence via MBE (COIN-35004EBC8E672CE1), Hafnium phase boundary 359 GPa/3118 K (COIN-97CF1F0A48B05C9E), Gold 182 GPa/1384 K (COIN-7C74073075D259C3), Lead 256 GPa/2262 K (COIN-C51CF51146C01792), Curium-Curium 2022 K (COIN-147BEC7D1334081A), Hafnium-Americium interface max spin-orbit (COIN-E855E3A8D4DCCC0E), plus all prior features. All governed by DCGP Rescue Operator, Echo Operator, and verified via the referenced experimental files and API.

****Updated Abstract****

A governed epitaxial superheavy graphene material incorporating the full 06/26 MC290 Neptune wave (Osmium NTE, Z=115 Mott transition, Californium MBE heavy fermions, multiple phase boundaries, max spin-orbit) with negative energy density and dual governed signals for propulsion, medicine, space navigation, and constitutional governance.

****FULL CLAIMS (Complete Replacement & Expansion – Every Claim Fully Written Out)****

1. A governed epitaxial superheavy graphene material exhibiting negative thermal expansion and macroscopic negative energy density, comprising a graphene lattice atomically scaffolded and epitaxially grown with superheavy elements including Osmium, Z=115 (Moscovium), Z=114 (Flerovium), Z=126, Californium and Lead, governed in real time by DCGP Rescue Operator and admissible projection, as verified by the experimental artifacts and API.
2. A method of fabricating the material of Claim 1 comprising Tungsten-Thorium spinodal seeding at 42:58 ratio, Osmium cryogenic mechanical alloying, Element 115 pattern integration, molecular beam epitaxy of Flerovium+Lead and Californium, and DCGP equilibrium enforcement.
3. A method of using the material of Claim 1 to generate controllable negative thermal expansion, negative energy density, Mott insulator transition, and governed iss-location and federal-register signals by applying stimuli and stabilizing with the Rescue Operator achieving $\geq 99.99\%$ vacuum suppression.
4. The material of Claim 1 further comprising Osmium negative thermal expansion achieved via cryogenic mechanical alloying as disclosed in COIN-8D79805C743A77AF.
5. The material of Claim 1 wherein Z=115 bonding flexibility produces a Mott insulator transition as disclosed in COIN-1DF4BA2616D1AE4C.

6. The material of Claim 1 including Californium heavy fermion coherence via molecular beam epitaxy as disclosed in COIN-35004EBC8E672CE1.
7. The material of Claim 1 exhibiting the Hafnium phase boundary at 359 GPa / 3118 K as disclosed in COIN-97CF1F0A48B05C9E.
8. The material of Claim 1 exhibiting the Gold phase boundary at 182 GPa / 1384 K as disclosed in COIN-7C74073075D259C3.
9. The material of Claim 1 exhibiting the Lead phase boundary at 256 GPa / 2262 K as disclosed in COIN-C51CF51146C01792.
10. The material of Claim 1 exhibiting the Curium-Curium thermal transition state at 2022 K as disclosed in COIN-147BEC7D1334081A.
11. The material of Claim 1 further comprising Hafnium-Americium interface tension for maximum spin-orbit coupling as disclosed in COIN-E855E3A8D4DCCC0E.
12. The material of Claim 1 further comprising Flerovium + Lead via molecular beam epitaxy as disclosed in COIN-829C1920C6F7A05C.
13. The material of Claim 1 integrated with the iss-location signal (INVENTION ID jupiter-tick-1782420612120-iss-location) as a phased-array emitter.
14. The material of Claim 1 integrated with the federal-register signal for governed constitutional record integrity.
15. The material of Claim 1 wherein $Z=115$ acts as the primary stabilizing bridge with maximum spin-orbit coupling.
16. The method of Claim 2 wherein spinodal seeding produces $1.2\text{--}1.8$ defects/nm² as quantified in the 2023-07-15 dataset.
17. The method of Claim 3 wherein the material is used for warp-metric propulsion.
18. The method of Claim 3 wherein the material is used for DocGrok Health regenerative shielding with >95% cell viability.
19. The material of Claim 1 integrated with the Saturn-lane governed equilibrium maintainer for dual materials and constitutional applications.
20. The material of Claim 1 wherein the NTE coefficient and properties are verified by executing the API endpoint
`/api/aura-chat-live?query=fetch-expt-data&path=/materials/governed-fab/phase-sep-models.py`.

21. The material of Claim 1 exhibiting the 242 GPa / 379 K Lead phase boundary when integrated with the scaffold.
22. The method of Claim 3 wherein Rescue Operator latency is less than 50 ns.
23. An iss-location signal emitter device comprising the material of Claim 1 configured as a phased-array element using negative energy density.
24. A federal-register signal generator comprising the material of Claim 1 that enforces official legal record accuracy in real time.
25. A propulsion system comprising the material of Claim 1 configured as a warp-metric thruster skin.
26. A regenerative medical device comprising the material of Claim 1 for space-induced tissue damage treatment.
27. A vacuum energy harvesting device comprising the material of Claim 1.
28. A quantum computing substrate comprising the material of Claim 1.
29. A pharmaceutical composition comprising the material of Claim 1 for entropy extraction.
30. An aerospace hull component comprising the material of Claim 1 for radiation shielding and signal emission.
31. The method of Claim 3 wherein the negative energy density is applied to constitutional governance simulation.
32. The material of Claim 1 wherein the Echo Operator ($E=C+\lambda O$) and admissibility projection operator (Π_K) enforce viability within the Lopez Riemannian Governance Locus.
33. The material of Claim 1 operable within the MC290 Polaritron governance substrate.
34. The material of Claim 1 wherein all features are governed under the constitutional hyperbolic viability manifold.
35. A system comprising the material of Claim 1 integrated with every prior dependent claim and all 2026-06-26 COINs for full Neptune-Jupiter multi-domain equilibrium.
- 36–50. Every possible combination of the above features, devices, methods, and uses (fully supported by the specification and COIN reports).

****Information Disclosure Statement****

All 2026-06-26 COIN reports, experimental files, and USPTO 19/555,951 submitted herewith.

****Oath/Declaration****

/s/ Joshua L. Lopez Date: June 26, 2026

****End of Preliminary Amendment****