1 DEVICES FOR ENERGY EXTRACTION FROM $\mathcal{H}$ AND ROOM-TEMPERATURE SUPERCONDUCTIVITY: ENGINEERING PROGRAM OF ODTOE

1.1 From Coherent Conductivity Resonator to New Designs and Materials

Pankratov Anton Sergeevich

Independent Researcher, Kazan, Russia

E-mail: anton.s.pankratov@gmail.com · ORCID: 0009-0002-4870-2995

UDC 537.311 + 538.945 + 530.145 + 167.7

1.1.1 ABSTRACT

On the basis of ODTOE papers on electricity as directed action of the observation operator [A], the atom as a strange loop [B], and the number π as a structural invariant [C], designs for four devices for energy extraction from the field of potential states $\mathcal{H}$ are proposed. Each device realizes one or more of five efficiency enhancement mechanisms for the channel $\hat{O} : \mathcal{H} \to \mathcal{C}$ (coherence, resonance, recursion, criticality, collectivity). Specific chemical compositions and crystal structures of candidates for room-temperature superconductors are proposed, selected according to three ODTOE criteria: triadic architecture of the lattice, spiral phase correction δ_π, and resonance frequency f_{res} in the terahertz range. All predictions are formulated as falsifiable experiments.

Keywords: coherent resonator, superconductivity, room temperature, ODTOE, strange loop, spiral gap, triadic architecture, terahertz.

1.2 I. THEORETICAL FOUNDATION: THREE SOURCES

1.2.1 1.1. From the Electricity Paper [A]: Identity of Observation and Electricity

Established [A, section X]: **observation ≡ electricity**. Electric current is the coherent displacement of projections of the single operator $\hat{O}$ through $\mathcal{C}$. An act of observation is the action of the same $\hat{O} : \mathcal{H} \to \mathcal{C}$. This is one operator described at two levels.

Consequence: *organizing coherent operator flux = generating current*.

1.2.2 1.2. From the Atom Paper [B]: Spiral Gap $\delta\Psi$

Each iteration of the strange loop $\Phi(\Psi^*) = \Psi^* + \delta\Psi$ generates a directed increment $\delta\Psi \neq 0$ due to transcendence of π ($\pi \neq 3$). Energy of one iteration [A, formula XII.6]:

$$P_{\delta\Psi}^{(1)} = (\pi - 3)^2 \cdot \frac{E_{\text{loop}}^2}{2\pi\hbar} \tag{I.1}$$

For hydrogen atom ($E_{\text{loop}} \sim 13.6$ eV): $P^{(1)} \sim 1.44 \times 10^{-4}$ W. In equilibrium, gaps $\delta\Psi_i$ are randomly oriented and cancel each other. The task is to *align* part of the phases.

1.2.3 1.3. From the π Paper [C]: Two Structural Invariants

π governs continuous phase dynamics (rotations, oscillations). φ governs discrete iterative dynamics (stability, growth). Both emerge from Banach's theorem through a single fixed-point mechanism.

Engineering consequence: the device must use *both* invariants—π (geometry of rotations) and φ (proportions of structure).

1.3 II. DEVICE 1: COHERENT CONDUCTIVITY RESONATOR (CCR) — ENHANCED DESIGN

1.3.1 2.1. Basic Design [A, section XI]

Three THz radiators with triadic geometry:

$$\Delta\phi_{12} = \frac{2\pi}{3} + \frac{(\pi - 3)}{3} \cdot 2\pi \approx 137.2° \tag{II.1}$$

$$\Delta\phi_{23} = \Delta\phi_{31} \approx 111.4° \tag{II.2}$$

Resonance frequency: $f_{\text{res}} = \frac{v_F}{a} \cdot \frac{(\pi-3)}{2\pi}$ [A, formula XI.4].

Phase shifts: $\phi_1 = 0$, $\phi_2 = 2\pi/3$, $\phi_3 = 4\pi/3 + \delta_\pi$, where $\delta_\pi = 2\pi(\pi - 3)/3 \approx 0.2963$ rad.

1.3.2 2.2. Enhancements Based on Synthesis [A]+[B]+[C]

Enhancement 1: φ-antenna geometry.

The angle $137.2°$ is close to the golden angle ($360°/\varphi^2 \approx 137.5°$) with accuracy of $0.3°$ [A, formula XI.2]. We propose *exact* golden geometry:

$$\Delta\phi_{\text{golden}} = \frac{360°}{\varphi^2} = 137.508° \tag{II.3}$$

Two radiators at the golden angle, the third completing ($360° - 2 \times 137.508° = 84.984°$). This *breaks* triadic symmetry—and this is *correct*: the spiral gap $\delta\Psi$ *breaks* exact triadicity ($\pi > 3$, not $= 3$).

Enhancement 2: Cascaded Recursion (Φ^n).

Instead of one layer of radiators, *three nested* layers reproducing recursive self-similarity [B, section IV]:

```
Layer 0 (outer): three THz radiators, fres = 98 THz (Cu)
Layer 1 (middle): three THz radiators, fres = 98 THz × φ
Layer 2 (inner): three THz radiators, fres = 98 THz × φ²
```

Three levels of recursion = $3 \times 3 = 9$ radiators = self-observation (the number 9, [10]). Each level enhances the coherence of the previous one.

Enhancement 3: Feedback (ι).

The output current of the CCR is fed to a *coherence detector* (measurement of S) which adjusts the phase shifts of the radiators in real time:

```
THz-radiators → sample → current → detector S → phase correction → THz-ra
                                    ↑
                                    └──────────── loop Φ ────────────
```

This closes the loop $\Phi = \iota \circ \hat{O}$: the device *observes its result* and *recalibrates*. Transition from 666 (unconscious cycle) to 9 (self-observation).

1.3.3 2.3. Predictions of Enhanced CCR

Parameter	Basic CCR [A]	Enhanced
Number of radiators	3	9 (three levels of 3)
Geometry	Triadic ($120° + \delta_\pi$)	φ-golden (137.5°)
Feedback	No	Yes (ι via detector S)
Expected amplification	$Q^4 \sim 4 \times 10^5$	$Q^4 \times \varphi^{2\times3} \sim 10^7$

1.4 III. DEVICE 2: SPIRAL VACUUM RESONATOR (SVR)

1.4.1 3.1. Principle

Dynamic Casimir effect: a moving mirror in vacuum generates *real* photons from vacuum fluctuations [Wilson et al., 2011]. Through ODTOE: a moving operator $\hat{O}(t)$ "extracts" a quantum from $\mathcal{H}$.

We propose: not a moving mirror (mechanically complex), but a **spiral resonance cavity** in which an electromagnetic wave *rotates* in a spiral with phase correction δ_π.

1.4.2 3.2. Design

```
SPIRAL VACUUM RESONATOR
│
├── Cavity: toroidal (S¹ × D²), length L = n × λ_res
│   Inner surface: superconducting (Nb₃Sn or YBCO)
│
├── Spiral channel: along the torus with offset
│   Pitch: δ = L × (π - 3)/(2π) per revolution
│   This provides phase correction δπ at each turn
│
├── Pump: external THz source at frequency f_res
│   Injects wave into spiral channel
│
├── Output: receiver on inner wall of torus
│   Detects additional photons born from vacuum
│
└── Key: spirality of channel modulates boundary conditions
    This effectively realizes "moving mirror" without motion
```

1.4.3 3.3. Physics of the Process

The spiral channel means: a wave traversing the torus encounters *slightly different* boundary conditions at each revolution (shift by δ_π). For the wave this is equivalent to a *slowly moving mirror*. Parametric change of boundary conditions generates photons from vacuum (dynamic Casimir effect).

Spirality along $\delta_\pi = 2\pi(\pi - 3)/3$ is *not arbitrary*. This is the exact spiral correction of the strange loop [A, C]. Each revolution = one iteration of Φ. Each iteration generates $\delta\Psi$ = an elementary quantum of directed action with energy $\propto (\pi - 3)^2$.

1.4.4 3.4. Power Estimate

Quality factor of superconducting torus: $Q_{\text{SRF}} \sim 10^{10}$ (achieved for niobium resonators at CERN). Number of wave revolutions before decay: $N_{\text{rev}} \sim Q_{\text{SRF}}/(2\pi) \sim 10^9$.

Each revolution generates $(\pi - 3)^2 \approx 0.02$ "quanta" of Casimir type. In total: $N_{\text{photons}} \sim 0.02 \times 10^9 \sim 2 \times 10^7$ photons per decay period.

At $f_{\text{res}} \sim 100$ THz (IR): $E_{\text{photon}} \sim 0.4$ eV. Power: $P \sim 2 \times 10^7 \times 0.4 \times 1.6 \times 10^{-19}/\tau \sim$ nanovatts.

Negligible—but *measurable* and *principled*: these are real photons born from $\mathcal{H}$ without external source (after initial pump).

1.5 IV. DEVICE 3: TRIADIC PHASE GENERATOR (TPG)

1.5.1 4.1. Principle: Tesla's Three-Phase Current + Spiral Correction

Tesla invented three-phase current: three sinusoids, shifted by $2\pi/3$. This is $= 120°$ between phases. Creates a rotating field.

Through ODTOE [A]: three phases = three components of triadic architecture. But the exact shift is not $120°$, but $120° + \delta_\pi/3 \approx 120° + 5.66° = 125.66°$ (spiral correction). Standard three-phase current *does not contain* spiral correction—and therefore creates *circular* (closed) rotation. With correction δ_π—*spiral* (non-closed) rotation.

1.5.2 4.2. Design

```
TRIADIC PHASE GENERATOR
│
├── Three windings with non-standard angular separation:
│   Winding A: 0°
│   Winding B: 137.5° (golden angle, ≈ 2π/3 + δπ)
│   Winding C: 222.5° (= 360° - 137.5°)
│
├── Rotor: spiral shape (not cylinder, but spiral)
│   Pitch: δ ▫ (π - 3)
│   Material: copper with cobalt inclusions (magnetic anisotropy)
│
├── Stator: three blocks at golden angle
│
└── Expected effect:
    Rotating field does NOT close exactly → spiral gap δΨ
    → each rotor revolution generates δE ▫ (π - 3)²
    → additional EMF on top of standard induction
```

1.5.3 4.3. Prediction

A generator with golden-angle winding separation should demonstrate *excess* EMF $\Delta\mathcal{E}/\mathcal{E} \sim (\pi - 3)^2 \approx 2\%$ compared to an identical generator with standard $120°$ separation.

Test: two identical generators, one with $120°$, the other with $137.5°$. Measure EMF at identical rotations. Difference $\sim 2\%$—ODTOE prediction.

1.6 V. DEVICE 4: BIOMIMETIC COHERENT CONVERTER (BCC)

1.6.1 5.1. Principle: Photosynthesis as Prototype

Photosynthesis is the most efficient known channel $\mathcal{H} \to \mathcal{C}$: quantum coherence of energy transfer ~95% efficiency [Engel et al., 2007]. Uses three mechanisms of five: coherence

(quantum transfer), resonance (tuning to solar spectrum), recursion (Calvin cycle).

1.6.2 5.2. Design

Artificial “chloroplast”:

```
BIOMIMETIC COHERENT CONVERTER
│
├── Antenna complex:
│   Quantum dots (CdSe/ZnS) in triadic geometry
│   Three dot sizes → three resonance frequencies (RGB)
│   Angular separation: golden angle 137.5°
│
├── Transport channel:
│   Chain of porphyrin molecules (chlorophyll analogue)
│   Distance between molecules: r = r₀ × φ (increasing)
│   Provides φ-scaling of coherent transfer
│
├── Reaction center:
│   Nano-electrode (graphene + MoS₂)
│   Converts coherent excitation to electric current
│
├── Feedback:
│   Piezoelectric element, adjusting antenna
│   distances based on output current
│
└── Medium:
    Biopolymer matrix (chitosan/alginate)
    at temperature near phase transition (273-277 K for water)
    → criticality: maximum sensitivity to H
```

1.6.3 5.3. Why This Could Work

Quantum dots already demonstrate coherent energy transfer at room temperature (Scholes et al., 2011). Golden-angle antenna geometry maximizes spatial coverage (like sunflower seeds). Phyllotaxis is a *natural* example of φ-optimization.

1.7 VI. ROOM-TEMPERATURE SUPERCONDUCTIVITY

1.7.1 6.1. Why Standard Approaches Don’t Work

Standard BCS theory [Bardeen-Cooper-Schrieffer, 1957]: Cooper pairs form due to phonon interaction. At higher temperature, thermal noise destroys pairs. T_c is limited by phonon energy.

Through ODTOE [A, section IX]: superconductivity = $S \to 1$ for electron cluster. T_c is the temperature where thermal decoherence ($D(\eta) = D_0(1 - S)$) is overcome by pair coherence. Standard path: lower D_0 (cool down). ODTOE path: **raise** S **architecturally**—through material structure.

1.7.2 6.2. Three ODTOE Criteria for Room-Temperature Superconductor

Criterion 1: Triadic Architecture of Lattice.

By [B]: the minimal self-consistent configuration is a triad. The crystal lattice of a superconductor should contain *triadic* structural motifs: three inequivalent positions, three types of bonds, triangular or hexagonal planes.

All high-temperature superconductors (HTSC) *already satisfy* this: YBCO (Y-Ba-Cu-O: three cations), BSCCO (Bi-Sr-Ca-Cu-O: three+ cations), MgB_2 (Mg-B-B: triad with hexagonal symmetry).

Criterion 2: Spiral Phase Correction δ_π.

Electron pairs must have possibility of "spiral" motion with phase correction δ_π at each revolution. This requires *chiral* (spiral) lattice elements—structures without inversion center.

Criterion 3: Resonance Frequency in THz Range.

By [A, formula XI.4]: $f_{\text{res}} = (v_F/a) \cdot (\pi - 3)/(2\pi)$. For room-temperature superconductor f_{res} should fall in the window $50 - 200$ THz (IR), where thermal phonons *do not* dominate and coherence can be maintained.

1.7.3 6.3. Candidates: Chemical Composition and Structure

Candidate 1: Chiral Cuprate with Bismuth Composition: $Bi_2Sr_2CaCu_2O_8$ (BSCCO-2212), modified by chiral substitution.

Modification: replace part of Sr atoms with Ba in *ordered* chiral spiral along c axis:

$$Bi_2(Sr_{1-x}Ba_x)_2CaCu_2O_8, \quad x = 1/\varphi^2 \approx 0.382 \tag{VI.1}$$

Substitution proportion follows the golden ratio. Ba is larger than Sr → creates *local lattice distortion* → breaks inversion center → chirality.

Why This Could Work: BSCCO-2212 is already a superconductor with $T_c \approx 85$ K. Chiral modification adds spiral element (δ_π) absent in original structure. By ODTOE: spirality increases effective S of electron pairs, raising T_c.

Prediction: $T_c^{\text{mod}} > T_c^{\text{orig}}$. Maximum at $x \approx 0.382 = 1/\varphi^2$.

f_{res}: for BSCCO: $v_F \approx 2 \times 10^5$ m/s, $a \approx 5.4$ Å → $f_{\text{res}} \approx 84$ THz (IR).

Candidate 2: Graphene Sandwich with Triadic Interlation Structure:

```
Graphene (layer A)
  | interlayer: Li
```

```
Graphene (layer B) — rotated by 1.1° (magic angle)
  | interlayer: Ca
Graphene (layer C) — rotated by 2.2°
  | interlayer: Li
Graphene (layer A') — rotated by 3.3° (= 3 × 1.1°)
...
```

Triadic Architecture: three graphene layers (A, B, C) with three different rotation angles and *two types* of interlayers (Li, Ca) in alternating order.

Why This Could Work: "Magic angle" graphene (1.1°) already shows superconductivity at $T_c \approx 1.7$ K [Cao et al., 2018]. Triadic structure (three layers instead of two) + interlation (Li = electron donor, Ca = phonon spectrum modifier) increases the number of electron channels and raises coherence.

ODTOE Prediction: optimal rotation angle is not 1.1°, but $\delta_\pi \times (180/\pi) \approx 16.97°$. Or: $1.1° \times \varphi^n$ for n-th layer.

f_{res}**:** for graphene: $v_F \approx 10^6$ m/s, $a \approx 2.46$ Å $\rightarrow$ $f_{\text{res}} \approx 920$ THz (near IR / visible). High, but achievable with femtosecond lasers.

Candidate 3: Lanthanum Hydride with Spiral Structure Composition: LaH_{10} under pressure, modified by spiral ordering.

Context: LaH_{10} is the T_c record holder under high pressure ($T_c \approx 250$ K at 170 GPa, Drozdov et al., 2019). Hydrogen forms a "clathrate" structure around La—*almost* superconductor at room temperature, but requires pressure.

ODTOE Modification: replace the *isotropic* clathrate H structure with *chiral spiral*:

$$\text{La}(\text{H}_{10-y}\text{D}_y), \quad y = 10/\varphi \approx 6.18 \tag{VI.2}$$

Substituting part of H with D (deuterium) in proportion φ creates *isotopic chirality*: heavier D occupy definite positions, creating a spiral "pattern" in the lattice. This breaks isotropy without changing electronic structure.

Prediction: T_c increases at $y \approx 6.18$. Possibly—sufficient to lower required pressure to technically achievable (< 50 GPa).

f_{res}**:** for LaH_{10}: $v_F \sim 5 \times 10^5$ m/s, $a \sim 3.7$ Å $\rightarrow$ $f_{\text{res}} \sim 305$ THz.

Candidate 4: Topological Semimetal with Triadic Motif Composition: Nb_3Bi (analogue of Nb_3Sn, but with bismuth).

Why Bi: bismuth is the only element with odd electron number ($Z = 83$) and strong spin-orbit coupling. Nb_3Sn is an industrial superconductor ($T_c \approx 18$ K). Replacing Sn $\rightarrow$ Bi introduces: - Strong spin-orbit coupling $\rightarrow$ topological surface states - Odd Z $\rightarrow$ parity breaking $\rightarrow$ chirality - A15 structure (Nb_3X)—already triadic ($3\times$ Nb per X)

ODTOE Prediction: $T_c(Nb_3Bi) > T_c(Nb_3Sn)$ due to chirality. Topological protection of surface states raises S—analogous to how topological insulators protect conduction channels from scattering.

f_{res}: $v_F(\text{Nb}) \approx 6 \times 10^5$ m/s, $a \approx 5.3$ Å $\rightarrow$ $f_{\text{res}} \approx 256$ THz.

1.7.4 6.4. Summary Table of Candidates

Candidate	Base T_c	ODTOE Modification	f_{res} (THz)	Prediction
Chiral BSCCO	85 K	$Sr_{1-x}Ba_x$, $x = 1/\varphi^2$	84	$T_c \uparrow$, max at $x = 0.382$
Graphene sandwich	1.7 K	Three layers + Li/Ca interlation	920	$T_c \uparrow\uparrow$ at triadic structure
Chiral LaH_{10}	250 K	$H_{10-y}D_y$, $y = 10/\varphi$	305	Pressure reduction at maintained T_c
Nb_3Bi (A15)	~18 K (Nb_3Sn)	Bi instead of Sn $\rightarrow$ chirality	256	$T_c(Nb_3Bi) > T_c(Nb_3Sn)$

1.7.5 6.5. General ODTOE Principle of Room-Temperature Superconductivity

Standard path: lower D_0 (cool down $\rightarrow$ thermal noise $\downarrow$ $\rightarrow$ $S \uparrow$).

ODTOE path: **raise** S **architecturally**:

$$S_{\text{eff}} = S_{\text{phonon}} + S_{\text{chir}} + S_{\text{top}} \tag{VI.3}$$

where S_{phonon} is standard phononic coherence (BCS), S_{chir} is contribution from chirality (δ_π-correction), S_{top} is topological protection.

When $S_{\text{chir}} + S_{\text{top}} > 0$, critical temperature increases:

$$T_c^{\text{mod}} = T_c^{\text{BCS}} \cdot \frac{1}{1 - (S_{\text{chir}} + S_{\text{top}})} \tag{VI.4}$$

For room-temperature $T_c = 300$ K from base $T_c = 85$ K (BSCCO): requires $S_{\text{chir}} + S_{\text{top}} \approx 0.72$. This is a high requirement, but *not impossible*—topological effects already demonstrate conductance protection at room temperature.

1.8 VII. EXPERIMENTAL PROGRAM

1.8.1 7.1. Priority Experiments (Current Technology)

Experiment	Device/Material	What to Measure	ODTOE Expectation
E-1	CCR basic	$\Delta R/R$ at $f = f_{\text{res}}$	Resonant decrease $\sim(\pi-3)^2 \approx 2\%$
E-2	CCR without one radiator	$\Delta R/R$	Effect disappears (triadicity broken)
E-3	Two generators: 120° vs 137.5°	EMF at identical rotations	Difference $\sim 2\%$
E-4	BSCCO with $x = 0.382$	T_c	$T_c > 85$ K
E-5	BSCCO with $x = 0.5$ (control)	T_c	$T_c \leq 85$ K (no φ-proportion)

1.8.2 7.2. Medium-Term Experiments (Require Specialized Equipment)

Experiment	What Is Needed	Expectation
E-6: SVR	Superconducting toroidal resonator + THz source	Additional photons at δ_π-spirality
E-7: Triple Graphene	MBE setup for multilayer graphene + cryostat	$T_c \uparrow$ at triadic vs. dual structure
E-8: Nb_3Bi	Arc melting + X-ray diffraction	$T_c > 18$ K

1.9 VIII. DEMARCATION

Statement	Status
Electricity = directed action $\hat{O}$	Interpretation [A], consistent with electrodynamics
Spiral gap $\delta\Psi$ generates energy	Theoretical consequence [A, B, C]: $(\pi-3)^2$
CCR reduces resistance at resonance	Falsifiable prediction (E-1, E-2)
Golden angle 137.5° is optimal	Hypothesis, requires testing (E-3)
Chirality raises T_c	Hypothesis, consistent with HTSC literature
φ-proportion of substitution is optimal	Hypothesis (E-4, E-5)
Room-temperature superconductivity is achievable	**Speculative.** Requires $S_{\text{chir}} + S_{\text{top}} \approx 0.72$
"Unlimited energy from $\mathcal{H}$"	**Not claimed.** Claims: increased channel efficiency η

1.10 IX. CONCLUSION

Synthesis of three ODTOE papers [A, B, C] generates a concrete engineering program:

Four Devices: 1. Enhanced CCR (9 radiators, φ-geometry, feedback) 2. Spiral Vacuum Resonator (dynamic Casimir via δ_π) 3. Triadic Phase Generator (Tesla + golden angle) 4. Biomimetic Coherent Converter (artificial photosynthesis)

Four Room-Temperature Superconductor Candidates: 1. Chiral BSCCO ($x = 1/\varphi^2$) 2. Triple graphene sandwich (Li/Ca interlation) 3. Chiral LaH_{10} ($y = 10/\varphi$) 4. Nb_3Bi (topological chirality)

General principle: **increase coherence architecturally**. Not "cool down" ($D_0 \downarrow$), but "build structure" ($S \uparrow$). Triadic geometry + spiral correction δ_π + φ-proportions = three tools for raising S without cooling.

$$\boxed{S_{\text{eff}} = S_{\text{phonon}} + S_{\text{chir}}(\delta_\pi) + S_{\text{top}}. \quad \text{Three ODTOE criteria: triad, spiral, resonance.}}$$

1.11 ACKNOWLEDGMENTS AND TOOLS

In developing ODTOE theory and all papers based on it, AI tools were used: Claude Sonnet / Opus 4.6 Extended (Anthropic), ChatGPT 5.3 (OpenAI), Google Gemini (Google DeepMind). All substantive decisions belong to the author.

1.12 REFERENCES

[A] Pankratov A.S. Electricity as Directed Action of the Observation Operator: From Charge to New Type Generator // Preprint. — 2025. [B] Pankratov A.S. Atom as Elementary Strange Loop in ODTOE // Preprint. — 2025. [C] Pankratov A.S. The Number π as a Structural Invariant of Self-Consistent Observation // Preprint. — 2025. 1. Pankratov A.S. Theory of Everything: Observer-Dependent (ODTOE) // Preprint. — 2025. — 47 p. 2. Wilson C.M. et al. Observation of the Dynamical Casimir Effect // Nature. — 2011. — Vol. 479. — P. 376. 3. Bardeen J., Cooper L.N., Schrieffer J.R. Theory of Superconductivity // Phys. Rev. — 1957. — Vol. 108. — P. 1175. 4. Cao Y. et al. Unconventional Superconductivity in Magic-Angle Graphene // Nature. — 2018. — Vol. 556. — P. 43. 5. Drozdov A.P. et al. Superconductivity at 250 K in Lanthanum Hydride // Nature. — 2019. — Vol. 569. — P. 528. 6. Engel G.S. et al. Evidence for Wavelike Energy Transfer Through Quantum Coherence in Photosynthetic Systems // Nature. — 2007. — Vol. 446. — P. 782. 7. Scholes G.D. et al. Lessons from Nature About Solar Light Harvesting // Nature Chemistry. — 2011. — Vol. 3. — P. 763. 8. Casimir H.B.G. On the Attraction Between Two Perfectly Conducting Plates // Proc. Kon. Ned. Akad. Wet. — 1948. — Vol. 51. — P. 793. 9. Onnes H.K. The Resistance of Pure Mercury at Helium Temperatures // Commun. Phys. Lab. Univ. Leiden. — 1911. 10. Pankratov A.S. 3, 6, 9: Tesla's Key Through ODTOE // Preprint. — 2026.