Paper 039 / Application 016

# NoeticLab

## Blinded Observer-Coupled Anomaly Research Infrastructure

JMP0X1B Research Group

June 13, 2026 | v0.1

**Keywords.** frontier physics, noetics, observer effects, anomaly research, blinding, preregistration, registered reports, Bayesian evidence, quantum sensing, falsification-first science

**Abstract**

A private research civilization can ask forbidden questions, but it must not grant itself permission to be sloppy. *NoeticLab* is a proposed infrastructure for blinded observer-coupled anomaly research: protocols, target vaults, randomized schedules, instrument telemetry, physiological context, cryptographic precommitment, registered-report workflows, Bayesian evidence ledgers, adversarial controls, and multi-site replication. It is designed for claims at the boundary of consciousness, instrumentation, time, intention, synchronicity, psi, anomalous cognition, and field-sensitive apparatus. The grounded claim is methodological: frontier anomalies become researchable only when belief, expectation, leakage, optional stopping, p-hacking, sensory cueing, experimenter effects, hardware artifacts, and publication bias are structurally constrained. The speculative claim is that consciousness may eventually be modeled as a boundary condition on the transition from possibility to record, but only a ruthless null-first laboratory can tell whether that sentence names physics, psychology, artifact, or poetry. NoeticLab inherits the falsification-first ethos of NIDUS Lab and extends it to observer-coupled protocols.

## Contents

## 1 01 / Problem

Anomalous claims live in a dangerous valley. On one side is ridicule, career exile, and premature dismissal. On the other side is credulity, cult dynamics, bad statistics, sensory leakage, motivated reasoning, and mythology masquerading as evidence. A private, well-funded, ambitious lab has the luxury to walk into that valley. It does not have the right to lower the standard of proof.

NoeticLab is not a belief engine. It is a machine for making strange claims either stronger, narrower, or dead. It asks whether observer-coupled anomalies can be tested with the same seriousness as superconducting claims, electrostatic projection claims, or closed-device momentum claims: blinding, calibration, pressure ladders, null controls, signed data, adversarial review, and publication of negative results.

Historical psi controversies show why this is necessary. Bem's 2011 precognition paper produced a large debate, followed by critical statistical commentary and failed replications [23, 24, 25]. Preregistration and open-science practices were partly motivated by exactly these failure modes [26]. Publication selection bias is not confined to one domain and can seriously distort meta-analytic evidence [27]. The NoeticLab response is not cynicism. It is better machinery.

**Claim 1** (Noetic discipline claim)**.** Observer-coupled anomaly research becomes scientifically useful only when the protocol can disappoint the investigator, protect the participant, and preserve the null result.

## 2 02 / Model

Let a trial outcome be modeled as

$$Y = f(A, E, R, P) + \beta\,\Phi(O, B, t) + \gamma\,\Psi(O_{\text{future}}, R_{\text{future}}, t) + \epsilon, \tag{2.1}$$

where $A$ is apparatus state, $E$ environment, $R$ randomization state, $P$ protocol state, $O$ observer/participant state, $B$ belief and expectation context, $\Phi$ is an ordinary observer-mediated pathway, $\Psi$ is a speculative retrocausal or acausal pathway, and $\epsilon$ is noise. In most experiments, the correct model will set $\gamma = 0$. NoeticLab exists to test rather than assume that.

**Definition 1** (Observer-coupled anomaly)**.** An observer-coupled anomaly is a deviation in an instrument, choice task, random process, target-identification task, physiological stream, or environmental measurement whose predicted distribution depends on observer state after all known sensory, statistical, procedural, and hardware pathways have been modeled or blocked.

**Definition 2** (Blinding operator)**.** A blinding operator $\mathcal{B}$ maps a protocol $P$ to a constrained protocol $\mathcal{B}(P)$ such that information unavailable under the declared role cannot influence action except through audited channels:

$$I(T; A_r \mid \mathcal{B}(P), \mathcal{L}) \le \epsilon_r, \tag{2.2}$$

where $T$ is target or condition, $A_r$ is role-specific action, and $\mathcal{L}$ is the leakage model.

**Definition 3** (Noetic evidence ledger)**.** For hypotheses $H_0$ and $H_1$, the sequential evidence state is

$$\Lambda_t = \prod_{k=1}^{t} \frac{p(y_k \mid H_1, P_k, \mathcal{B}_k, \mathcal{L}_k, \theta_k)}{p(y_k \mid H_0, P_k, \mathcal{B}_k, \mathcal{L}_k, \theta_k)}. \tag{2.3}$$

No result can be interpreted without the protocol, blinding, leakage, nuisance, stopping, and multiplicity context.

# 3 03 / Architecture

## 3.1 Protocol state machine

A NoeticLab protocol is a state machine. Claims cannot be emitted unless required states have occurred in order:

$$\square\,(\text{Claim} \Rightarrow \text{Preregistered} \wedge \text{Blinded} \wedge \text{Calibrated} \wedge \text{ControlsClosed} \wedge \text{DataReleased})\,. \tag{3.1}$$

This inherits the NIDUS Lab direction: experiments should be signed, replayable, and designed so negative results retain value [2].

## 3.2 Target vault

The target vault stores images, texts, symbols, physical targets, random sequences, apparatus conditions, or future-choice schedules. It supports:

- cryptographic commitment before trials;
- role-based access;
- delayed reveal;
- decoy targets;
- entropy-source audits;
- chain-of-custody logs.

## 3.3 Randomization and entropy layer

Randomization must be treated as an instrument, not a software afterthought. The entropy layer records hardware RNG state, pseudo-random generator version, seeds, entropy extraction, timing, target assignment, and post-hoc verification.

## 3.4 Instrument and environment telemetry

Every trial receives a context vector:

$$c_t = [T_{\text{room}}, H_{\text{room}}, B_{\text{mag}}, a_{\text{vibe}}, E_{\text{EM}}, p_{\text{vac}}, V_{\text{line}}, \text{network}, \text{operator}, \text{clock}]^{\top}. \tag{3.2}$$

For instrument-coupled anomalies, context is not decoration. It is the difference between physics and artifact.

## 3.5 Participant and observer telemetry

Participant data must be ethical and minimal. Potential streams include task timing, confidence, eye tracking, EEG or heart-rate variability when consented, sleep and stress questionnaires, and belief/expectation measures. NoeticLab must never become coercive. The participant is a collaborator, not a reagent.

### 3.6 Analysis firewall

The analyst should not be able to select outcomes, windows, exclusions, or transformations after seeing target labels. The analysis firewall includes preregistered scripts, synthetic dry runs, blinded labels, hash-locked datasets, and automated report generation.

## 4 04 / The non-negotiable practical spine

| Spine | Role in the research program |
|---|---|
| Fission/fusion baseload | Provides mission-scale energy for dark sites, industrial heat, closed-loop habitats, high-duty robotics, and high-field experiments. |
| Cryogenic and HTS power routing | Moves high current through modular infrastructure while keeping quench protection, thermal accounting, and magnetic cleanliness visible. |
| Quantum gravimetry and sensors | Turns gravity gradients, inertial drift, and subtle environmental fields into calibrated infrastructure data rather than anecdote. |
| Directed-energy logistics | Uses beams, sails, optical links, and high-energy supply gradients to reduce dependence on chemical cargo chains. |
| Evidence pipeline | Converts every build, test, null, anomaly, and revision into signed artifacts that can be audited and reproduced. |

NoeticLab uses the spine differently from the infrastructure papers.

- **Quantum gravimetry and quantum sensors** create high-stability anomaly detectors and teach the lab how to treat extreme sensitivity without self-deception [17, 19].
- **Cryogenic power buses and HTS infrastructure** enable low-noise, shielded, high-field, superconducting, and magnetically clean apparatus, consistent with CryoBus discipline [3].
- **Fission/fusion power** is not needed for small psychology experiments, but it matters for future high-energy, high-field, off-world, or isolated noetic-instrument laboratories where power independence removes environmental confounds.
- **Directed-energy infrastructure** may eventually support remote target generation, optical timing, and interplanetary noetic protocols where light-time, target reveal, and causal structure can be made explicit.

## 5 05 / Claims

**Claim 2** (Blinding is ontology)**.** In noetic research, blinding is not merely a quality-control practice; it defines what causal pathways are permitted to exist inside the experiment.

**Claim 3** (No null, no science)**.** A NoeticLab program that does not publish negative results will converge toward myth, not knowledge.

**Claim 4** (Leakage first)**.** Every positive anomaly must first be interpreted as leakage, artifact, optional stopping, multiple comparisons, selection bias, expectation effect, or hardware coupling until those models lose quantitatively.

**Claim 5** (Observer state is data)**.** Even if exotic effects are absent, observer state can still influence outcomes through attention, fatigue, belief, timing, motor behavior, experimenter behavior, and physiological coupling. These pathways must be measured rather than dismissed.

## 6 06 / Protocol families

### 6.1 Family A: target-identification protocols

A participant attempts to identify a hidden target from a decoy set. Minimal controls include target vault commitment, decoy balancing, sensory isolation, automated scoring, blind judging, role separation, preregistered exclusion criteria, and multi-site replication.

### 6.2 Family B: observer-coupled random process protocols

A participant or observer is hypothesized to bias a random process. Minimal controls include entropy-source audit, environmental telemetry, automated run scheduling, sham periods, blind condition labels, hardware swaps, and predeclared stopping rules.

### 6.3 Family C: instrument-adjacent presence protocols

A sensitive instrument records during observer presence, absence, attention, meditation, ritual, stress, or target periods. Minimal controls include dummy loads, shield states, environmental sensors, vibration, thermal and EM logs, randomized timing, remote operation, and hardware nulls.

### 6.4 Family D: retrocausal or future-choice protocols

These are the most dangerous because they invite story. A future-choice protocol separates recording from later target selection or reveal. Minimal controls include locked timestamps, independent entropy sources, immutable storage, predeclared analysis, and an explicit causal graph showing where ordinary leakage could enter.

## 7 07 / Evidence program

### 7.1 Phase A: dry runs and red teams

Before any paranormal or anomalous claim is tested, NoeticLab should run red-team protocols where an adversary is invited to create false positives through cueing, scripting, timing, data access, hardware interference, or analysis flexibility. The lab should publish how it was fooled.

### 7.2 Phase B: null calibration corpus

Run protocols expected to produce null results. Build distributions for false positives under realistic noise, human error, and environmental drift. A lab that lacks a null corpus does not know the shape of its own imagination.

### 7.3 Phase C: registered target studies

Run small registered protocols with fixed analysis scripts, independent randomization, and blind labels. The output is a Bayes factor and full evidence ledger, not a press release.

### 7.4 Phase D: multi-site replications

Any promising effect must leave the originating room. Multi-site work tests whether the effect, artifact, or ritual dependency travels.

### 7.5 Phase E: instrument-coupled frontier physics overlap

Only after the lab has earned trust with human-task protocols should it combine noetic variables with cryogenic, superconducting, gravimetric, optical, or high-voltage apparatus. Otherwise it risks mixing two unknowns and calling the confusion discovery.

## 8 08 / Speculative extension: consciousness as boundary condition

> **Speculative extension.** Suppose consciousness is not a force added to physics, but a boundary condition on which possibilities become records. This does not mean minds push electrons by wishing. It means the observer might enter the formalism at the interface between potential histories, measurement contexts, memory, and meaning. NoeticLab does not assume this is true. It builds the machine that could punish the idea until only a testable remainder survives.

Let $\Omega$ be a space of possible histories and $\mathcal{R}$ the sigma-algebra of records. Ordinary experiment maps

$$M : \Omega \to \mathcal{R}. \tag{8.1}$$

A noetic hypothesis introduces an observer-context functional

$$\mathcal{N}_O : \mathcal{P}(\Omega) \to \mathcal{P}(\mathcal{R}) \tag{8.2}$$

that changes the distribution of records under constraints. The null is

$$\mathcal{N}_O = \mathcal{N}_{O'} \quad \forall O, O' \in \mathcal{O}_{\text{allowed}}, \tag{8.3}$$

after conditioning on ordinary pathways. The anomaly claim is not *mind over matter*. It is a residual:

$$\Delta_{O,O'} = D\left(p(R \mid O, P, \mathcal{B}, \mathcal{L}) \,\|\, p(R \mid O', P, \mathcal{B}, \mathcal{L})\right) > \delta \tag{8.4}$$

that survives leakage closure and replication.

The future math may resemble a calculus of records, not a new occult fluid. Its primitive objects are attention, uncertainty, measurement context, memory, and admissible causal structure. If it fails, it should fail cleanly. If it survives, it will likely do so in a form stranger and narrower than believers expect.

## 9 09 / Ethics and anti-cult constraints

NoeticLab must be designed against the social failure modes of anomaly research.

- Participants retain dignity, consent, withdrawal rights, and psychological safety.
- No participant is told they possess powers based on weak evidence.
- No therapeutic, financial, or life guidance claims are made from experimental outcomes.
- Researchers separate exploratory practice from confirmatory evidence.
- Ritual may be studied as context, but ritual cannot override protocol.
- All positive claims carry uncertainty and competing explanations.
- Null results are published with the same seriousness as positives.

## 10 10 / Implementation objects

| Object | Meaning |
|---|---|
| `ProtocolStateMachine` | Required states, transitions, gates, allowed actions, and claim preconditions. |
| `TargetVaultCommitment` | Hashes, timestamps, access roles, decoys, target sets, and reveal schedules. |
| `BlindingMap` | Which role can know what, when, and by which audited channel. |
| `EntropyAudit` | RNG source, seeds, extraction method, health tests, timing, and independent verification. |
| `ObserverContext` | Consent-bounded physiological, behavioral, belief, timing, and environmental context. |
| `LeakageModel` | Declared ordinary pathways by which target or condition information could influence outcome. |
| `EvidenceLedger` | Likelihoods, priors, stopping rules, exclusions, Bayes factors, robustness checks, and raw data. |

## 11 11 / Technology roadmap

| Horizon | Milestone | Exit criterion |
|---|---|---|
| 0–6 months | Protocol compiler | State-machine templates for target, random-process, and instrument protocols. |
| 6–12 months | Target vault and entropy audit | Cryptographic precommitment, role separation, RNG audit, and synthetic dry runs. |
| 12–24 months | Red-team null corpus | Published failures, leakage demonstrations, and calibrated false-positive distributions. |
| 24–36 months | Registered studies | Small precommitted protocols with public evidence ledgers and blinded analysis. |
| 36–60 months | Multi-site replication | Independent sites running the same protocol with shared analysis firewall. |
| 60+ months | Instrument frontier overlap | Cryogenic, quantum-sensor, high-field, or off-world tests only after methodological maturity. |

## 12 12 / Failure modes

- **Belief capture.** The lab starts protecting an identity rather than testing claims.
- **Skeptic theater.** Controls are used rhetorically rather than quantitatively.
- **Optional stopping.** Data collection ends when the story looks good.
- **Cue leakage.** Targets leak through timing, files, metadata, body language, or procedure.
- **Post-hoc mysticism.** A failed protocol is rescued by inventing a new effect after the result.
- **Participant harm.** People are induced to believe false things about themselves.
- **Publication distortion.** Positive runs are amplified and nulls are buried.

## 13 13 / Release

The release should include this source and PDF, protocol schemas, target-vault code, entropy-audit examples, synthetic datasets, red-team notes, preregistration templates, analysis scripts, and an errata stream. NoeticLab should be built as a specialization of NIDUS Lab rather than as a separate mythology engine [2].

## References

[1] JMP0X1B Research. *JMP0X1B Research Index*. 2026. https://research.jmp0x1b.com/. Accessed 2026-06-13.

[2] JMP0X1B Research Group. *NIDUS Lab: A Falsification-First Operating System for Frontier Physics Experiments*. Working paper, 2026. https://research.jmp0x1b.com/papers/nidus-lab-a-falsification-first-operating-system-for-frontier-physics-experiment.html.

[3] JMP0X1B Research Group. *CryoBus: A Spacecraft Superconducting Power and Magnetic Subsystem Design Toolchain*. Working paper, 2026. https://research.jmp0x1b.com/papers/cryobus-a-spacecraft-superconducting-power-and-magnetic-subsystem-design-toolcha.html.

[4] JMP0X1B Research Group. *Orbis Edge: Latency-Tolerant Artifact, Command, and Telemetry Networks for Orbital Autonomy*. Working paper, 2026. https://research.jmp0x1b.com/papers/orbis-edge-latency-tolerant-artifact-command-and-telemetry-networks-for-orbital-.html.

[5] JMP0X1B Research Group. *ResearchPack: A Reproducible PDF, LaTeX, Artifact, and Errata Pipeline for research.jmp0x1b.com*. Working paper, 2026. https://research.jmp0x1b.com/papers/researchpack-a-reproducible-pdf-latex-artifact-and-errata-pipeline-for-research-.html.

[6] NASA. *20-Foot Chamber*. Page last updated 2023-09-27. https://www.nasa.gov/setmo/facilities/20-foot-chamber/.

[7] NASA Jet Propulsion Laboratory. *NASA's Laser Comms Demo Makes Deep Space Record, Completes First Phase*. 2024. https://www.jpl.nasa.gov/news/nasas-laser-comms-demo-makes-deep-space-record-completes-first-phase/.

[8] S. Burleigh, K. Fall, and E. Birrane. *RFC 9171: Bundle Protocol Version 7*. Internet Engineering Task Force, 2022. https://www.rfc-editor.org/rfc/rfc9171.html.

[9] Paul S. Ray, Kent S. Wood, and Michael T. Wolff. *Characterization of Pulsar Sources for X-ray Navigation*. arXiv:1711.08507, 2017.

[10] Yidi Wang et al. *Fast On-orbit Pulse Phase Estimation of X-ray Crab Pulsar for XNAV Flight Experiments*. arXiv:2210.12422, 2022.

[11] Clement Vidal. *Pulsar Positioning System: A Quest for Evidence of Extraterrestrial Engineering*. arXiv:1704.03316, 2017.

[12] Tianyuan Wang, Mark A. Post, and Mathieu Deremetz. *Design of a Modular Mobile Inspection and Maintenance Robot for an Orbital Servicing Hub*. arXiv:2507.14059, 2025.

[13] Samantha Chapin et al. *Autonomous Planning In-space Assembly Reinforcement-learning free-flyer Astrobee Testing*. arXiv:2512.03729, 2025.

[14] Felix Leutert et al. *In-orbit Factory: Digital Process Twin, Fault Detection, and Teleoperated Robotic Control*. arXiv:2401.17799, 2024.

[15] L. Norder et al. *Pentagonal Photonic Crystal Mirrors: Scalable Lightsails with Enhanced Acceleration via Neural Topology Optimization*. arXiv:2407.07896, 2024.

[16] David Kipping. *Relativistic Light Sails*. arXiv:1704.04310, 2017.

[17] Alexander M. Phillips et al. *Position Fixing with Cold Atom Gravity Gradiometers*. arXiv:2204.05246, 2022.

[18] Ludovic Antoni-Micollier et al. *Absolute Quantum Gravimeters and Gradiometers for Field Measurements*. arXiv:2405.10844, 2024.

[19] Matthias Meister et al. *Space Magnetometry with a Differential Atom Interferometer in the NASA Cold Atom Lab*. arXiv:2505.23532, 2025.

[20] Julius Mercz, Philipp Reiss, and Christian Reiter. *MULE: A Co-Generation Fission Power Plant Concept to Support Lunar In-Situ Resource Utilisation*. arXiv:2512.10705, 2025.

[21] Kosuke Ikeya et al. *Hybrid Lunar ISRU Plant: A Comparative Analysis with Carbothermal Reduction and Water Extraction*. arXiv:2408.04936, 2024.

[22] Elena Ancona, Roman Ya. Kezerashvili, and Savino Longo. *Feasibility Study of a Mission to Sedna: Nuclear Propulsion and Advanced Solar Sailing Concepts*. arXiv:2506.17732, 2025.

[23] Daryl J. Bem. Feeling the Future: Experimental Evidence for Anomalous Retroactive Influences on Cognition and Affect. *Journal of Personality and Social Psychology*, 100(3):407–425, 2011.

[24] Eric-Jan Wagenmakers, Ruud Wetzels, Denny Borsboom, and Han L. J. van der Maas. Why Psychologists Must Change the Way They Analyze Their Data: The Case of Psi. *Journal of Personality and Social Psychology*, 100(3):426–432, 2011.

[25] Jeff Galak, Robyn A. LeBoeuf, Leif D. Nelson, and Joseph P. Simmons. Correcting the Past: Failures to Replicate Psi. *Journal of Personality and Social Psychology*, 103(6):933–948, 2012.

[26] Brian A. Nosek, Charles R. Ebersole, Alexander C. DeHaven, and David T. Mellor. The Preregistration Revolution. *Proceedings of the National Academy of Sciences*, 115(11):2600–2606, 2018.

[27] Frantisek Bartos et al. *Footprint of Publication Selection Bias on Meta-Analyses in Medicine, Environmental Sciences, Psychology, and Economics*. arXiv:2208.12334, 2022.