Paper 019

A Strain-Electrodynamics Materials Atlas for Piezoelectric Superconductivity Claims

Separating contact artifacts, strain tuning, transient conduction, and full superconducting evidence

JMP0X1B Research Group

Working paper draft / June 13, 2026

Abstract

The coated-wire superconductivity replication protocol defines nested hypotheses from artifact to full superconducting evidence. This paper extends it into a materials atlas. The atlas varies wire composition, piezoelectric coating, strain waveform, current pulse, temperature, magnetic field, and contact geometry. Each sample becomes a signed data product with transport, magnetic, thermal, and strain channels. The intended result is a publishable negative atlas or a clearly escalated anomaly candidate.

Status. Draft manuscript for review and revision. This paper is not an empirical claim of new physics or field-ready technology. It is a structured proposal, theory note, protocol, or application architecture intended to be auditable, falsifiable, and publishable with source.

Contents

1 Problem **2**

2 Model **2**

3 Claims **2**

4 Evidence Plan **2**

5 JMP0X1B Implementation Surface **2**

6 Release And Review Plan **3**

7 Open Questions **3**

8 Conclusion **3**

1 Problem

Unverified superconductivity claims can waste effort unless the replication space is structured. A single sample and a single resistance trace cannot distinguish contact improvement, micro-welding, heating, ordinary strain tuning, transient conduction, and superconductivity. The problem is to design a sample matrix that rejects mundane explanations before escalating any result.

2 Model

Let a sample be a tuple of substrate, coating, interface preparation, strain coupling, contacts, and measurement schedule. The atlas organizes samples by controlled changes in one factor at a time, with blind contact swaps and magnetic readout as required escalation criteria.

$$S = (M_{\text{wire}}, M_{\text{coat}}, \Gamma_{\text{interface}}, \epsilon(t), I(t), T, B, C_{\text{contact}}).$$

$$H_3 \Rightarrow R \to 0 \ \wedge \ \chi_{\text{dia}} < 0 \ \wedge \ J_c > J_{c,\min} \ \wedge \ \partial R/\partial B \neq 0.$$

3 Claims

1. **Claim 1.** A materials atlas is superior to a one-off replication because it can expose systematic artifact families.
2. **Claim 2.** Transport anomalies should not be promoted without magnetic evidence and field dependence.
3. **Claim 3.** Blind contact swaps are a low-cost way to detect the most common false positives.
4. **Claim 4.** A null atlas can still yield useful space technology data on coatings, joints, cryogenic cycling, and vibration durability.

4 Evidence Plan

The evidence plan uses a staged sample matrix. Stage A validates instruments on known superconductors and non-superconductors. Stage B tests coated wires under strain without exotic interpretation. Stage C adds pulsed current and magnetic diagnostics. Stage D, reached only after predeclared gates, repeats promising samples across laboratories.

5 JMP0X1B Implementation Surface

JMP0X1B can represent sample recipes, lab procedures, instrument telemetry, blind labels, and evidence gates as typed artifacts. The atlas should prevent cherry-picking by committing sample batches and analysis plans before measurement.

Illustrative JMP0X1B-style contract

```
record SampleRecipe { wire: Material, coating: Material, interface: Process, contact: ContactPl
fn escalate(sample: SampleRecord) -> HypothesisGate effects{Statistics, Provenance, Audit} {
    require(sample.transport.four_terminal)
```

```
    require(sample.magnetics.available)
    return classify_nested(sample)
}
```

6 Release And Review Plan

Release sample recipe schemas, calibration datasets, negative results, and failed contact configurations. Do not publish a positive claim unless transport, magnetic, thermal, and independent replication gates are all satisfied.

7 Open Questions

- Which coating parameters most often change contact resistance without changing bulk state?
- Can high-frequency strain be calibrated inside opaque coatings?
- What minimum magnetic signal is required for escalation?
- How should destructive post-mortem microscopy be sequenced?

8 Conclusion

The atlas makes superconductivity replication less dramatic and more useful. Its strongest expected product is a negative map that prevents future teams from repeating weak claims.

References

References

[1] JMP0X1B Research Group. *Replication and Falsification of Piezoelectric Strain-Driven Superconductivity in Composite Coated Wires*. Working paper, 2026. https://research.jmp0x1b.com/papers/piezoelectric-superconductivity-replication.html

[2] JMP0X1B Research Group. *From Speculative Superconducting Claims to Practical Spacecraft Power and Magnetic Subsystems*. Working paper, 2026. https://research.jmp0x1b.com/papers/superconducting-spacecraft-subsystems.html

[3] M. D. Wilkinson et al. The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, 3:160018, 2016.

[4] World Wide Web Consortium. *PROV-DM: The PROV Data Model*. W3C Recommendation, 2013. https://www.w3.org/TR/prov-dm/