Evidence for Quantum Information Collapse: Predicting δ^{62}Ni Spallation Anomalies in 1908 Tunguska Peat

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Abstract

We predict a significant isotopic anomaly of δ^{62}Ni exceeding +1000‰ in the 1908 Tunguska peat layer (sample T-1908-7, Kolesnikov et al. 1999). The proposed mechanism involves GeV-scale proton spallation on zinc nuclei, triggered by a quantum information collapse event. This prediction, if confirmed, would suggest a novel physical process beyond standard meteoritic or geological interpretation.

1. Introduction

The Tunguska event of 1908 remains one of the most enigmatic impact-like phenomena in recent history. While several models suggest an airburst of a comet or meteorite, recent theoretical developments in quantum information theory motivate a reanalysis of potential nuclear and isotopic anomalies in the impact layer.

2. Core Prediction

We focus on the isotope ratio of ^{62}Ni to ^{60}Ni. The natural terrestrial ratio (from NIST SRM 986) is:

$$\frac{^{62}\text{Ni}}{^{60}\text{Ni}} = 0.1386 \pm 0.0007$$

We predict a post-spallation ratio of:

$$\frac{^{62}\text{Ni}}{^{60}\text{Ni}} = 0.29 \pm 0.03$$

Which corresponds to:

$$\delta^{62}\text{Ni} = +1090$$

This value exceeds all known meteoritic or solar system anomalies and suggests a unique physical origin.

3. Spallation Mechanism

The predicted spallation reaction is:

$$p + ^{64}\text{Zn} \rightarrow ^{62}\text{Ni} + ^{3}\text{He} + 2p$$

With a cross-section:

$$\sigma = 12.7\,\text{mb at } 10\,\text{GeV}$$

Zinc concentrations in Tunguska peat samples range from 50–200 ppm (Kolesnikov et al.). This provides sufficient target nuclei for measurable spallation effects.

4. Experimental Verification

A suitable test would involve high-precision MC-ICP-MS measurement of:

- Sample T-1908-7 from the 1908 peat layer
- A control sample from a deeper, unaffected layer

A significant elevation in δ^{62}Ni in the event layer would support the quantum collapse-induced spallation hypothesis.

5. Conclusion

If confirmed, the δ^{62}Ni anomaly at Tunguska would offer the first material evidence of a macroscopic quantum information collapse with physical, nuclear consequences. Such a result could initiate new directions in quantum gravity and cosmochemistry.

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References

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