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\documentclass[12pt]{article}

\usepackage[a4paper,margin=2.5cm]{geometry}
\usepackage{amsmath,amssymb}
\usepackage{physics}
\usepackage{hyperref}

\title{\textbf{
  Observational Baseline and Laminar Coupling State\\
  in Interstellar Object 3I/ATLAS\\
  \large (SPT v1.3 — Part V)}}

\author{\textbf{Black Science Institute}}
\date{\today}

\begin{document}

\maketitle

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\begin{abstract}
This article establishes the empirical baseline for the 3I/ATLAS observation campaign. By analyzing the null results from radio monitoring on December 21, 2025, we demonstrate that the object was in a state of laminar substrate coupling. Within the Structural Flux Paradigm, this period of non-detection is a critical calibration point, proving that high thermal coupling efficiency ($\eta \rightarrow 1$) precludes residual radiative dissipation ($\mathcal{R}$) in regions of low structural impedance.
\end{abstract}
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\section{Introduction}

The scientific assessment of 3I/ATLAS requires a rigorous definition of its "quiescent state." Unlike conventional models that view radio silence as intrinsic to inert bodies, SPT v1.3 treats it as a variable dependent on vacuum impedance (Z_H). This work documents the control phase of our predictive campaign.

\section{Baseline Observational Consistency}

Radio observations conducted on December 21, 2025, resulted in a non-detection of emissions within the standard 1--10 GHz monitoring band. Within the SPT-B1.3 framework, this outcome is consistent with a regime of high thermal coupling efficiency ($\eta \rightarrow 1$) and low local structural impedance (Z_H).

In this laminar coupling regime, incident energy is efficiently anchored into substrate-supported modes, preventing the emergence of residual radiative dissipation ($\mathcal{R}$). The absence of radio emission therefore constitutes a calibrated control state, rather than evidence of dynamical inactivity.

\section{Quantitative Calibration of η}

The coupling efficiency during the baseline period is defined by:

\begin{equation}

\eta_{base} = \lim_{Z_H \to 0} \frac{E_{th}}{E_{in}} \approx 1

\end{equation}

This confirms that the Pleroma in the pre-ecliptic region was in a state of mechanical equilibrium, allowing 3I/ATLAS to maintain structural integrity without radiative leakage.

\section{Predictive Divergence}

This non-detection establishes the empirical baseline against which any subsequent radio emission can be quantitatively attributed to changes in substrate coupling conditions induced by structural interactions during the Jovian approach.

As the object moves into regions of increased gravitational gradient, the expected rise in Z_H will force $\eta < 1$, triggering the first detectable signals of $\mathcal{R}$.

\section{Conclusion}

The December baseline is the anchor of the BSI predictive model. It provides the "zero-point" necessary to validate the non-gravitational and radiative anomalies forecasted for the first quarter of 2026.

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\textbf{Document Status:} Final Baseline Report. \\

\textbf{Institutional Tag:} Black Science Institute. \\

\textbf{Integrity Reference:} BSI-2026-3I-BASE.

\end{document}