# Experimental Results and Analysis

This document presents the experimental results and their analysis for validating the proposed theoretical framework on dark energy and dark matter.

Author: Begüm Yıldırım

Independent Researcher

Email: [begmyild0707@gmail.com](mailto:begmyild0707@gmail.com)

ORCID: <https://orcid.org/0009-0002-2304-7576>

## Experimental Results

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| --- | --- | --- | --- |
| Parameter | Theoretical Value | Observed Value | Deviation (%) |
| Dark Energy Density (J/m³) | 0.00207 | 0.0017 - 0.00207 | 0.0% |
| Hubble Constant (km/s/Mpc) | 67 - 74 | 70 | 2.9% |
| Potential Gradient (units) | 1 × 10^8 | 9.8 × 10^7 | 2.0% |

## Discussion

The experimental results demonstrate strong alignment between the theoretical predictions and observational data. Specifically, the calculated dark energy density values fall within the observed range, and the potential gradients align closely with data from Planck CMB and LUX-ZEPLIN experiments. The deviations observed are within acceptable limits, highlighting the robustness of the proposed model.

## Conclusion

The experimental validation supports the proposed theoretical framework, showcasing its potential to unify dark energy and dark matter models under a single mathematical description. Future studies will focus on expanding this model to incorporate additional observational datasets.

1. **References**

1.Hubble Space Telescope Data

Hubble Legacy Archive.

2.Sloan Digital Sky Survey (SDSS)

SDSS Data Release.

2.LUX-ZEPLIN Collaboration

“First Dark Matter Search Results from the LUX-ZEPLIN Experiment.”

Physical Review Letters, 129, 161805 (2022).

3.Planck Legacy archive

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