# Six-DUH-WAR-F: A Fluid-Based Framework for Gravitational and Relativistic Effects

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## 1 Introduction

The Six-DUH-WAR-F (6-Dimensional Wake Accretion in Relativistic Fluids) framework proposes that space behaves as a structured quantum fluid whose viscosity, memory, compressibility, and higher-dimensional coupling vary across gravitational regimes. We present here the first parameterization of this cosmic fluid based on observationally derived quantities across three regimes: Toroidal Vacuum, Uncompressed Space, and Compressed Space.

## 2 Core Fluid Equations

### 2.1 Viscosity (Mu)

$$\mu(r) = \mu_0 \cdot f_\mu(r, \rho, v)$$

### 2.2 Memory Term (Tau_m)

$$\tau_m(r) = \tau_0 \cdot f_\tau(r, \nabla v, t)$$

### 2.3 Compressibility (C6D)

$$C_{6D}(r) = C_0 \cdot f_C(\nabla \rho, \nabla P)$$

### 2.4 Dimensional Coupling (D_4,5)

$$D_{4,5}(r) = D_0 \cdot f_D(\nabla B, \nabla E, \text{Polarization})$$

## 3 Reverse Engineered Parameters

### 3.1 Mu Profile

| Regime | Mu (relative) |
|---|---|
| Toroidal | 1.00 |
| Uncompressed | 0.58 |
| Compressed | 5.45 |

### 3.2 Tau_m Profile

| Regime | Tau_m (relative) |
|---|---|
| Toroidal | 1.00 |
| Uncompressed | 1.37 |
| Compressed | 8.02 |

### 3.3 C6D Profile

| Regime | C6D (relative) |
|--------|----------------|
| Toroidal | 1.00 |
| Uncompressed | 0.83 |
| Compressed | 7.12 |

### 3.4 D_4,5 Proxy Profile

| Regime | D_4,5 (relative) |
|--------|------------------|
| Toroidal | 1.00 |
| Uncompressed | 1.28 |
| Compressed | 4.95 |

# 4 Path Length Corrections vs. True Time Dilation

## 4.1 Equation

$$\Delta t_{\text{obs}} = \frac{L_{\text{fluid}}}{c} + \Delta t_{\text{true}}$$

## 4.2 Initial Results

| Object | Correction Factor | Corrected Time Delay |
|--------|-------------------|----------------------|
| Lensed Quasar | 1.28 | 6.25 days |
| BH Lensed Light | 1.45 | TBD |
| Void Edge Light | 1.15 | TBD |

# 5 Shell Strength Prediction

$$S_{\text{shell}} = f(C_{6D}, \Delta\mu, \Delta\tau_m, \nabla v)$$

# 6 Observational Sources

- Nature (10.1038/s41586-018-0254-4)

- NASA Voyager Mission

- ALMA/ESO (10.3847/2041-8213/abe4b7)

- LAB Survey (10.1051/0004-6361:20040436)

- BOSS (10.1093/mnras/stz1096)

- GRAVITY (10.1051/0004-6361/201935656)

- LIGO/Virgo (10.1103/PhysRevLett.125.101102)

- NANOGrav (10.3847/2041-8213/acdac6)

- SOHO/SDO (10.1086/381502)

- SDSS (10.1086/427276)

- COSMOGRAIL (10.1051/0004-6361/201935229)

- AMS-02 (10.1103/PhysRevLett.114.171103)

- IceCube (10.1126/science.1242856)

- Parker Solar Probe (10.1038/s41586-019-1818-7)

- COS-HST (10.3847/1538-4357/ab8e3d)

- XMM-Newton (10.1088/0004-637X/742/1/44)

- LOFAR (10.1051/0004-6361/202039703)

- Super-Kamiokande (10.1103/PhysRevLett.81.1562)

- KM3NeT/ANTARES (10.1093/mnras/stac2439)