Mathematical Framework of the Amiyah Rose Smith Law

Introduction

The Amiyah Rose Smith Law extends Einstein?s relativity by incorporating Size (S), Density (?), Velocity (v), and Rotation (?) as fundamental parameters affecting time dilation, gravity, and energy interactions. This law modifies gravitational equations, rotational time dilation models, and quantum coherence frameworks to account for these additional effects.

Generalized Time Dilation Equation

The fundamental equation modifying relativistic time dilation under the Amiyah Rose Smith Law is:

$$T' = T * (1 - (S / S_0) * (? / ?_0) * (v / c) * (? / ?_0))$$

where:

- T' is the modified time dilation factor
- T is the standard relativistic time dilation factor
- S is the object's physical size (radius)
- S_0 is the reference size (e.g., Earth or neutron stars)
- ? is the object's density
- ?_0 is a reference density
- v is velocity relative to an observer
- c is the speed of light
- ? is rotational velocity
- ?_0 is a reference rotational velocity

This equation suggests that size, density, and rotation influence time dilation in addition to velocity and gravity.

Rotational Time Dilation

Standard frame-dragging time dilation equations assume rotational effects near a mass but do not account for density or size influences. The Amiyah Rose Smith Law modifies the Kerr solution as:

$$?' = ? * (1 - (r^2 / r_s^2)) * (1 + (? / ?_0))$$

where:

- ?' is the modified rotational frame-dragging velocity
- r is the radial distance from the rotational center

- r_s is the Schwarzschild radius of the system
- ?_0 is the reference density

This predicts that extremely dense objects with rapid rotation experience greater time dilation than previously estimated.

Gravitational Collapse & Stability Conditions

The Amiyah Rose Smith Law modifies the gravitational collapse threshold:

GM / Rc^2 + ?^2 R^2 / c^2 + ? / ?_0 = 1

where:
- If the sum > 1, the object collapses into a singularity
- If the sum = 1, the object remains stable at the threshold
- If the sum < 1, the object remains structurally stable

This suggests that extreme rotation or density can prevent collapse, which may explain highly magnetized neutron stars and extreme astrophysical phenomena.

Time Reversal Conditions

Under specific conditions, time reversal may occur. The threshold for time reversal is:

(S / S_0) * (? / ?_0) * (? / ?_0) > 1

If this inequality holds, localized time flow reversal may be observed, potentially explaining gravitational anomalies in high-density rotating bodies.

Quantum Implications & Decoherence

Quantum mechanics predicts decoherence at specific time intervals. The Amiyah Rose Smith Law modifies this:

?' = ? * (1 - (S / S_0) * (? / ?_0))

where:
- ?' is the adjusted quantum decoherence rate
- ? is the standard decoherence rate

This predicts that extreme density and size slow quantum decoherence, which could have implications for

quantum computing and entanglement stability.

Conclusion

The Amiyah Rose Smith Law extends General Relativity by introducing additional corrections based on size, density, and rotation. It provides a framework for gravitational corrections, deep-space travel, quantum entanglement stability, and potential time reversal conditions. If experimentally validated, this law could represent a fundamental advancement in our understanding of physics.