



THE CONSUBSTANTIALITY OF GRAVITATIONAL AND ELECTROMAGNETIC INTERACTIONS

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Communicated by Wasyl Kowalczuk

The classical program of geometrizing physics, initiated by Einstein, Eddington, and Weyl, is revisited in the context of modern metric-affine geometry. We present a unified framework based on a four-dimensional continuum Y^4 endowed with torsion, where the connection is independent of the metric. Within this setup, the symmetric part of the curvature is identified with the gravitational field, while the antisymmetric part is naturally interpreted as the electromagnetic field tensor. By synthesizing Eddington's affine variational principle with Weyl's gauge-theoretic insight, we derive a set of field equations that describe both interactions from a single geometrical action. The framework explicitly incorporates torsion, thereby providing a natural link to the Einstein-Cartan-Sciama-Kibble theory and to modern gauge theories of gravity. We show how the classical Maxwell-Einstein equations emerge as special cases, revealing the consubstantiality of gravity and electromagnetism at the geometrical level.

MSC: 53C80, 53Z05, 78A25, 83C22, 83D05

Keywords: Eddington affine variational principle, Einstein-Cartan theory, metric-affine geometry, teleparallel gravity, torsion, unified field theory, Weyl geometry

Contents

1	Introduction	83
1.1	Historical Roots of Geometric Unification	83
1.2	The Modern Context: Torsion, Gauge Theories, and Non-Riemannian Geometries	84
1.3	This Work: Synthesis in Y^4 Space	84
1.4	Structure of the Paper	85
2	Geometrical Foundations of Y^4	85
2.1	Metric-Affine Structure: Beyond Riemannian Geometry	86
2.1.1	Torsion: The Antisymmetric Part of the Connection	86
2.1.2	Curvature: The Riemann Tensor of the General Connection	87
2.1.3	Solving for the Connection: Metric Compatibility	87
2.2	Variational Principle and Derivation of Field Equations	88