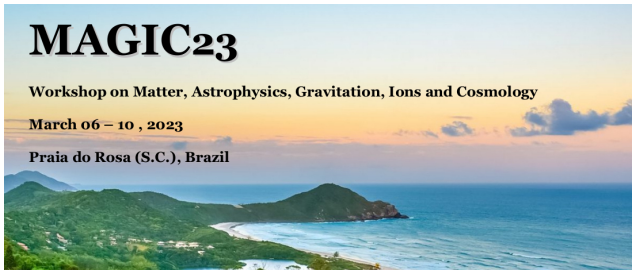

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On CCGG, the De Donder-Weyl Hamiltonian formulation of canonical gauge gravity

The purpose of this talk is to illuminate the advantages of the manifestly covariant formulation of canonical gauge gravity. The framework of the De Donder-Weyl Hamiltonian field theory and of canonical transformations is introduced. We sketch how the Canonical Covariant Gauge theory of Gravity (CCGG) is derived from a few basic physical and mathematical assumptions. Some novel implications of CCGG for particle dynamics and cosmology are presented. Among those are:
Spacetime geometry with AdS ground state, inertia, torsion and geometrical vacuum energy Poisson-like equations for curvature and torsion (with Dirac spin density as source term for torsion). Emergent length parameter from the Dirac field Anomalous Pauli coupling of spinors to curvature torsion of spacetime, and a metric dependent mass correction. Zero-energy balance of the Universe leading to a vanishing cosmological constant. First numerical results indicating the viability of the concept of torsional dark energy.

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