Seminar Fizičkog odsjeka

Time (s.t.)	Place
Wednesday 31$^{\text{th}}$ May, **11:00** h	room **F-201**

Weyl symmetry in the standard model and gravity

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Weyl symmetry is realized in Cartan-Einstein gravity both at the kinematical and dynamical level because of geometric torsion. The symmetry can be naturally extended to matter fields by a suitable generalization of covariant derivative and by supplementing a dilaton field. Fermionic matter sources skew symmetric torsion while scalar matter sources vectorial torsion trace (gauge fields do not trace torsion). This implies that, when matter fields are integrated out, vectorial torsion and skew symmetric torsion become dynamical. Next, I will discuss Ward identities and how trace anomaly can be reinterpreted in this theory. Finally, I will discuss some physical implications of our results, in particular how torsion can be seen by conventional gravitational wave detectors.

References

- S. Lucat and T. Prokopec: *The role of conformal symmetry in gravity and the standard model*, Class. Quantum Grav. **33** (2016) 245002, arXiv:1606.02677 [hep-th]
- S. Lucat and T. Prokopec: *Observing Geometrical Torsion*, arXiv:1705.00889 [gr-qc]

Voditelji seminara FO

Damir Pajić i Ivica Smolić