



Contribution ID: 86

Type: **Oral Presentation**

't Hooft anomalies for staggered fermions

Wednesday, August 10, 2022 2:00 PM (20 minutes)

We show how staggered fermions can be coupled to gravity by generalizing them to Kaehler-Dirac fermions. The latter experience a perturbative gravitational anomaly which breaks a $U(1)$ symmetry down to Z_4 . This anomaly is captured exactly by the lattice theory. Furthermore we show that this theory exhibits a second non-perturbative 't Hooft anomaly which can be seen by considering propagation on non-orientable spaces. This anomaly can be cancelled for multiples of two Kaehler-Dirac fields. This observation explains recent work that shows that multiples of two staggered fermions can be gapped without breaking symmetries.

Primary author: CATTERALL, Simon

Presenter: CATTERALL, Simon

Session Classification: Theoretical Developments

Track Classification: Theoretical Developments and Applications beyond Particle Physics