Higher dimensional anomalies

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2 Review on anomalies

In this section, I will review the typical anomalies in 4d theories.

2.1 Chiral anomalies

Let us consider the simplest case first, the Quantum Electrodynamics case (QED)

$$\mathcal{L} = \bar{\psi} i \not{D} \psi - m \bar{\psi} \psi - \frac{1}{4} F^{\mu\nu} F_{\mu\nu} \tag{2.1}$$

where $\not{D} \equiv \gamma^\mu D_\mu = \gamma^\mu (\partial_\mu - ieA_\mu)$ is a Feynman slashed symbol of the covariant derivative .

References

[ACG01] N. Arkani-Hamed, A. G. Cohen, and H. Georgi, *Anomalies on Orbifolds*, Physics Letters B **516** (2001) 395–402, arxiv:hep-th/0103135.