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## Theorie-Palaver

Oct. 24, 2023 at 2 p.m. Lorentz room (Staudingerweg 7, 5th floor)

Benoit Assi Fermilab

## **Geometry of effective field theories: the fermion sector**

The geometry underlying field space plays a pivotal role in governing on-shell scattering amplitudes. In this talk, we present a comprehensive geometric description of effective field theories, building upon prior work involving scalars and gauge fields, and further extending it to fermions. This novel field-space geometry not only offers a systematic reorganization but also significantly streamlines the computation of quantum loop corrections. Capitalizing on this framework, we attain the fermion loop contributions to the renormalization group equations for bosonic operators within the Standard Model Effective Field Theory, covering up to mass dimension eight.

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