

## Wess-Zumino-Witten Interactions of Axions

*Saturday, 28 September 2024 16:30 (30 minutes)*

We present a consistent derivation of the complete Wess-Zumino-Witten interactions of axions, including the counter-term necessary to guarantee the gauge invariance of the Standard Model. By treating the derivative of the axion field as a background gauge field and incorporating auxiliary chiral rotation phases, we ensure consistency in the axion-interaction Lagrangian. This approach allows us to derive basis-independent physical interactions of axions with gauge bosons and vector mesons. As an example, we explore the interaction of  $a$ - $\omega$ - $\gamma$  to illustrate the potential for searching for axion-like particles at colliders.

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