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Wess-Zumino-Witten Interactions ⊠of Axions

Thursday, 22 August 2024 09:00 (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-ω-γ to illustrate the potential for searching for axion-like particles at colliders.

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