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## Absence of CP violation in the strong interactions

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The CP-odd theta-term that should be assumed to be nonzero in general requires an explanation why it does not lead to CP-violating observables in the strong interactions. Known approaches include vanishing quark masses or extensions of the Standard Model. Here, we construct the fermionic Green's and correlation functions in the background of an instanton gas. For these correlators, we find that the CP-odd phases in the terms that break chiral symmetry from the quark masses and from the instanton effects are aligned, such that there remain no CP-violating observables. Crucial for this conclusion is that in the calculation of the correlators, the spacetime volume has to be taken to infinity before summing over the topological sectors.

The absence of CP-violation in strong interactions is therefore explained within the Standard Model.

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