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Exploiting hidden symmetries to accelerate the lattice calculation of $K \rightarrow \pi\pi$ decays with G-parity boundary conditions

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The RBC & UKQCD collaborations have successfully employed G-parity boundary conditions in the measurement of $K \rightarrow \pi\pi$ decays to obtain a physical decay with the two-pion ground state, at the cost of a significant increase in computational expense. We report on new theoretical/algorithmic developments based upon the properties of the Dirac operator under complex conjugation that have been exploited to achieve highly significant computational cost reductions, and explain their impact on our ongoing effort to repeat the calculation on finer lattices.

Topical area

Tests of Fundamental Symmetries

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