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The Feynman propagator for the harmonic and anharmonic oscillators: three different roads

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Abstract content

Summary

In this poster we present the analysis to obtain the Feynman propagator for the harmonic and anharmonic oscillators, performed using three different methodologies. First, we use Schwinger's method in which we solve Heisenberg operator equations of motion with adequate boundary conditions. Then, we use the Algebraic method in which we attain the time evolution operator factorization using the Baker-Campbell-Hausdorff identity as a mean to arrive at the propagator after appropriate integration in momentum space. Finally, we use a more traditional method: path integration based on a recurrence relation for the product of infinitesimal propagators.

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