

NON-PERTURBATIVE ANHARMONIC  
CORRECTION TO MEHLER'S PRESENTATION  
OF THE HARMONIC OSCILLATOR PROPAGATOR

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S u m m a r y

We find the possibility of a non-perturbative anharmonic correction to Mehler's formula for the propagator of a harmonic oscillator. The conditional Wiener measure functional integral with a fourth-order term in the exponent is evaluated using a method alternative to the conventional perturbative approach. In contrast to the conventional perturbation theory, we expand the term linear in the integration variable in the exponent into a power series. The case where the starting point of the propagator is zero is discussed. The results are presented in analytical form for positive and negative frequencies.