

## **Feynman amplitudes in compact spaces up to all orders**

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One crucial step to discuss general aspects of the perturbative expansion in quantum field theories is the definition and use of parametric representations of Feynman amplitudes. However, even though the usual zero temperature scenario is well-known and textbook material, a complete discussion of a parametric representation considering finite temperature and finite-size effects is absent in the standard literature. In previous work, we developed a parametric representation for the scalar field. Now we extend it to consider field theories with nonzero spin  $(0, \frac{1}{2}, 1)$  and also quasiperiodic boundary conditions in space. There are two valid and equivalent representations, one useful for the small-box limit (near dimensional reduction) and another useful for the large-box limit (near the bulk).

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