

On the infinite order resummation of some finite temperature diagrams

Yasushi Fujimoto, M. Loewe & J. C. Rojas

Abstract

In the scalar ϕ^4 theory we discuss the behavior of the thermal four-point amplitude, after making a resummation of an infinite chain of loops. The calculation is presented in the thermofield dynamics formalism. It is shown that the zero temperature contribution to the real part of the amplitude has no differences with respect to the usual one-loop result. This is not the case, however, for the temperature-dependent part, where the loop resummation implies a completely different behavior of the amplitude, for the real as well as for the imaginary parts, compared to the one-loop result.