

## Peer Review

# Review of: "Fermionic Casimir Effect at Finite Temperature in Hořava–Lifshitz Theories"

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In this work, the author investigated the Casimir effect of a massless spinor field confined by two plates modeled by MIT bag boundary conditions in the context of Lorentz-violating Horava–Lifshitz theory using the zeta-function technique. Specifically, the Casimir energy, as well as the Casimir force, is calculated analytically in the low and high temperature limits with different values of the critical exponent. This background review in this paper is very clear, and the deduction in the main body is very smooth. In all, this manuscript is well written.

In my opinion, there is one major issue and some minor issues that should be addressed.

The major issue is in Sec. III A, where the author claimed that the finite temperature correction to the Casimir force should vanish according to Eqs. (III 16) and (III 21). However, these two equations are only the leading contributions of the finite correction Eqs. (III 7) and (III 19), and I see no evidence that the remaining part should also vanish. So I think the conclusion that can be drawn is that the Casimir force should be null at the leading order.

The minor issues are:

It would be better to assign  $k_z$  with a new subscript  $n$ , like  $k_{z,n}$ , in Eqs. (II 10) and (II 11), as well as the equations thereafter, to make the summation over  $n$  more explicit.

In Eqs. (III 2) and (III 8), the author used the Poisson–resummation technique in the low and high temperature limits, respectively. I suggest the author give more details on this step, like in Eq. (II 12), and an explanation of why the summations in the different temperature limits are on different indices.

## **Declarations**

**Potential competing interests:** No potential competing interests to declare.