Answer to the referees' comments:

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We thank both referees for their detailed reports and for the appreciation of our work. In what follows we address the concerns raised and detail the changes introduced in the manuscript.

REFEREE#1

We thank the referee for the positive comments and for recommending publication of our work. Following his/her advice, we have made the following changes:

- `I) I would recommend the authors to give some additional motivation for Eq. (17), since this is one section that is particularly important for experimentalists. One possibility would be to include a short appendix recalling in simple terms (if possible) the derivation made in Ref. 22.`

  We have added a paragraph in the manuscript with the derivation of Eq. (22).

- `II) Another thing that would need improvement is the discussion of the thermal conductivity in section 5. In that section Eq. (24) is mentioned as a "general expression", something that is certainly not true. Eq. (24) is valid in the dilute limit. A similar formula, also valid in the dilute limit, can be derived for the viscosity (is it not relevant here?). I would recommend the authors to clearly state the regime of validity of Eq. (24).`

  We have added a paragraph in sec. 5 discussing the regime of validity of Eq. (24). We thank the referee for the suggestion to analyze the viscosity. We have not studied it partly because of the expected smallness of the effect and the difficulty to perform viscosity measurements.

REFEREE#2

- `I) Can the authors estimate how narrow the chemical potential window is in which their effect is much larger than this "trivial" linear-in-T specific that?`

  This issue is discussed in the second paragraph of the section on Experimental accessibility. From eq. (18) we see that the electron (or pockets) densities should be less than $10^{20-21} cm^{-3}$ compatible with most Dirac materials.

- `II) Another question concerns a benchmark measurement with a real magnetic field: would the application of a strong enough real magnetic field not result in a similar change of the specific heat? If so, could one not propose a benchmark experiment with real magnetic field that would even facilitate a direct measurement of the pseudo field strength?`

  We are not sure that we understand this suggestion. The chiral sound wave will not form in a real magnetic field. A strong real magnetic field would set the electrons to the quantum limit where only the chiral lowest Landau level will be populated. These effectively 1D electrons will also have a linear in T specific heat but there will not be any specific observation related to the pseudo gauge field.