Review of: "Dynamic structure factors and equation of state of fluid iron under Earth’s core condition"

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Potential competing interests: No potential competing interests to declare.

This study presents an investigation of the dynamic structure factors and equation of state of fluid iron under Earth's core conditions. The structure factor and equation of state are used to establish the mathematical model of the problem. Then, ab initio molecular dynamics calculations are used to simulate some numerical results in detail. A comparison study is also provided to validate the proposed model with thanks to experimental data. The properties of the Earth's core are then demonstrated extensively. The paper is well-written; the following minor corrections should be made:

- Eq. (1) is incorrect; please check and correct it.
- All variables of the mathematical equations should be explained clearly. For example, “T” and "rho" in Eq. (2).
- It can be seen from Fig. 1 that the present results are different from the experimental results. A suitable explanation should be provided herein.
- The physical meaning of Fig. 2 should be more clearly discussed.