

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

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In this manuscript, the authors investigated the static structure factors, ion-ion dynamic structure factors, and equation of state of Fe under the Earth's core conditions by molecular ab-initio calculations. DFT-based calculation for the fluid is significant and interesting. Before any consideration of publication, they have to address these issues:

1. What is your schematic of the model? And also, what is your unit cell structure? I think that specifying the supercell/unit cell for ab-initio calculations is necessary to avoid any confusion for readers?
2. The number of equations is missing. For example, "The geothermic curve was calculated by Eq. ? and the fitted EOS." In every sentence which refers to an equation, the number of the equation is missing.
3. In the Earth's outer core, there is a fluid composed of Fe and Ni, which is responsible for the eddy current and the creation of the magnetic field. If one would like to consider the Ni fluid or the FeNi fluid, which features are changed?
4. How much is the magnetic field or magnetic torque in your model?
5. What about the spin calculation and magnetic moment in your structure model?