

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

Bahtiyar A. Mamedov¹

¹ Gaziosmanpasa University

Potential competing interests: No potential competing interests to declare.

Referee Report

Article title: Dynamic structure factors and equation of state of fluid iron under Earth's core conditions

The authors present a theoretical study claiming that *ab initio* molecular dynamics was adopted for the calculations of ion-ion dynamic structure factors and the equations of state of pure iron under Earth's core conditions. By using the proposed method, the static structure factors and radial distribution function were compared with the experimental data, and the dynamic structure factors and dispersion curve were calculated, and then the V_{PS} at the specified states were collected. Also, in the paper, the authors, based on the equation of state, compared the thermoelastic properties under Earth's conditions with PREM values, and the calculated V_{PS} by the two methods were analyzed. The results are compared with the experimental and theoretical data. It is seen that the results obtained from this approach are convenient and competitive.