Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Corrections of Hayes Equation of State for Phase Transform under Dynamic Loading. TAO CHONG[1], USTC — **Abstract**: The experimental results of iron under ramp wave and shock compression are simulated with Hayes equation of state (EOS) for phase transition. The calculated results are consistent with the experimental data under shock, and don't agree well with the data under ramp wave loading. The reason for the problem is that the bulk modulus in Hayes model is constant (i.e., Bulk sound speed is constant). The sound speed corresponds to the slope of the Rayleigh line when materials leap from the initial state to the final state under shock loading, therefore, the bulk modulus can be considered as a constant. However, under ramp loading, material from initial to the final state is consecutive, and the bulk modulus is not a constant any more but a function of pressure and temperature. The bulk modulus of Hayes EOS is corrected with Murnaghan EOS, and the corrected Hayes EOS is applies to simulate the experimental results. The results show that the calculated data agree well with the experimental data under both shock and ramp wave loadings. .

[1]I hope you give me an oral presentation, otherwise I might not be able to attend the meeting

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Date submitted: 02 Dec 2015   Electronic form version 1.4