Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Large scale simulations of quasi-isentropic compression in Fe and Al[1] STEPHANE MAZEVET, TOMMASO VINCI, CEA-DAM-DIF, 91287 Arpajon France — To measure the melting point or the equation of state of iron under conditions corresponding to the earth core requires quasi-isentropic schemes. This brings conditions that are colder than regular Hugoniot measurements but significantly hotter than along the theoretical isentrope. One major uncertainty for this approach is to account for the phase transformations taking place. Using large scale molecular dynamics simulations, with sample size comparable to the experiment, we quantify the effect of the kinetics of the plastic and the solid-solid phase transformations occurring during the quasi-isentropic compression of Fe and Al samples.

[1]This work is supported by the project SECHEL ANR-07-BLAN-0239.

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Date submitted: 17 Nov 2009 Electronic form version 1.4