

Abstract Submitted
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Equation of state and transport properties of silicates under extreme conditions TINGTING QI, SEBASTIEN HAMEL, LLNL — Understanding the physical properties of silicates under high temperature and pressure is fundamental to an accurate description of planetary interiors and evolution models. For example, earth's mantle is a rocky silicate shell constituting about 84% of Earth's volume. Possible chemical compositions include SiO_2 and some other silicates such as MgSiO_3 and CaSiO_3 . Moreover, Moon forming scenarios often invoke giant impacts between silicate-rich objects. Similarly, the existence of a rocky core or mantle with silicate as the major component is frequently assumed in models of giant planets, such as Jupiter or Saturn and Uranus and Neptune. Consequently, constructing planetary interior and evolution models requires knowledge of silicate's equation of state and its optical and transport properties at high pressures and temperatures.

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