

Thermodynamics of Hydrogen and Helium under Shock and Quasiisentropic Compression at Megabar Pressures

Victor K.Gryaznov, Igor L.Iosilevskiy, Vladimir E.Fortov

*Institute of Problems of Chemical Physics RAS
Joint Institute for High Temperatures RAS*



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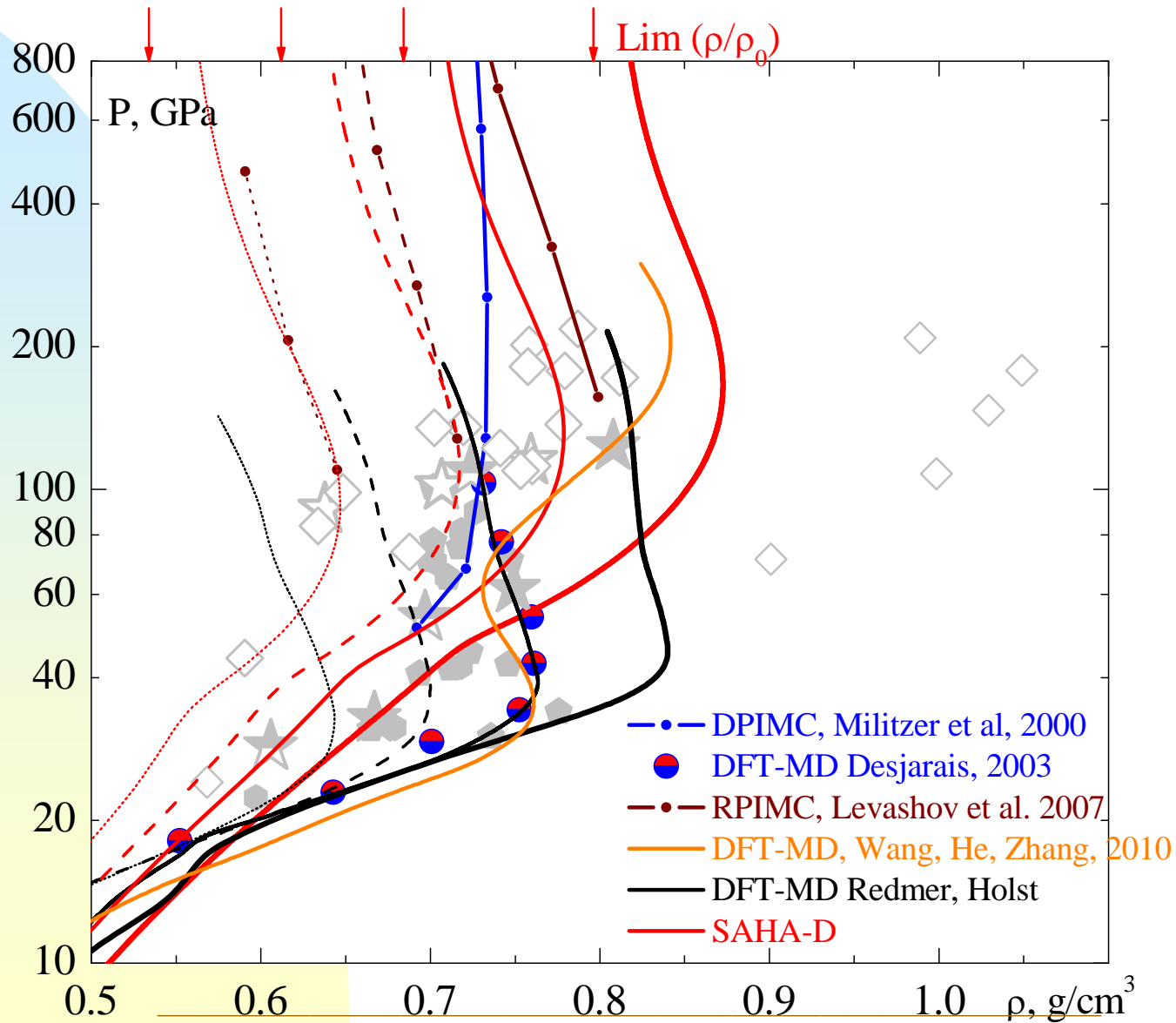
Chemical picture. SAHA-D model

Approach

- ◆ Matter is considered as interacted mixture of atoms, molecules, ions and electrons (A , A_2 , A^+ , A_2^+ , e^-)
- ◆ Coulomb interaction of charged particles - modified pseudopotential model
I.Iosilevskiy, High.Temp, **18**, 355 (1980), JETP, **97**, 259 (2003)
- ◆ Intensive sort-range repulsion - modified soft sphere model
D.Young (1977), E.Yakub, Physica B, **265**, 31 (1999),
V.Fortov, I.Iosilevskiy, V.Gryaznov, JETP, **97**, 259 (2003)
- ◆ Partially degenerated electrons
- ◆ Short range attraction
V.Gryaznov, V.Fortov, I.Iosilevskiy, JETP, **87**, 678 (1998)

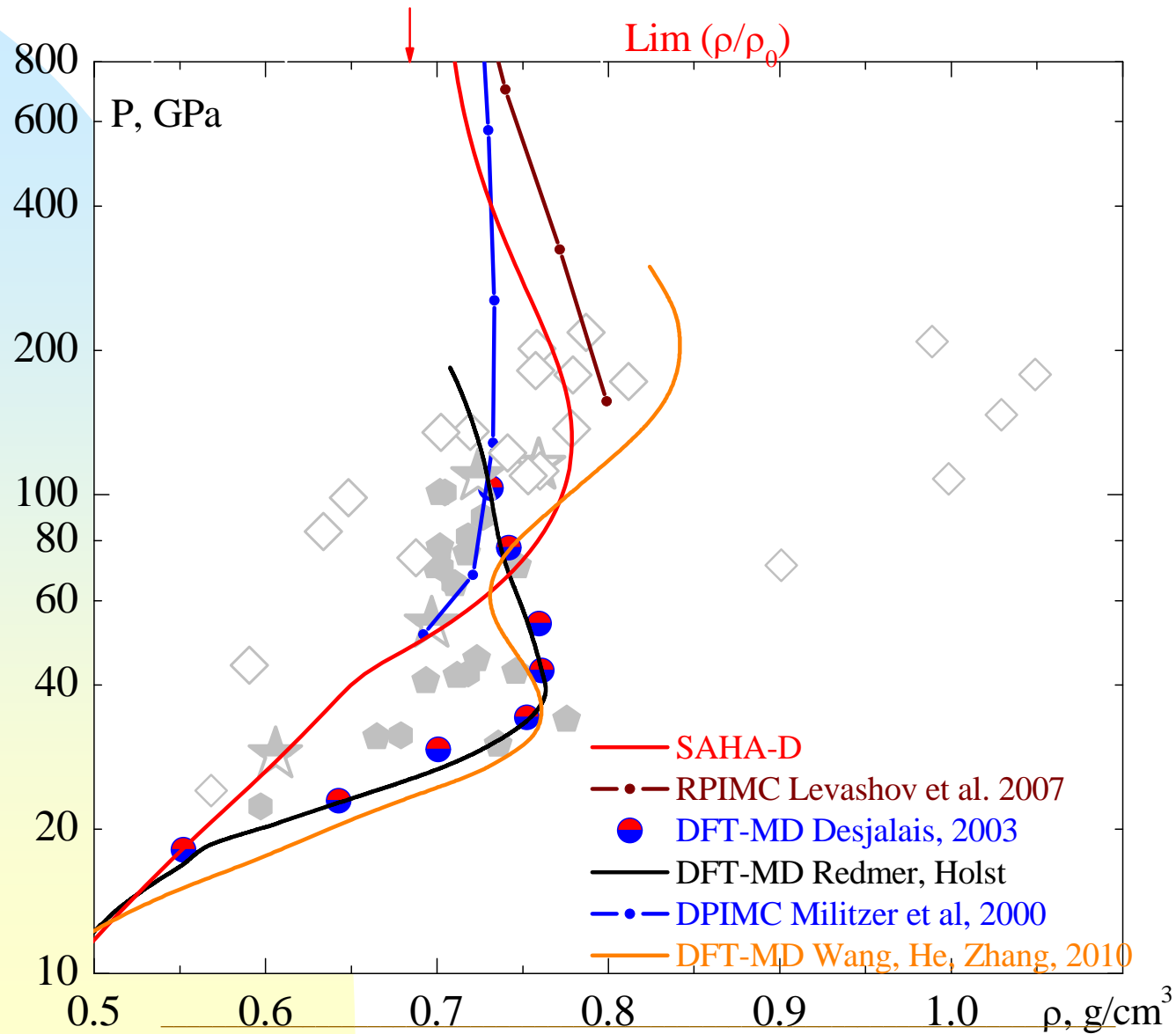
Hugoniot of fluid deuterium

Model calculations



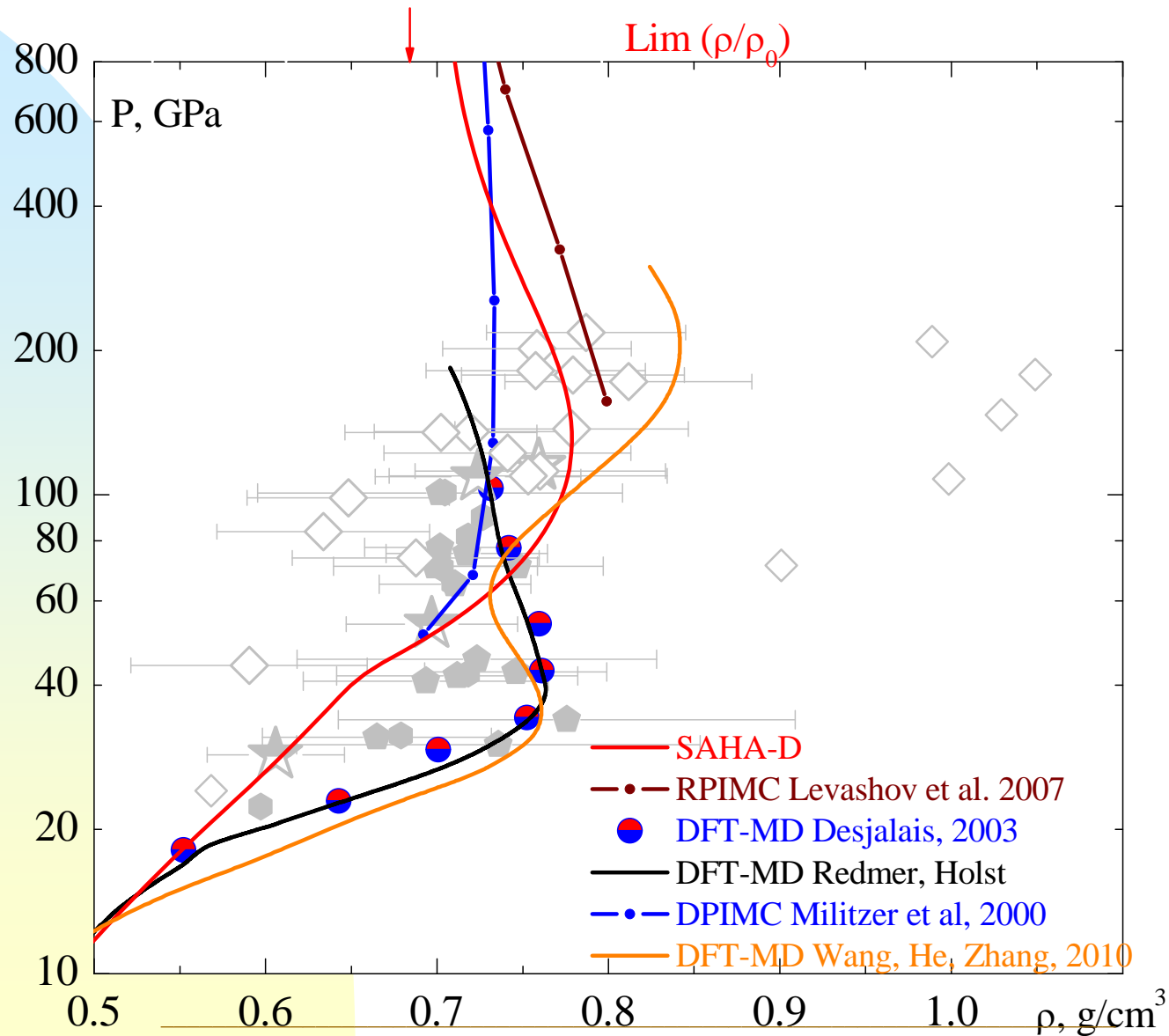
Hugoniots of liquid deuterium

Model calculations

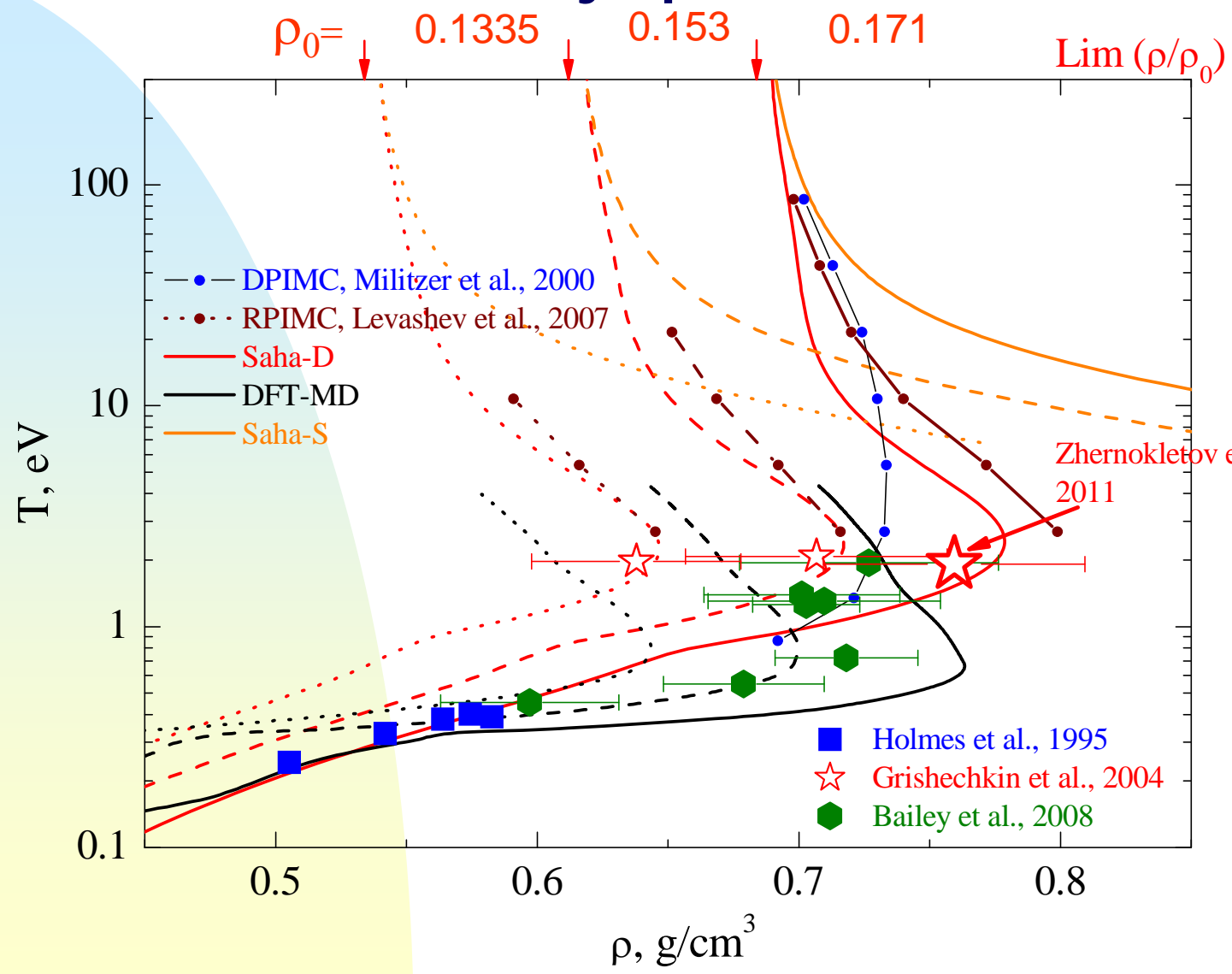


Hugoniots of liquid deuterium

Model calculations

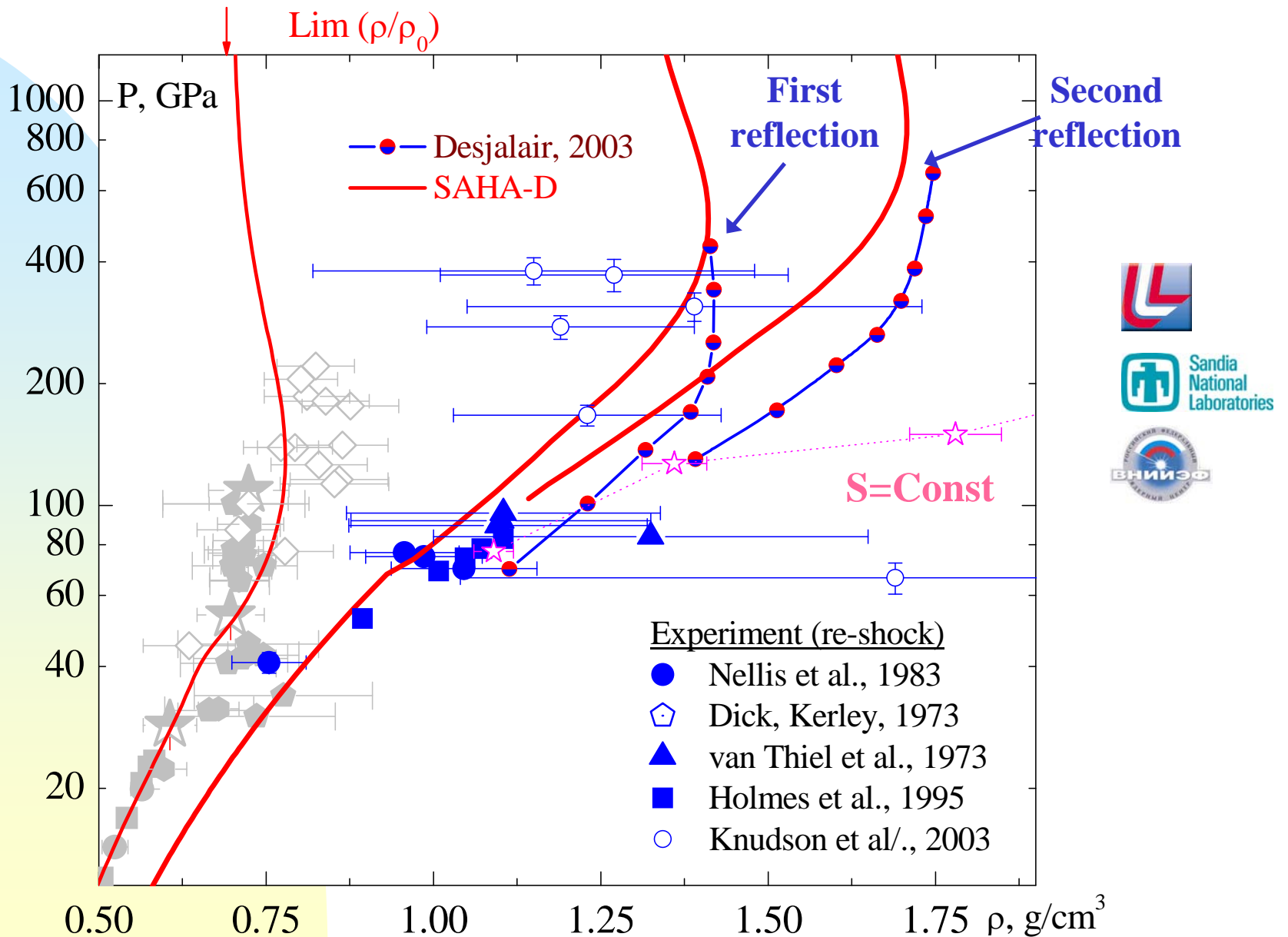


Temperature measurements and high-temperature asymptotics

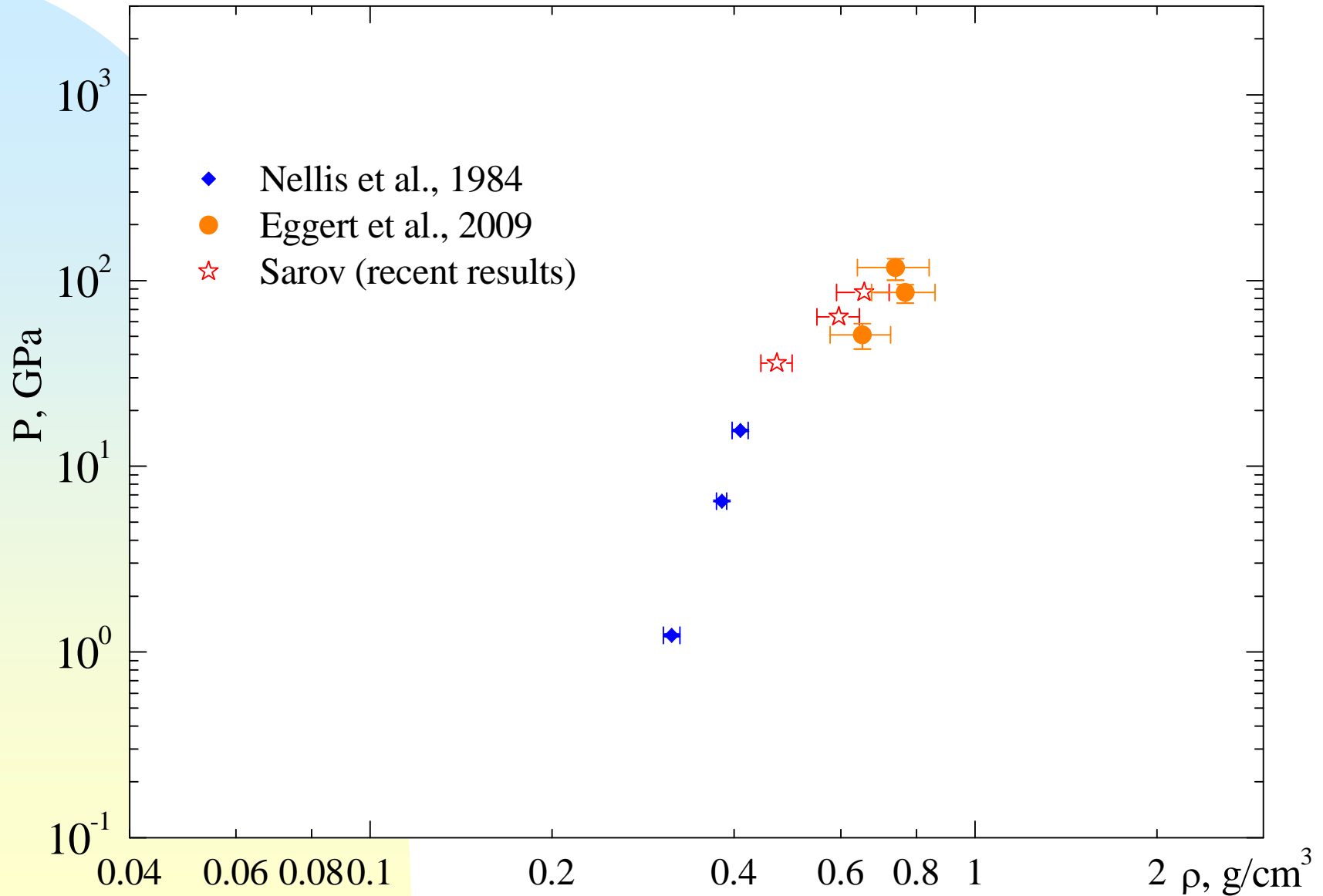


Liquid deuterium. Triple shock

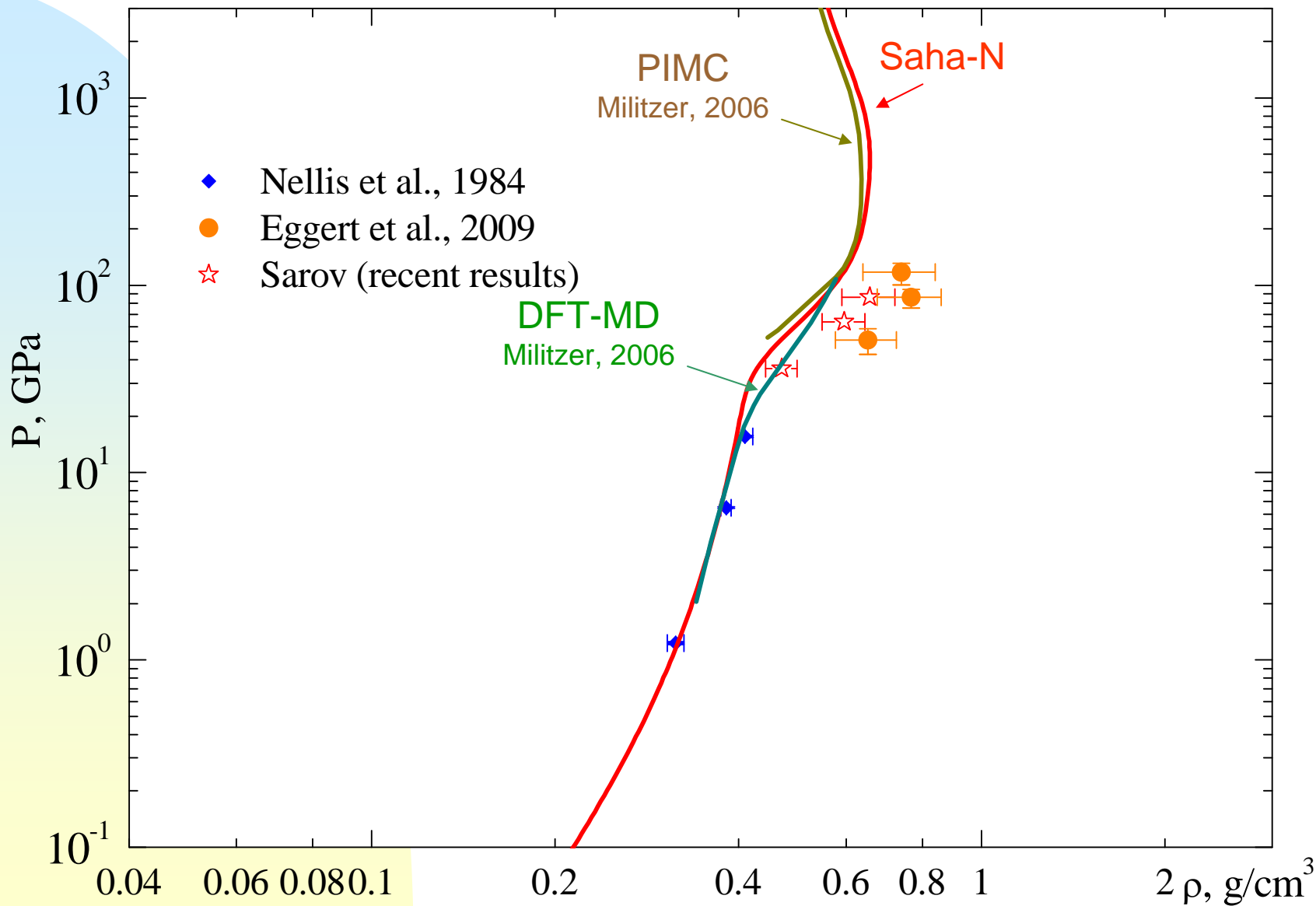
Experimental data and model calculations



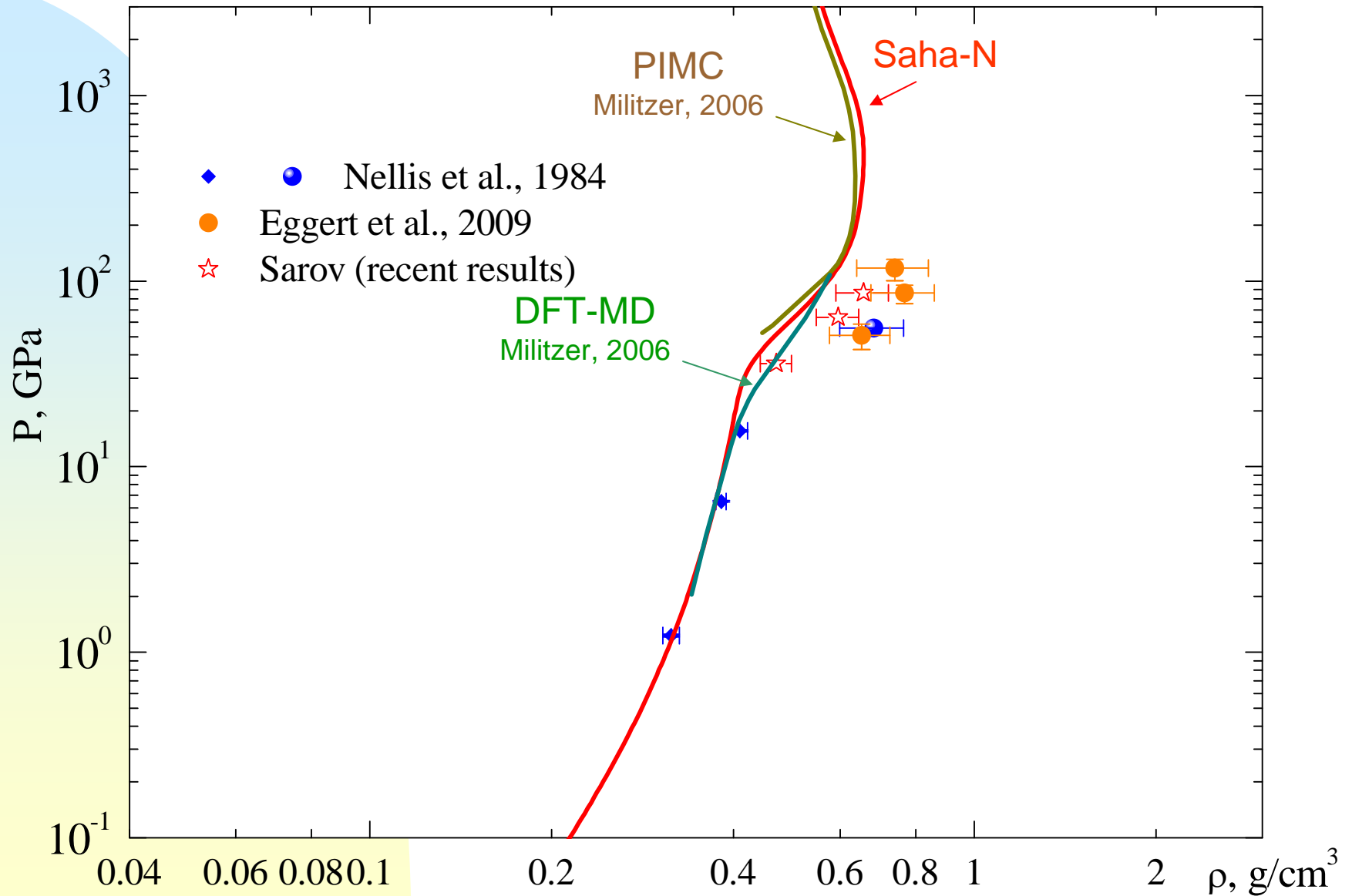
Shock compression of liquid helium



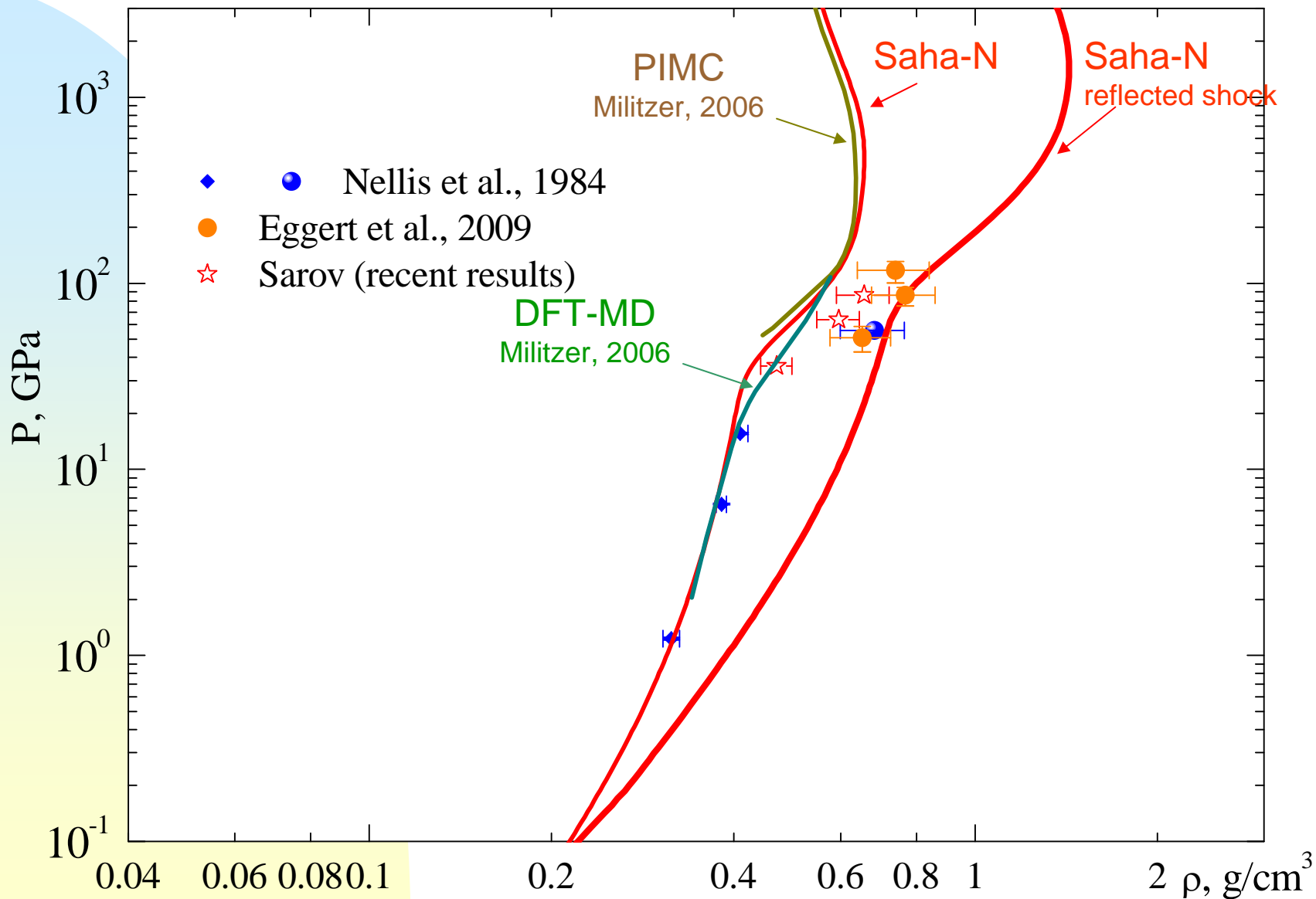
Shock compression of liquid helium



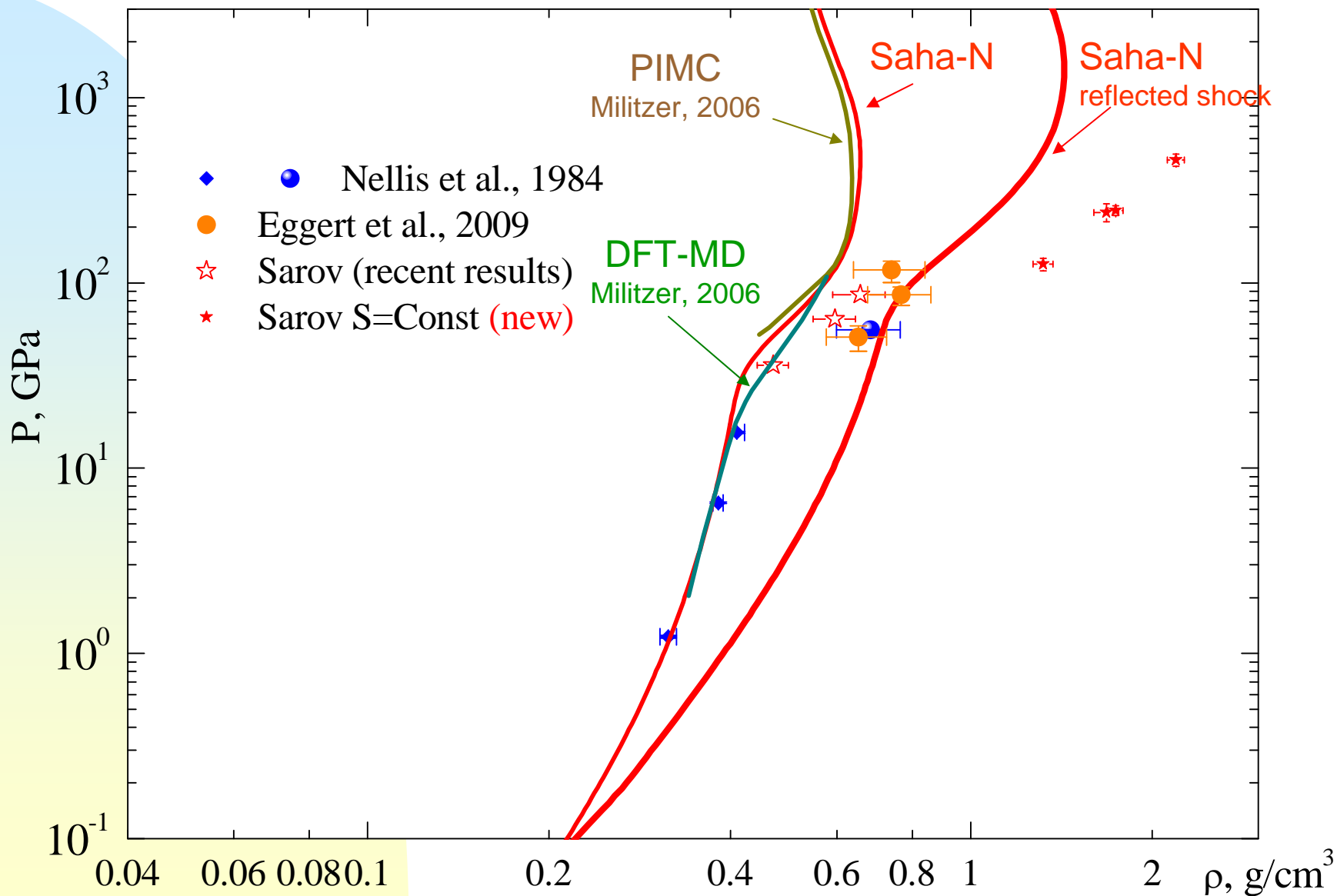
Shock compression of liquid helium



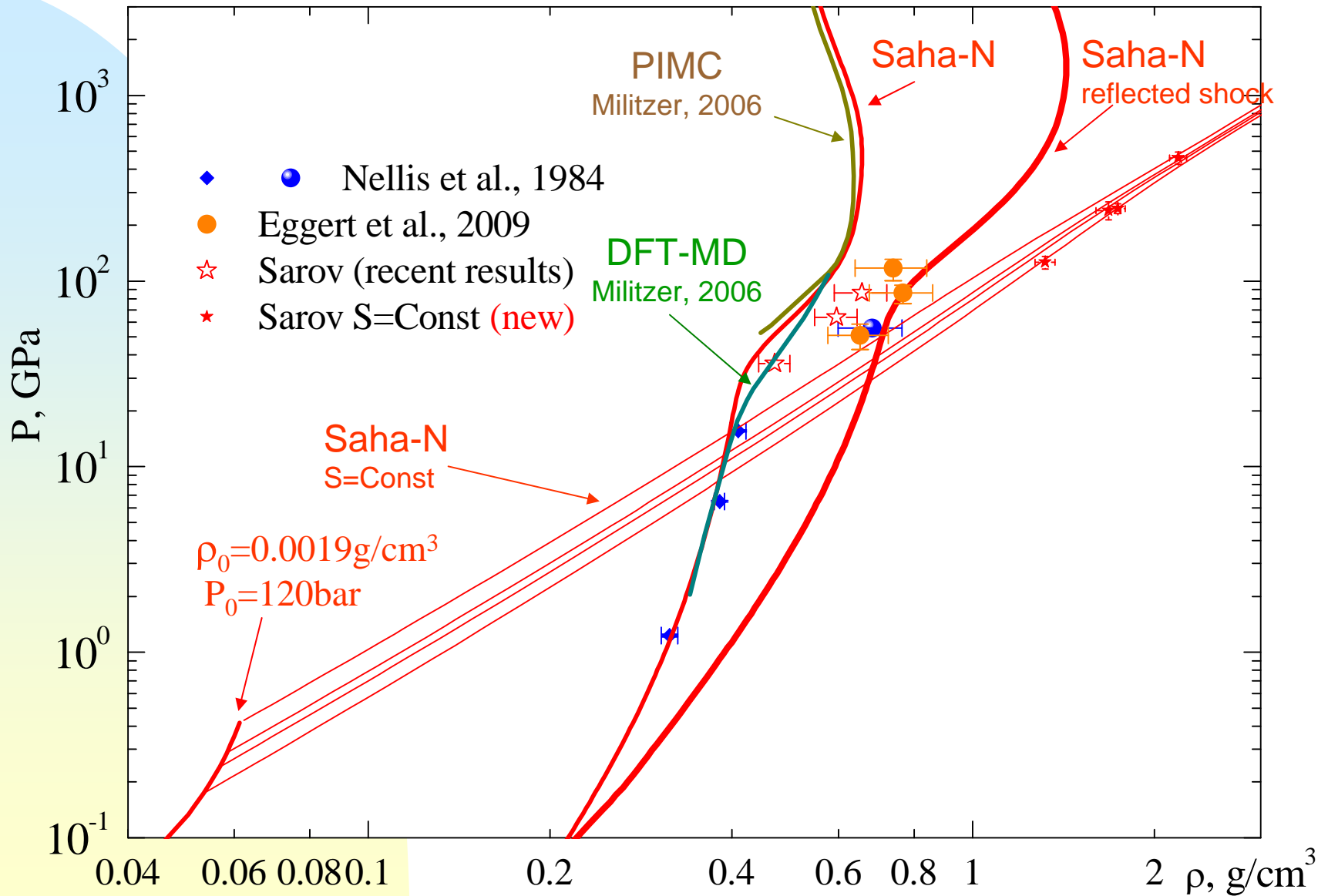
Shock compression of liquid helium



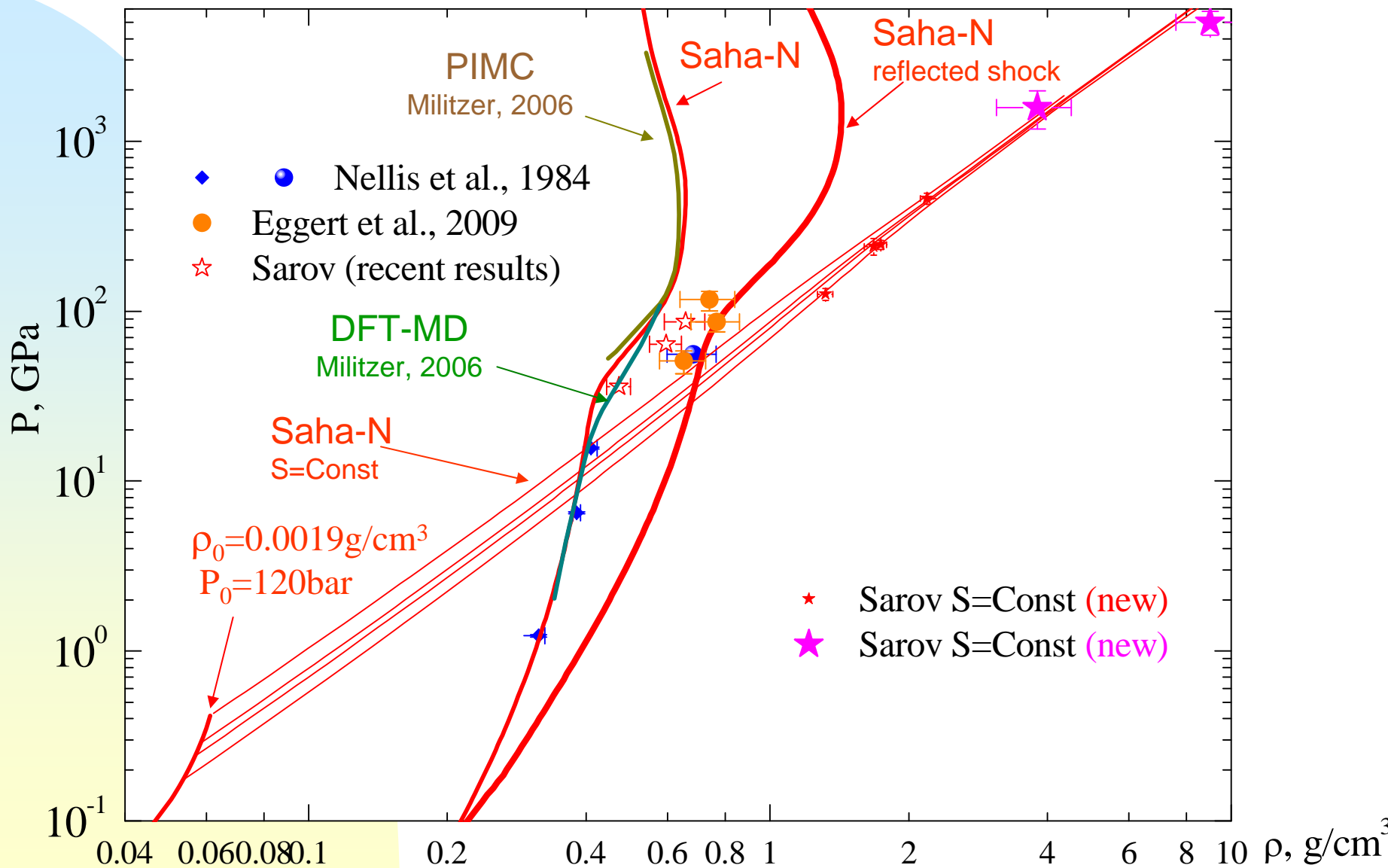
Shock compression of liquid helium



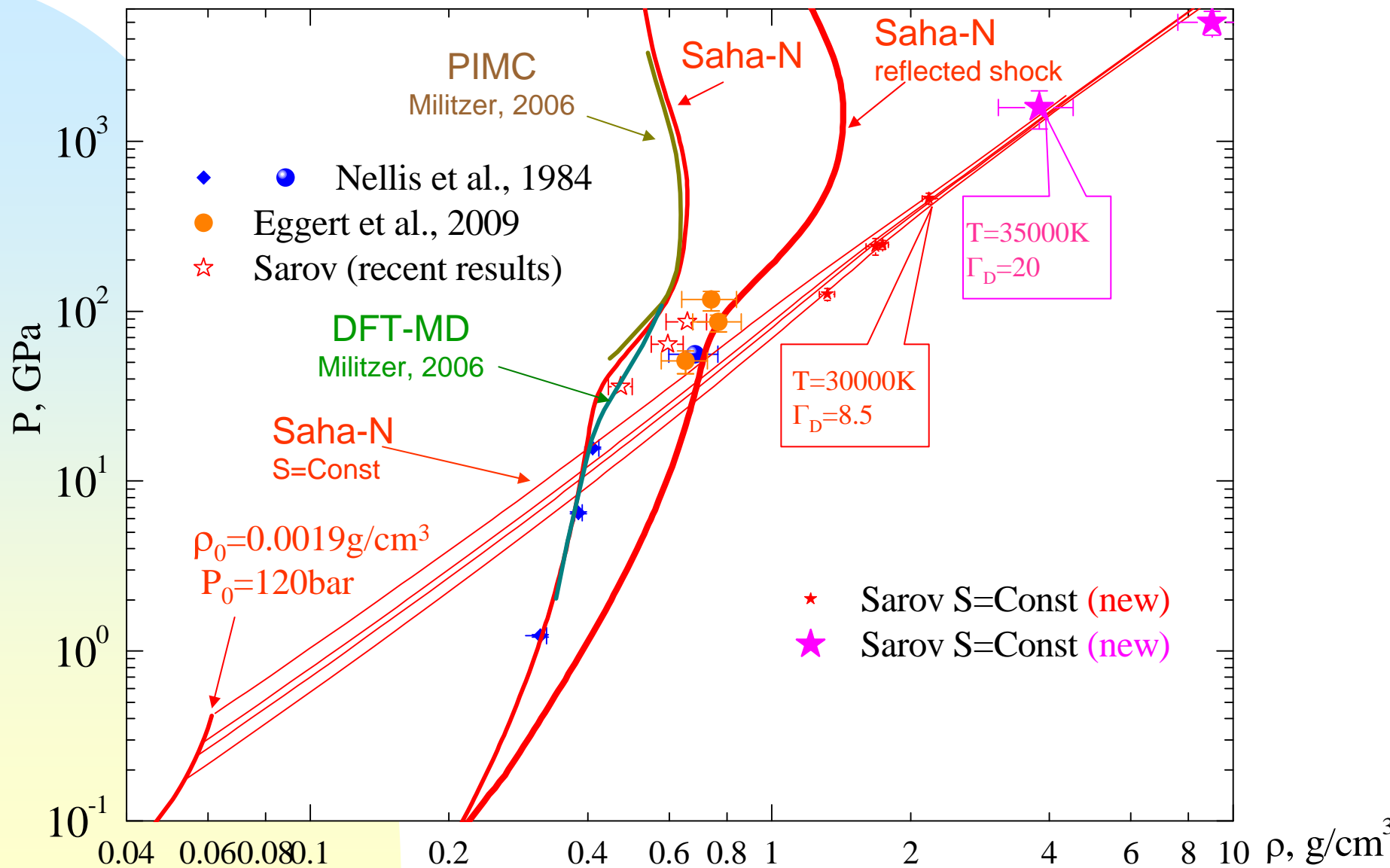
Shock compression of liquid helium



Shock compression of liquid helium



Shock compression of liquid helium





Thank you!