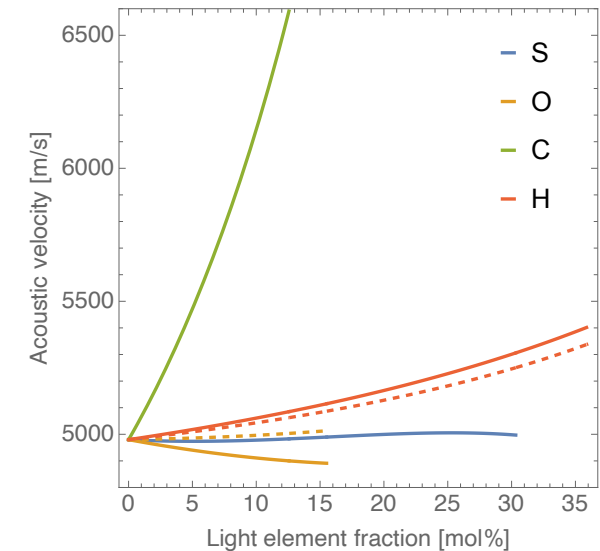
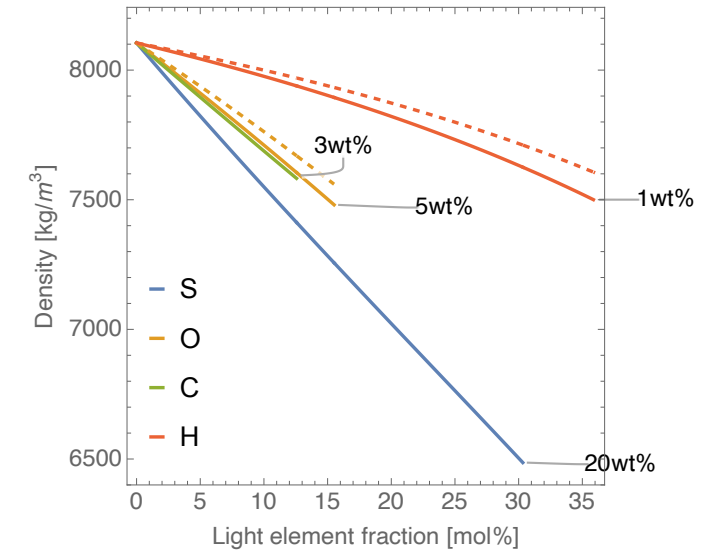


- Fe soluble light elements at core formation: S, O, C, and H (in decreasing order of occurrence)
- amount of O dependent on S and max. solubility of C limited by S
- **E**quation of **S**tate of the core is build from an extensive set of experimental data ( $\rho$  and  $v_p$ ) obtained at conditions relevant for the core of Mars (used in the RISE and SKS paper)
- updated with new EoSs for liquid FeO (Morard 2022) and liquid FeH (Tagawa 2022)



- only ~7% of the inferred core models from seismic data used in the SKS paper are compatible with elastic properties of an Fe-O-S-C-H alloy
- average core composition: Fe-3wt%O-16wt%S-0.6wt%C-0.6wt%H  $\Rightarrow$  21 $\pm$ 1wt% I.e.  
(SKS paper: Fe-3wt%O-17wt%S-0.5wt%C-0.5wt%H  $\Rightarrow$  22 $\pm$ 1wt% I.e.)

