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**Influence of heavy elements on the properties of H-He dense plasma mixtures in giant planet envelopes** FRANCOIS SOUBIRAN, BURKHARD MILITZER, University of California, Berkeley — Hydrogen and helium are by far the dominant species in gaseous giant planet interiors. It is also certain that heavier elements must be present, up to a few percents in number. The influence of these heavy elements on the properties of H-He mixtures is however unknown and so is their distribution throughout the envelope, although they must influence the density profile in the envelope and can inhibit a large-scale convection. In order to investigate the properties of H-He dense plasma mixtures enriched in heavy elements, we performed molecular dynamics coupled to density functional theory of several mixtures on a wide range of temperature and pressure. We studied the influence of different elements on the equation of state, the chemistry and the transport properties of giant planet H-He envelopes. We also studied their effect on predicted structure for giant planets.

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