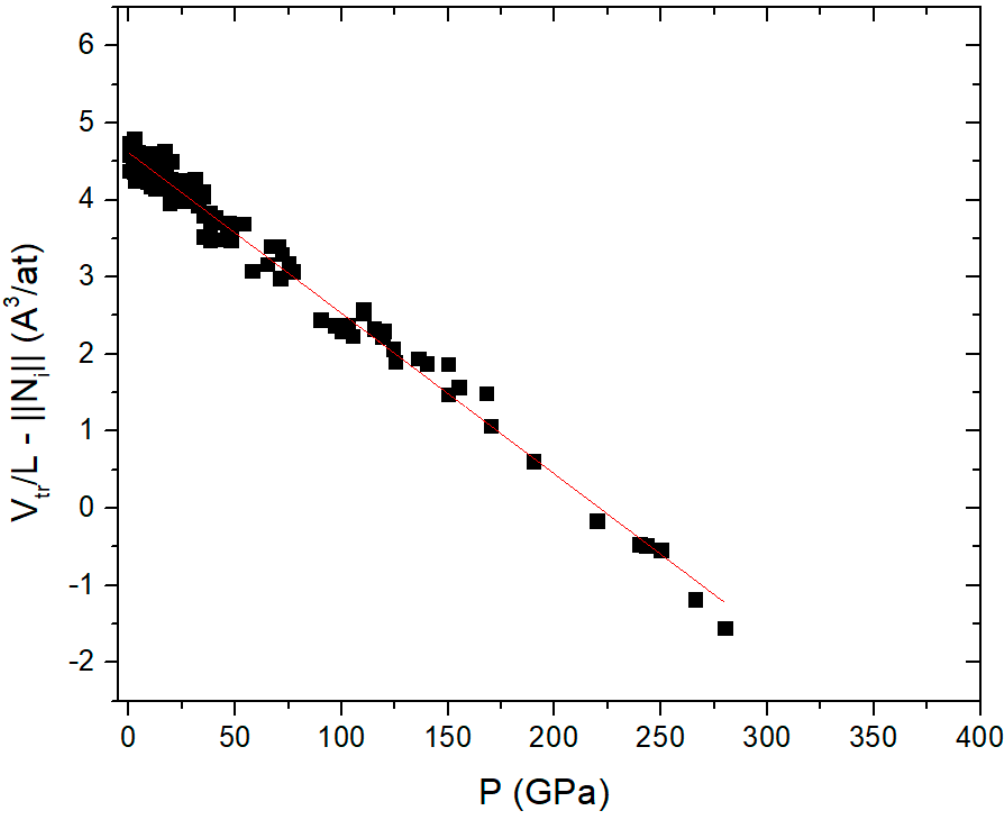
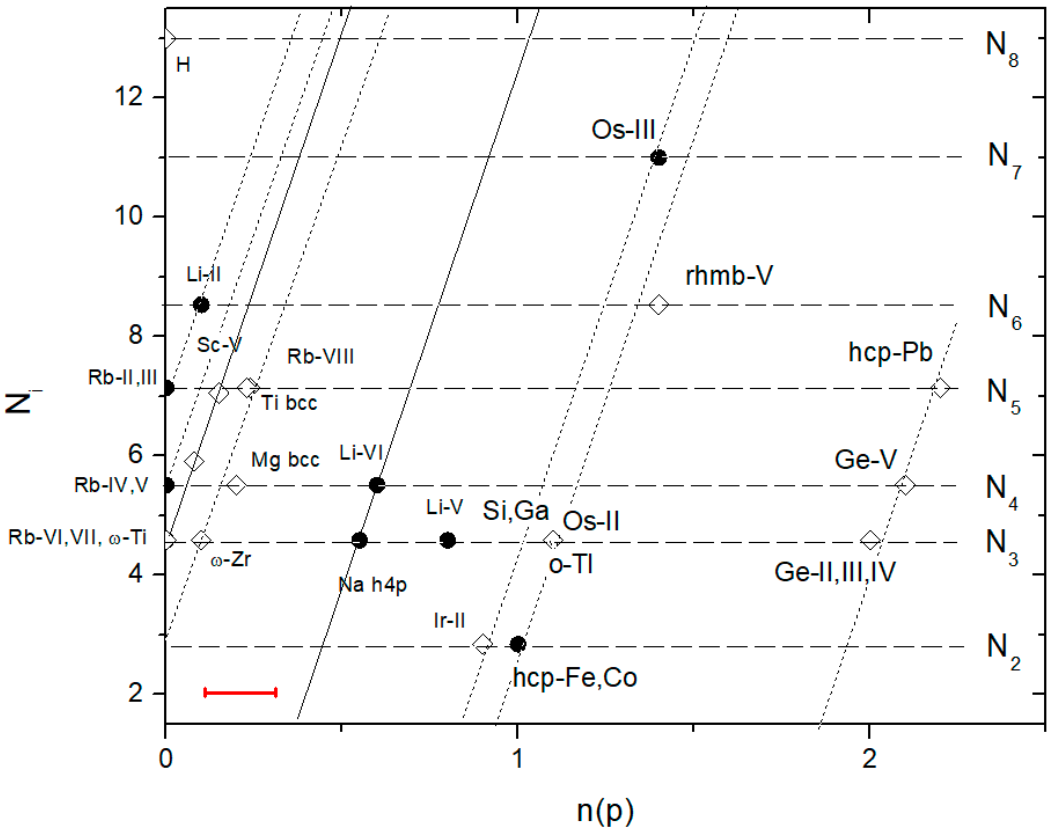


(**a**)

Figure S1. Volume of elemental polymorphs in Å^3/at (table 1) divided by the principal quantum number L as function of pressure in GPa and mapped onto the set N_4. Within uncertainties the slope is linear and equal for all sets N_i. The adjusted R^2 is 0.9985 and the linear pressure dependence is determined to -0.02084(26) Å^3/(at·GPa) = 1.255(16)·10^{-17} m^3/(Pa·mol). .



(**a**)

Figure S2. Correlation between the normalized transformation volumes from equation (1) and p-state occupancy. Reference P = 0 GPa volumes N_i from equation (1) are used to define the V_{tr}/L sets of the alkaline metals and of a selection of other elements as function of p-state occupancy. Occupancies are obtained from reported measurements (refs. [10, 16, 17], circles), computational studies [2,4,14] (circles), Figure 1 (bcc-Ti, Rb-VIII, Sc-V, diamonds), or proposed here by the tentative systematics (for the polymorphs of Si, Ga, Ge, bcc-Mg, Os, Ir, and V, diamonds). Solid lines: Fitted correlation for o-Zr, bcc-Ti, and Rb-VIII and for h4p-Na and Li-VI. The same slope was applied to all data (dotted lines). Dashed lines give the values N_i as guidelines. Red bar = estimated average uncertainty.