

Figure 16.1. A two-state model for a liquid: One is normal liquid structures and the other is locally favored structures. Locally favored structures have much less degrees of freedom or have significantly lower entropy than normal liquid structures. For some liquids, there may be more than two distinct energy states.

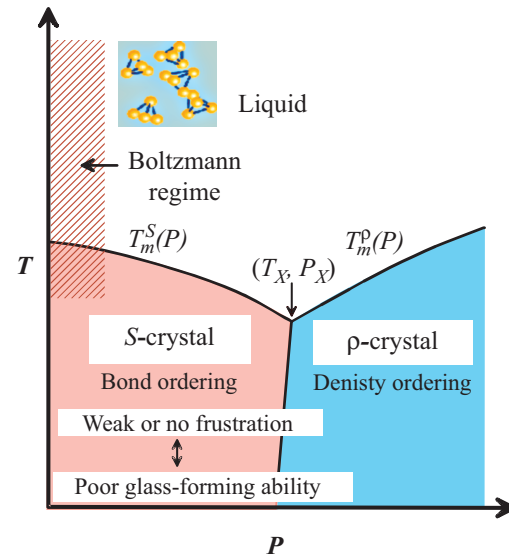


Figure 16.2. P - T phase diagram of water-type liquids including water itself and water-type atomic liquids (Si, Ge, Bi, Sb, and Ga).

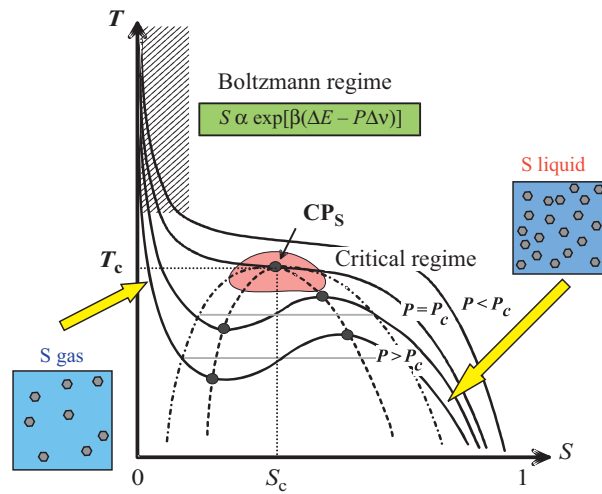


Figure 16.3. Schematic phase diagram of liquid-liquid transition in T - S plane [33].

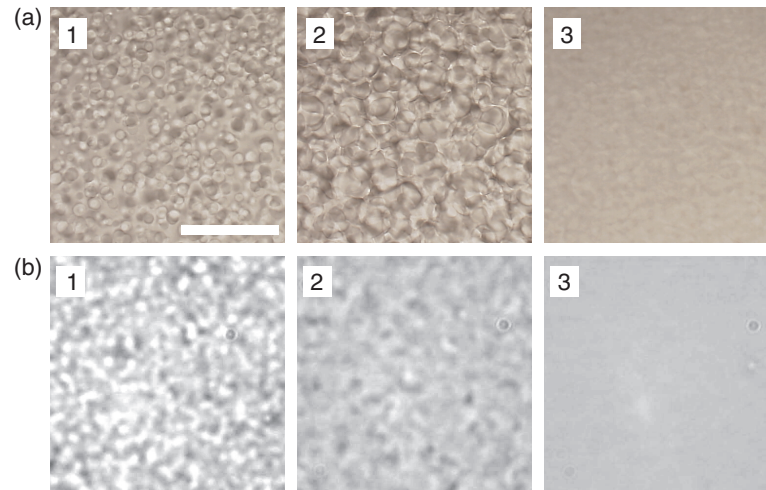


Figure 16.4. Pattern evolution observed during the annealing of a supercooled liquid at T_a . **(1)–(3)** are observed with normal microscopy at $T_a = 220\text{K}$ at the annealing time $t_a = 60, 120,$ and 240 min, respectively. **(1)–(3)** are observed with phase-contrast microscopy at $T_a = 213\text{K}$ at $t_a = 120, 240,$ and 360 min, respectively. The length of the white bar in **(1)** corresponds to $100\ \mu\text{m}$ for **(a) (1)–(3)**, while to $20\ \mu\text{m}$ for **(b) (1)–(3)**. The sample thickness was $100\ \mu\text{m}$ for **(a)**, while $20\ \mu\text{m}$ for **(b)**. This figure is reproduced from Fig. 1 of [26].

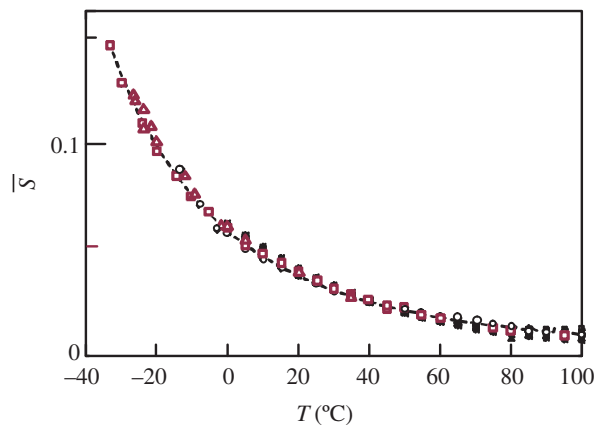


Figure 16.6. Temperature dependence of \bar{S} (see the text on its definition) determined by the fitting of our prediction to the experimental data of ρ , K_T , and C_P at various pressures. Open squares, triangles, and circles represent, respectively, data on ρ , K_T , and C_P at ambient pressure. All the other symbols are data at higher pressures. The dashed line is our theoretical prediction for \bar{S} . The values of \bar{S} determined from the 23 sets of data of “bulk” liquid water are all collapsed on the master curve, which is described by the single Boltzmann factor. The figure is reproduced from Fig. 1b of [25].