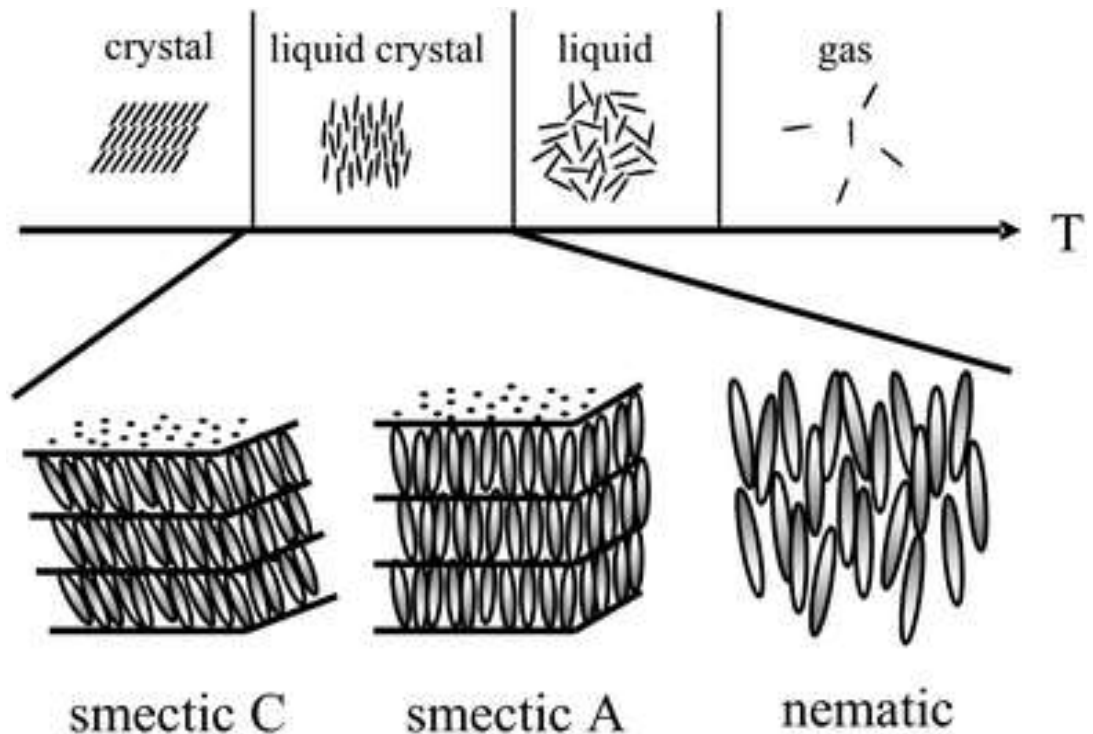


Other Phases of matter

▶ **The liquid crystalline state:**
Solid

Liquid \longleftrightarrow



▶ **Supercritical fluid state:**

Liquid  Gas

REMEMBER? Critical temperature and pressure?

High density close to liquids, and low viscosity close to gases

- ▶ A gas that may have little to no ability to dissolve a compound under ambient conditions can completely dissolve the compound under **high pressure** in the supercritical range.
- ▶ They are used for: **extraction, crystallization, and preparation of formulations**

Advantages of supercritical fluids when used as solvents

- ▶ the potential for low temperature extractions
- ▶ selectivity of the extracted compounds
- ▶ lower energy requirement and lower viscosity than solvents.
- ▶ reduced toxicity and need for hazardous solvents that require expensive disposal
- ▶ An example is **supercritical CO₂**, and the process of decaffeination of coffee. Refer to the book p37