

## order-disorder transition

A transition in which the degree of order of the system changes. Three principal types of disordering transitions may be distinguished: (i) positional disordering in a solid, (ii) orientational disordering which may be static or dynamic and (iii) disordering associated with electronic and nuclear spin states. Examples:

1. The transition of  $\text{LiFeO}_2$ , with a tetragonal unit cell, in which the  $\text{Li}^+$  and  $\text{Fe}^{3+}$  cations are perfectly ordered on crystallographically non-equivalent octahedral sites to cubic  $\text{LiFeO}_2$  in which the  $\text{Li}^+$  and  $\text{Fe}^{3+}$  cations are distributed randomly over all the octahedral sites.
2. The transition of orthorhombic KCN to cubic KCN in which the  $\text{CN}^-$  ions become oriented in any of the eight [111] directions.
3. A superconducting transition

**Source:**

PAC, 1994, 66, 577 (*Definitions of terms relating to phase transitions of the solid state (IUPAC Recommendations 1994)*) on page 587