Crystal Structures, Briefly

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Why Crystals Matter

Definition

A **crystal lattice** is a periodic arrangement of atoms repeating in three dimensions.

Properties that follow from lattice symmetry:

- Cleavage planes along low-index directions
- Anisotropic optical and electrical behaviour
- Characteristic X-ray diffraction patterns

The Seven Crystal Systems

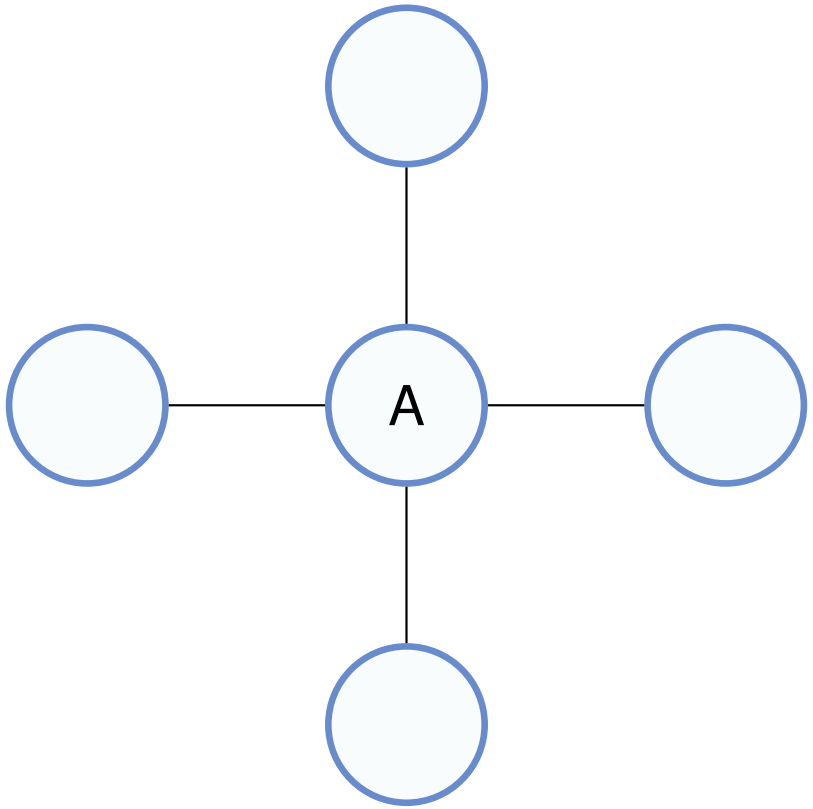
- Cubic
- Tetragonal
- Orthorhombic
- Hexagonal
- Trigonal
- Monoclinic
- Triclinic

A Coordination Example

The Seven Crystal Systems

Coordination number in a simple cubic lattice:

$$CN(\text{simple cubic}) = 6$$



Thank you

Questions welcome.

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