

## Lecture 2: Crystalline Lattice

The Bravais lattice is defined and several examples given. The basis vector is introduced for a general lattice. The theory of diffraction is derived, showing that Bragg reflection occurs when the momentum transfer equals a reciprocal vector. The reciprocal lattice is defined. The Ewald construction for X-ray diffraction is explained. Emphasis is on the fact that the position of the diffraction spots depends only on the Bravais lattice. The basis only affects their intensities.

**Reading:** Marder 1.2, 2.2, 3.2