

1.Space Lattice

A space lattice is defined as the arrangement of infinite numbers of imaginary points in two-dimensional or three-dimensional space in which each point has identical surrounding with every other points in this arrangement. These are purely mathematical points.

It is a periodic arrangement of points arranged in regular manner and having repeat distance in two or three directions which are termed as lattice vectors which will be discuss in next section.

Let us now consider the case of a two-dimensional array of imaginaries points as shown in figure 1. A two-dimensional array may have (a) square lattice (b) rectangular array or (c) Hexagonal lattice.

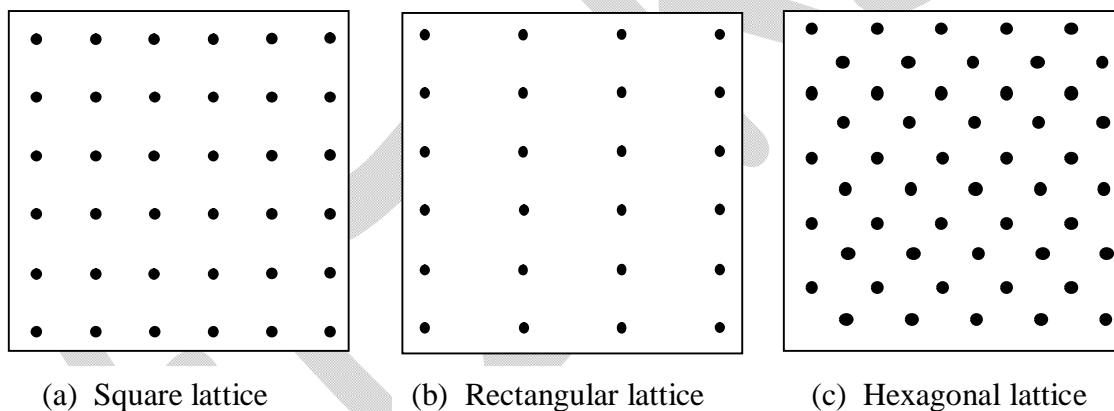


Figure 1: Lattice points of space lattice in two dimensions

It is important to note that the space lattice is not the crystal, it is the collection of points in space on which crystal is build but it is very common to use word lattice while referring crystal. In the proceeding section we will understand how crystal structure is constructed from space lattice by attaching basis (atom or group of atoms) on each lattice points.