

Figure 13-2

Basic geometry of an x-ray scattering experiment. The unit vectors \hat{s}_0 and \hat{s} are defined in Figure 13-2. (a) The scattering vector \mathbf{S} is defined by Equation 13-3. (b) When the unit vector \hat{s} describing the direction of scattered radiation is translated a distance $1/\lambda$ along the \hat{s}_0 axis, it points directly toward the tip of the scattering vector \mathbf{S} . (c) Arrangements of \hat{s}_0 and \hat{s} that lead to maximal and minimal values of $|\mathbf{S}|$.

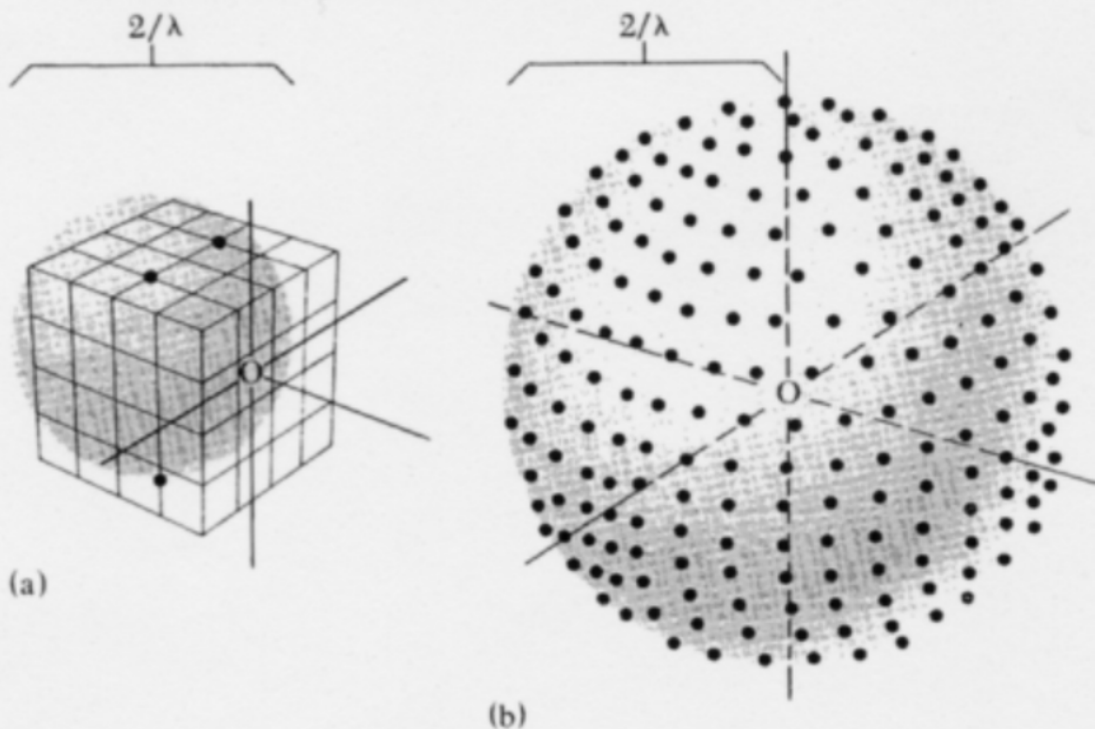


Figure 13-3

Experimental restrictions on the observation of x-ray diffraction. (a) For a fixed geometry and x-ray wavelength, scattering will be observed only when the surface of the sphere of reflection intersects reciprocal-lattice points. (b) Even if all possible geometries are sampled, only that portion of the reciprocal lattice that lies within a sphere of radius $2/\lambda$ (the limiting sphere) can be examined.