

Nalanda Open University

B.Sc Part-II

Course- Physics

Paper-III

Prepared by: Dr. Amiya Kumar – Ganga Devi Mahila College, Patna

Topic- Resolving Power

Resolving Power of an Optical Instrument:-

An Instrument, to resolve two close objects is termed as its Geometrical Resolving Power. The capacity of resolving two close wavelengths is known as its chromatic resolving power.

According to Rayleigh's criterion, to resolve two very close objects or wavelengths, in their diffraction pattern, the central maximum of one falls over the first minimum of the other.

With the help of the optical instruments, the diffraction pattern of objects or spectrum lines is formed. Each diffraction pattern comprises of:-

- i. Principal maximum
- ii. Minima
- iii. Secondary maxima

According to Rayleigh, the two objects are just resolvable when the maxima due to one fall over the first minima due to others.

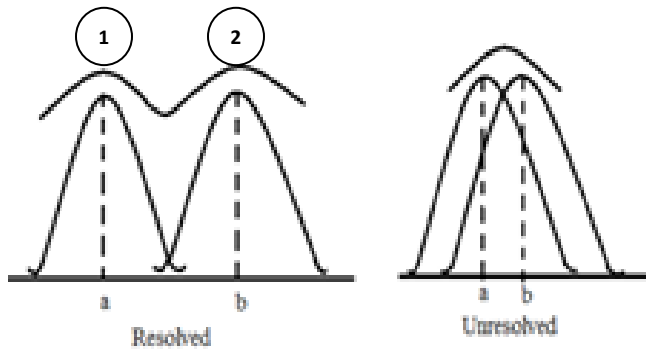


Figure-1(a)

Figure-1(b)

Figure 1(a) and (b) show the condition of resolution and non-resolution. In the resolved portion, the resultant intensity curve has two distinct peaks whereas, in the unresolved position, the resultant intensity has only one peak.