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Physics, Sem-IV  
Unit-1/Part-1

Interference by division of amplitude  $\rightarrow$   
The amplitude of the incoming wave is divided into two or more parts by partial reflection and refraction there by producing two or more beams which produce interference. For example if a beam of light falls on a thin film the beam reflected from the upper surface interferes with the beam reflected from the lower surface due to the different distances travelled by them and consequent path difference created between the secondary wavelets. Any random phase change produced in the primary wave front is equally passed on to the two beams. The two beams thus satisfy the condition of coherence. As the same beam of light is partially reflected from different surfaces interference is produced by sharing of light intensity or division of amplitude. In this

Case it is not necessary to have a point source or a narrow line source. On the other an extended source is required. The colors of thin films, Newton's rings and fringes produced in Michelson's interferometer are due to interference by division of amplitude.

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