

Concept Question 1-2: How are the image and scene spatial resolutions related to one another?

The scene spatial resolution is the minimum separation between two point sources in the object plane such that they are barely resolvable in the image plane. The image spatial resolution is the separation of the nulls of the images of the two point sources. They are related by a factor of the ratio of the distances from the lens to the object plane and the image plane.

$$\Delta y'_{\min} = 1.22 d_o \Delta \theta_{\min} = 1.22 d_o \frac{\lambda}{D} . \quad (1.9b)$$

(scene spatial resolution)

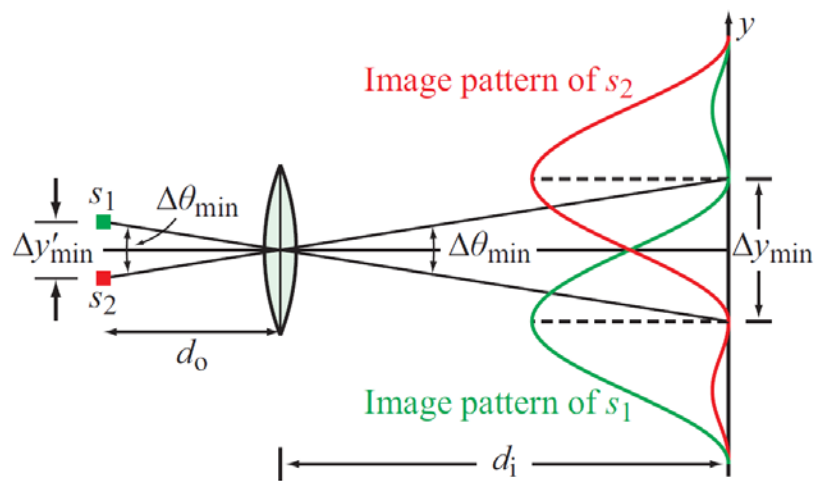


Figure 1-10 The separation between s_1 and s_2 is such that the peak of the diffraction pattern due to s_1 is coincident with the first null of the diffraction pattern of s_2 , and vice versa.