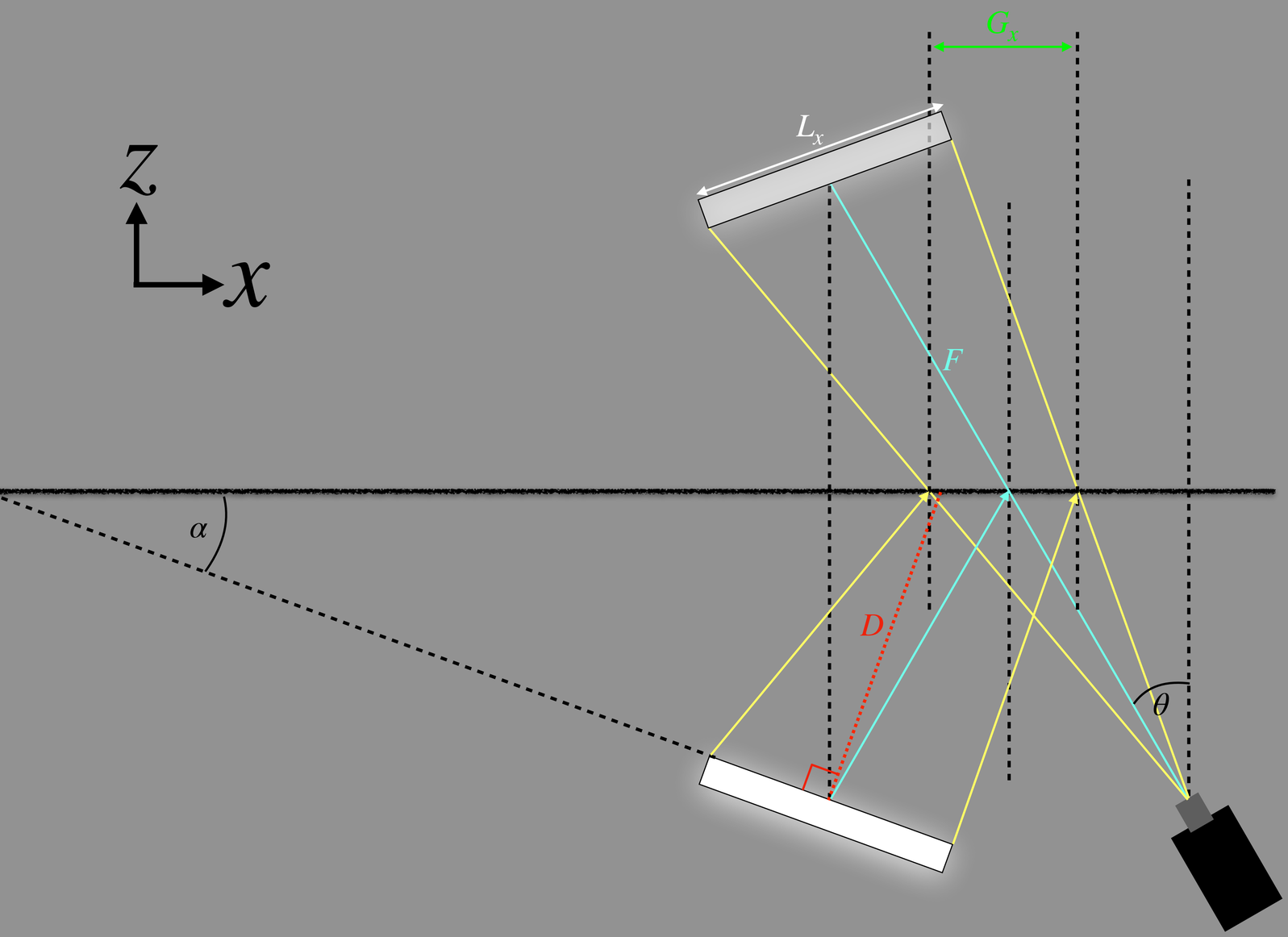
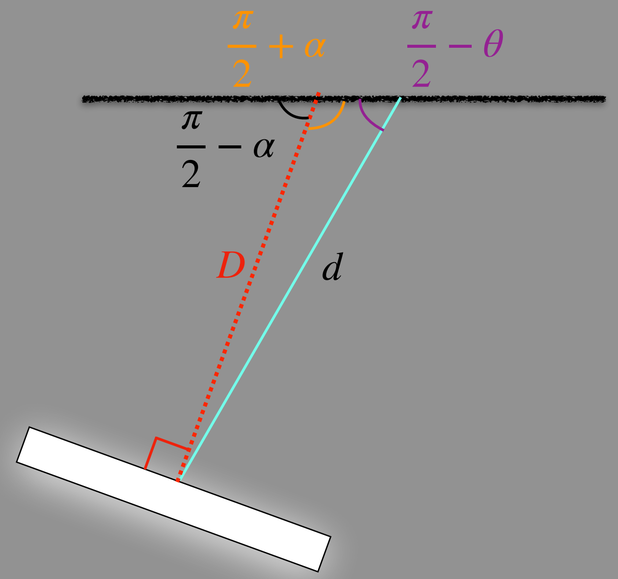


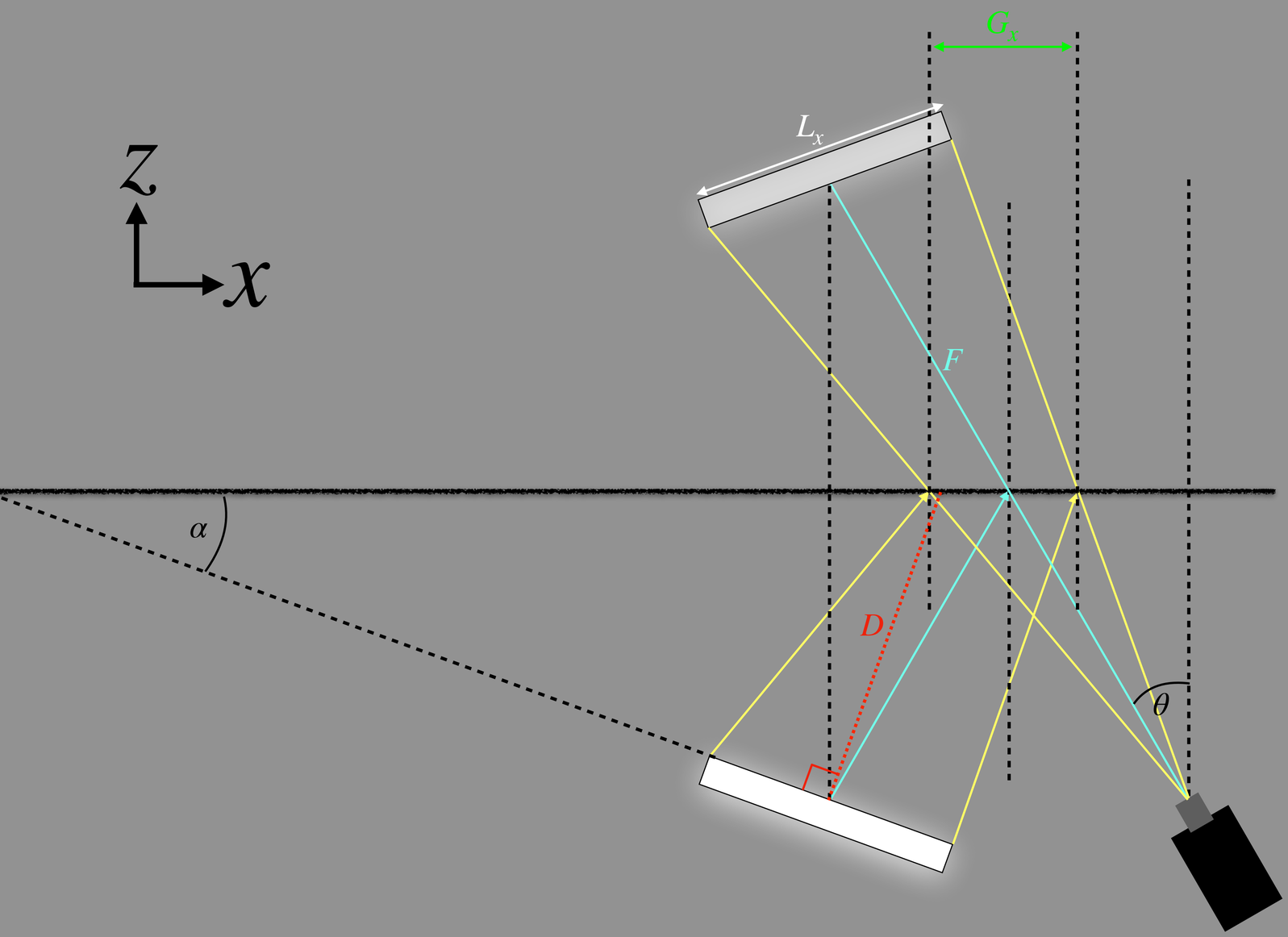


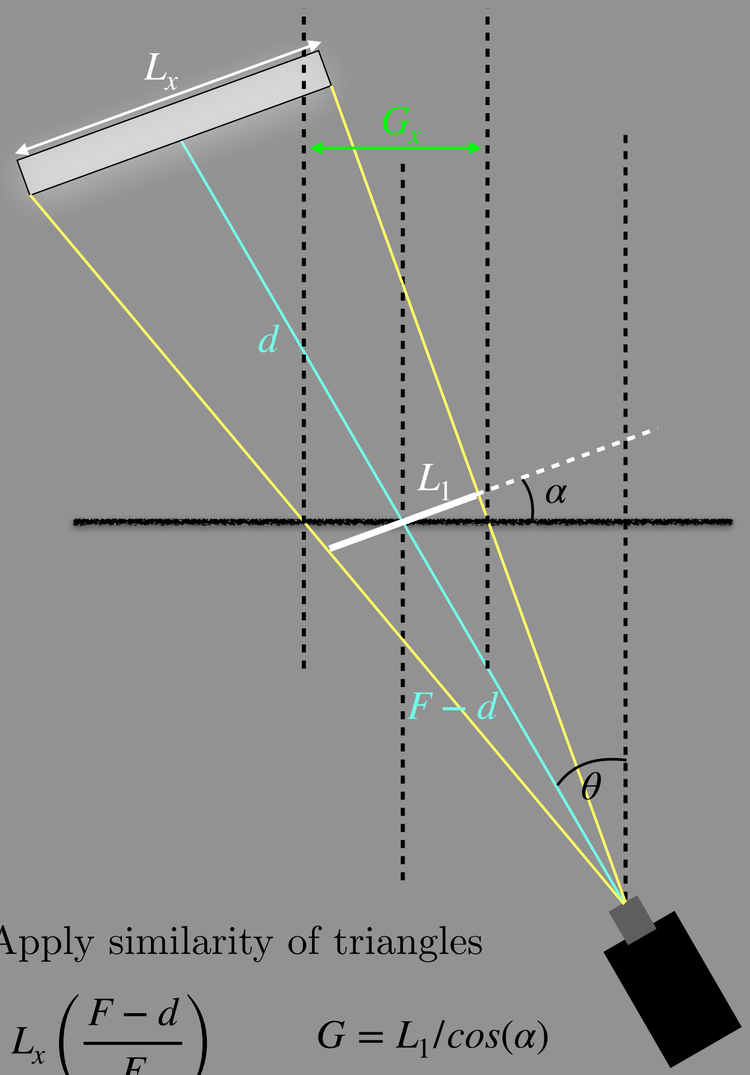
Apply sine rule

$$\frac{d}{sin(\pi/2+\alpha)} = \frac{D}{sin(\pi/2-\theta)}$$

$$d = \frac{D\ sin(\pi/2+\alpha)}{sin(\pi/2-\theta)}$$

$$d = \frac{D\ cos(\alpha)}{cos(\theta)}$$



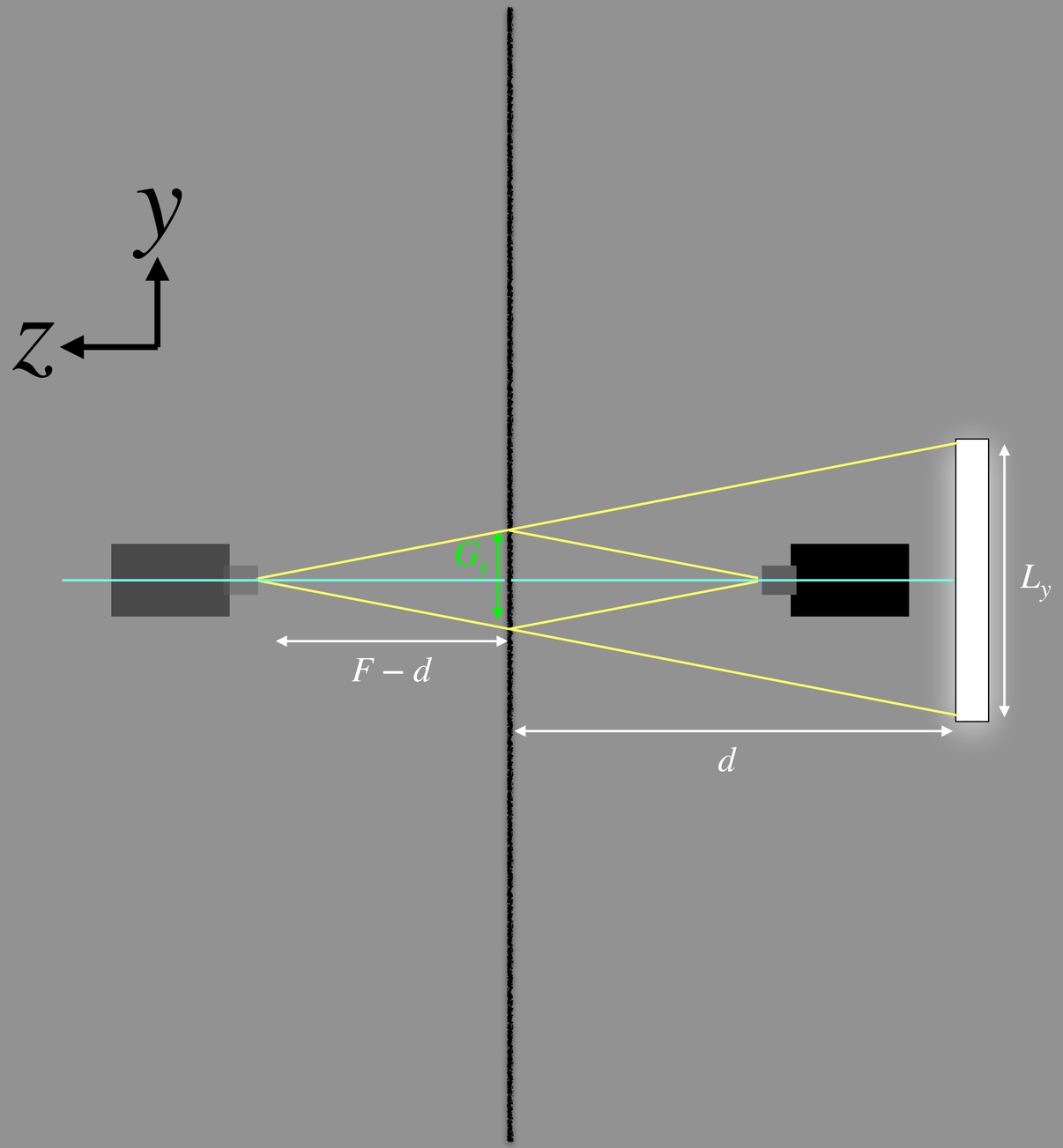


Apply similarity of triangles

$$L_1 = L_x\left(\frac{F-d}{F}\right) \qquad G = L_1/cos(\alpha)$$

$$G_x = \frac{L_x}{cos(\alpha)}\left(\frac{F-d}{F}\right)$$

$$G_x = \frac{L_x}{cos(\alpha)}\left(1-\frac{D\ cos(\alpha)}{F\ cos(\theta)}\right)$$



Apply similarity of triangles

$$G_y = L_y \left(1 - \frac{d}{F}\right)$$

$$G_y = L_y \left(1 - \frac{D\ cos(\alpha)}{F\ cos(\theta)}\right)$$

Conclusion: Instead of full dimension of light source, better to use L_x, L_y (in SI units or cm or mm) as the grating size in x, y directions respectively and use G_x, G_y as the wavelength (in pixels) of the carrier waves of the reference image

$$\text{Scale}_x = \frac{L_x}{G_x} = \frac{cos(\alpha)}{\left[1 - \frac{D\ cos(\alpha)}{F\ cos(\theta)}\right]}$$

$$\text{Scale}_y = \frac{L_y}{G_y} = \frac{1}{\left[1 - \frac{D\ cos(\alpha)}{F\ cos(\theta)}\right]}$$