

70. We use Eq. 37-31. For smallest value of  $\theta$ , we let  $m = 1$ . Thus,

$$\theta_{\min} = \sin^{-1} \left( \frac{m\lambda}{2d} \right) = \sin^{-1} \left[ \frac{(1)(30 \text{ pm})}{2(0.30 \times 10^3 \text{ pm})} \right] = 2.9^\circ .$$