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Wavelength (Oscillation):

$$\lambda = \frac{h}{p} = \frac{2\pi}{k} = \omega \frac{\mathcal{T}}{k} = \frac{c}{\nu} = r \cdot \cos\left(\frac{\pi}{2} - \alpha\right) = 2\frac{d}{n} \sqrt{\eta^2 - \sin^2(\alpha)} = 2\pi \frac{2d}{\Delta\varphi} \sqrt{\eta^2 - \sin^2(\alpha)} = 2d \frac{\eta}{n} \cos(\beta) = 2\pi\eta \frac{2d}{\Delta\varphi} \cos(\beta) \quad (1)$$

$$\Delta\lambda = \frac{h}{m_e c} (1 - \cos(\varphi)) = 2 \frac{h}{m_e c} \sin^2\left(\frac{\varphi}{2}\right) \quad (2)$$

Wavefunction:

$$\Psi(x, t) = C \cdot e^{i(\omega t - kx)} = C \cdot e^{\frac{i}{\hbar}(Et - pr)} \stackrel{\text{Wavepacket}}{=} A(x, t) e^{i(\omega_0 t - k_0 x)} = 2C(k_0) \frac{\sin\left[\left(t \cdot \left(\frac{d\omega}{dk}\right)_{k_0} - x\right) \cdot \Delta k\right]}{\left(t \cdot \left(\frac{d\omega}{dk}\right)_{k_0} - x\right)} = 2C(k_0) \quad (3)$$