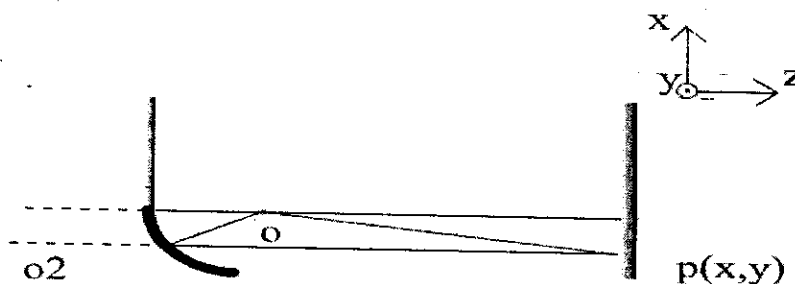


$$k = \frac{2\pi}{\lambda} \cdot \frac{x^2 + y^2}{L} - \frac{x^2 + y^2}{L + 2f} = \frac{2 \text{Constant}}{k}$$

$$x^2 + y^2 = \frac{\text{Constant}}{kf} = r_1^2$$

②  $x < 0$ ;



$$\tilde{U}_0(x, y) = \frac{A}{L} \exp[ikL] \exp \left[ i \left( k \frac{x^2 + y^2}{2L} + \varphi_1 \right) \right]$$

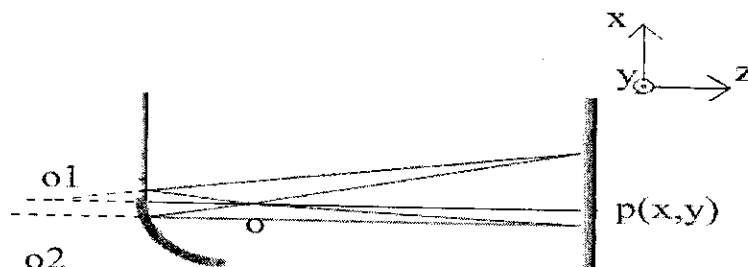
$$\tilde{U}_{0'}(x, y) = \frac{A}{L + f} \exp(\varphi_3)$$

相位差为:

$$\Delta\varphi = k \left( \frac{x^2 + y^2}{2L} \right) + [(L + \varphi_1) - \varphi_3] = k \left( \frac{x^2 + y^2}{2L} \right) = \text{Constant}$$

$$\text{故: } x^2 + y^2 = \frac{2L \text{Constant}}{k} = r_2^2, \text{ 花纹为同心半圆.}$$

③  $x = 0$ ;



$$\tilde{U}(x, y) = \tilde{U}_0(x, y) + \tilde{U}_{0'}(x, y) + \tilde{U}_{0''}(x, y)$$

$$I(x, y) = \tilde{U}^*(x, y) \tilde{U}(x, y)$$