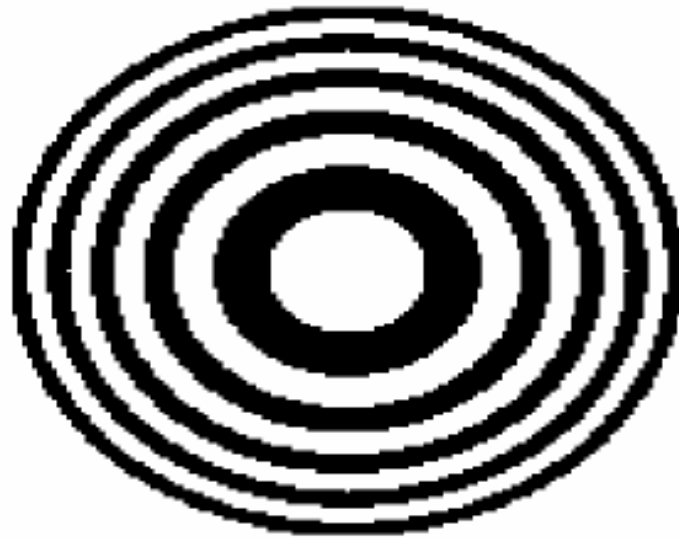


菲涅耳波带片 (FZP)

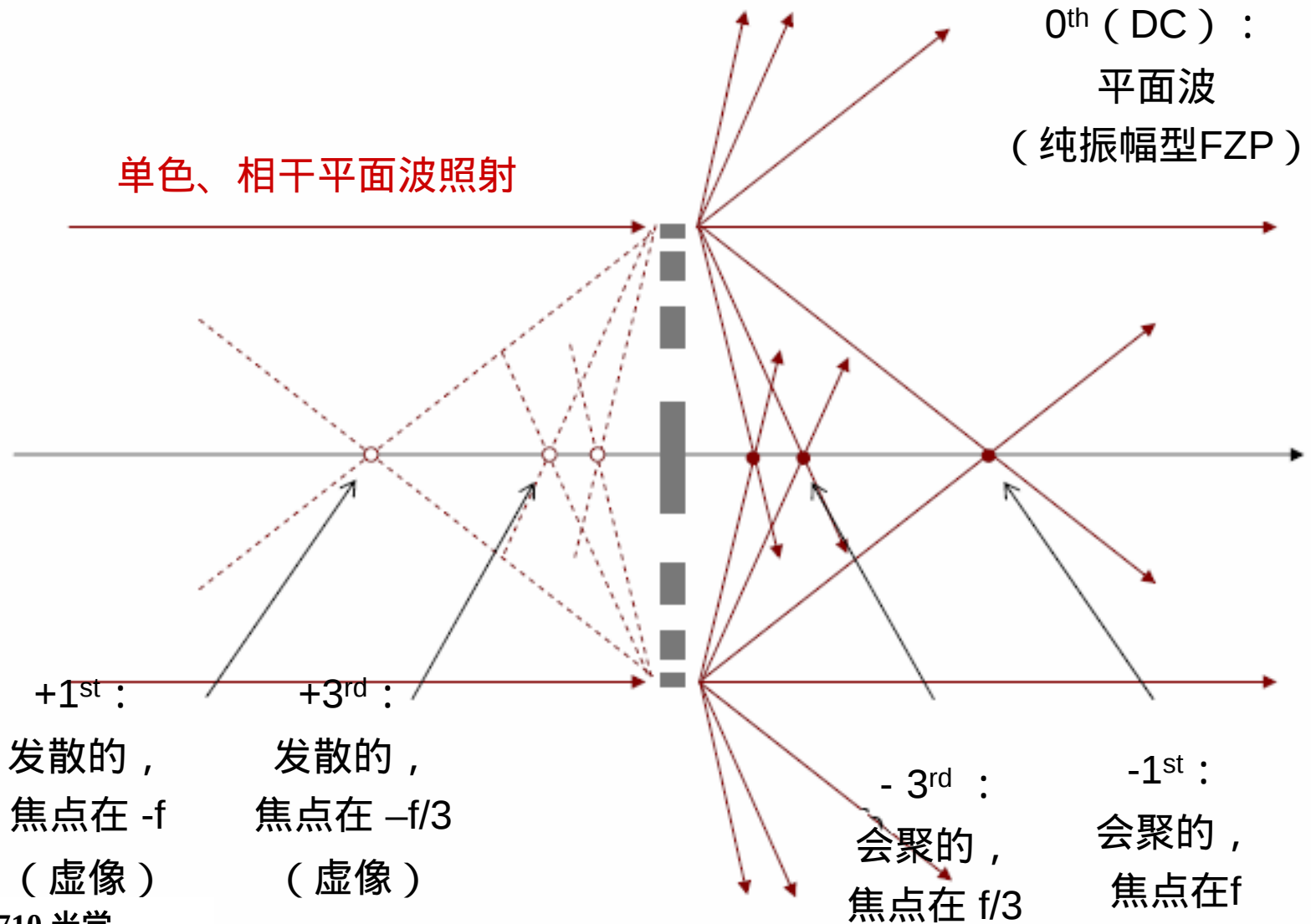


振幅型 FZP: $g(x, y) = \frac{1}{2} \left[1 + \operatorname{sgn} \left(\cos \left(\pi \frac{r^2}{\lambda f} \right) \right) \right]$

$$r = \sqrt{x^2 + y^2}$$

位相型 FZP: $g(x, y) = \operatorname{sgn} \left(\cos \left(\pi \frac{r^2}{\lambda f} \right) \right)$

FZP的衍射场



FZP 关系

$$r_m = \sqrt{\frac{m\lambda f}{2}}$$

m^{th} 波带半径

$$\delta_m \equiv r_m - r_{m-2} \approx \sqrt{\frac{\lambda f}{2m}}$$

m^{th} 波带宽度

- 1st 级衍射

假设FZP半径 = r_M

PSF的主瓣半宽 $\approx 1.22 \sqrt{\frac{\lambda f}{M}}$

$\propto$ 最后一级波带的宽度

