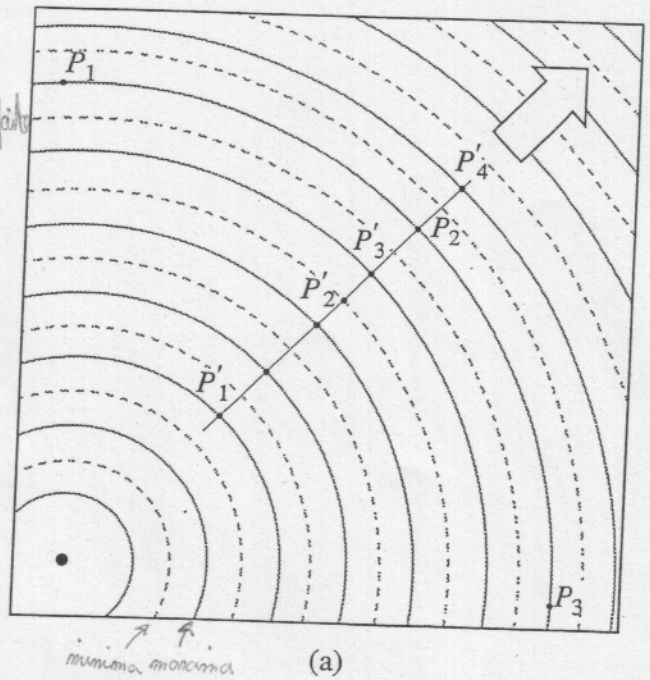
Cohérence spatiale et temporelle

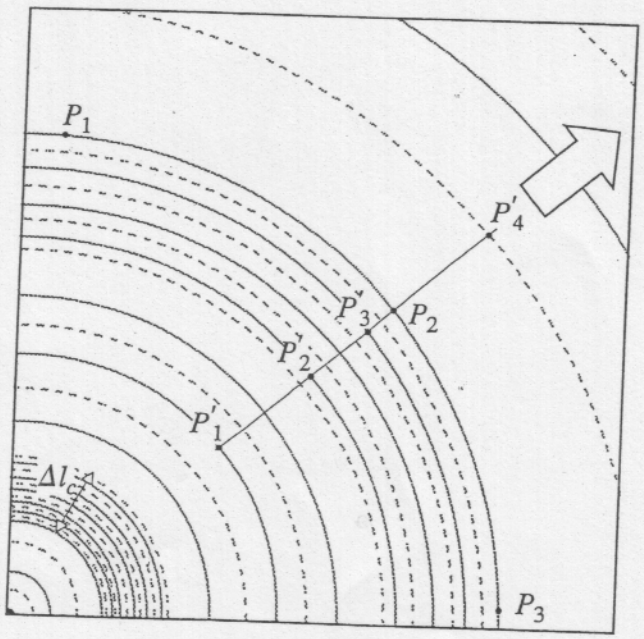
P_1, P_2, P_3 corrélés en phase entre eux => cohérence spatiale parfaite

P'_1, P'_2, P'_3, P'_4 => distances constantes => cohérence temporelle parfaite



(a)

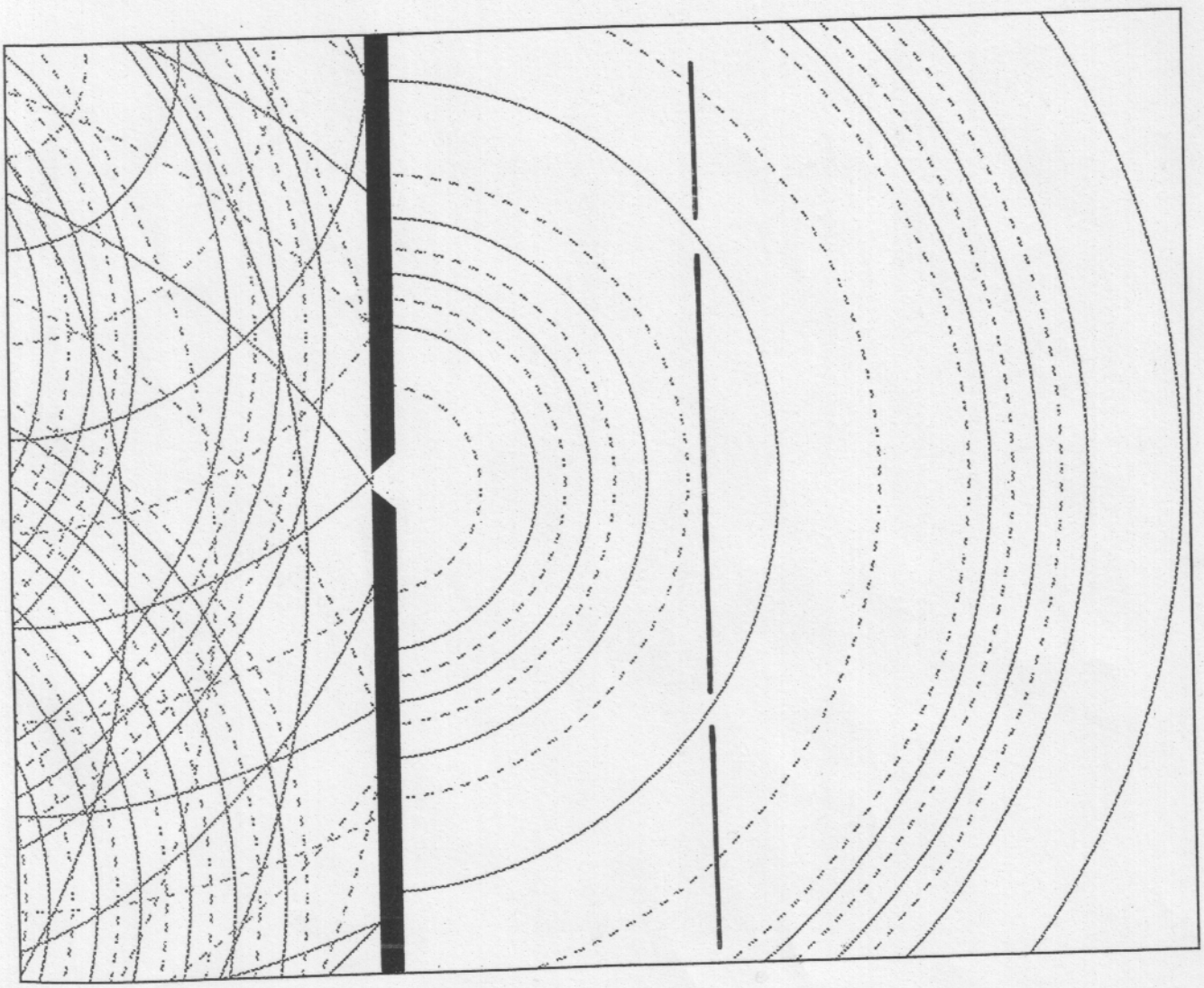
cohérence spatiale parfaite
cohérence temporelle partielle



(b)

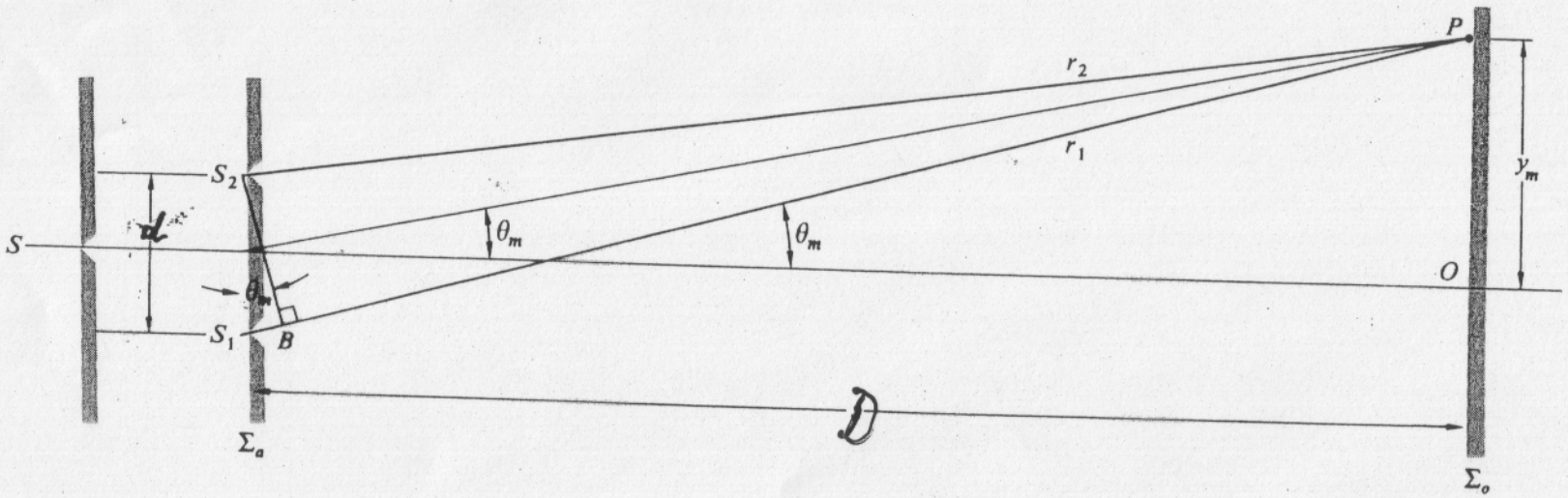
Cohérence spatiale

Trick:



Cohérence spatiale obtenue par les doubles fentes

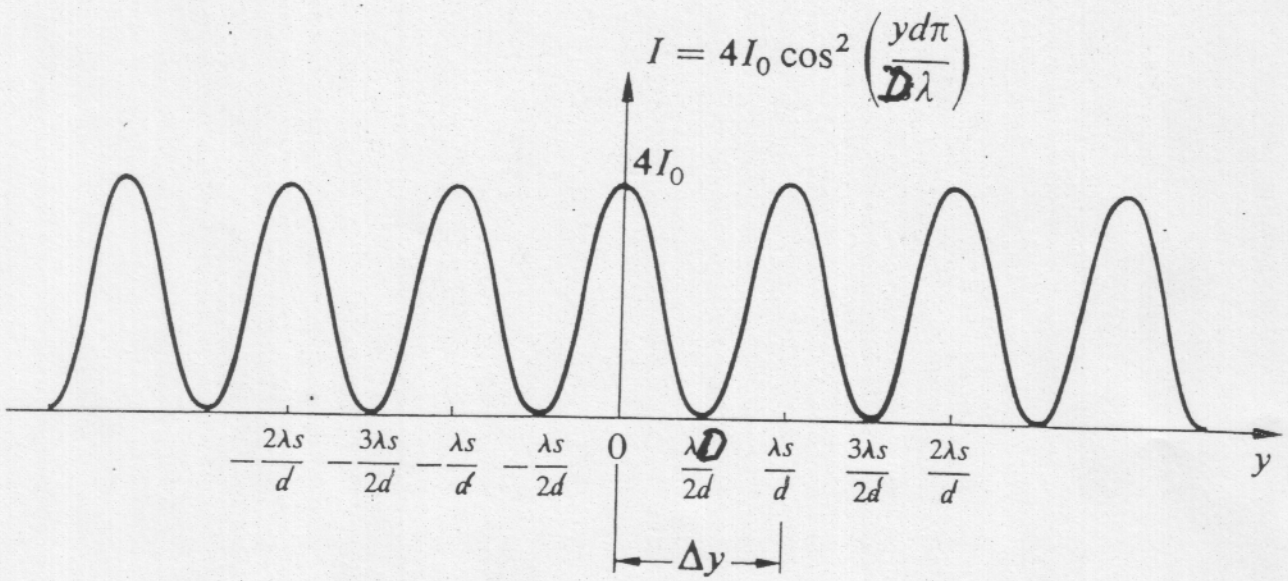
Fentes de Young



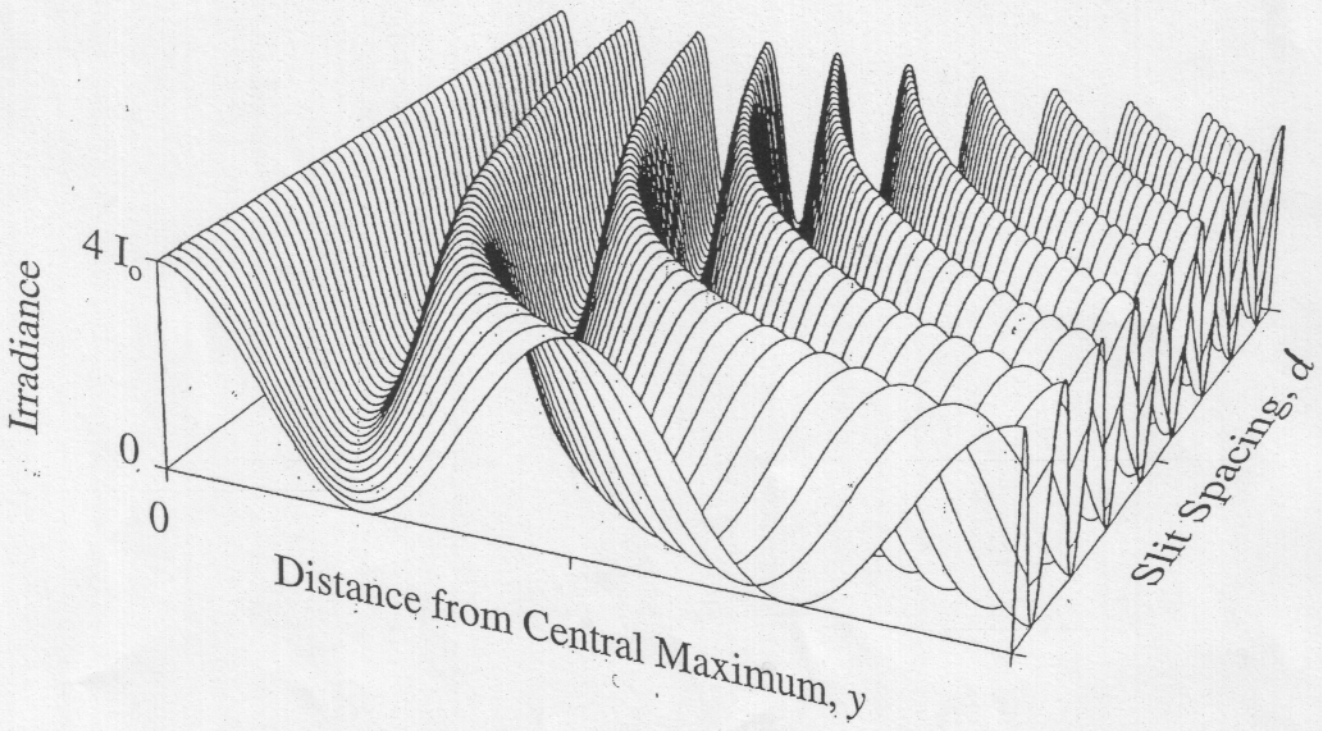
(25)

Fentes de Young

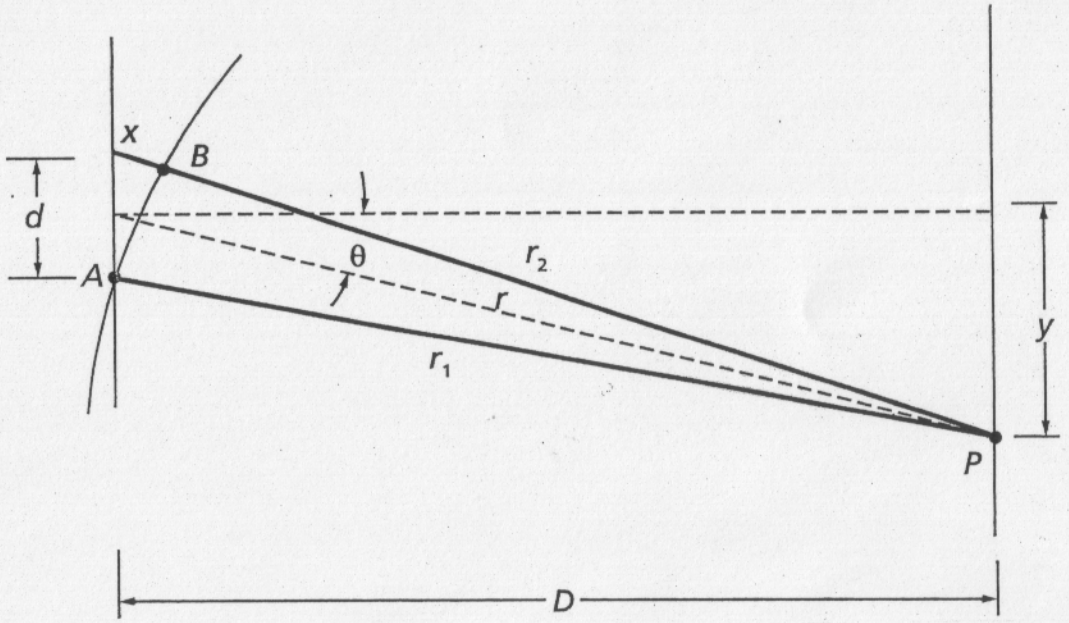
Figure de Interference

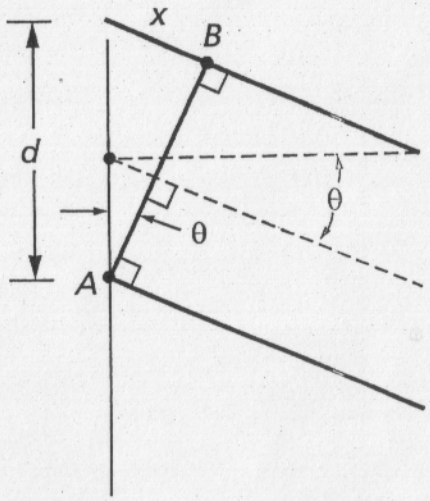


(a)



(b)





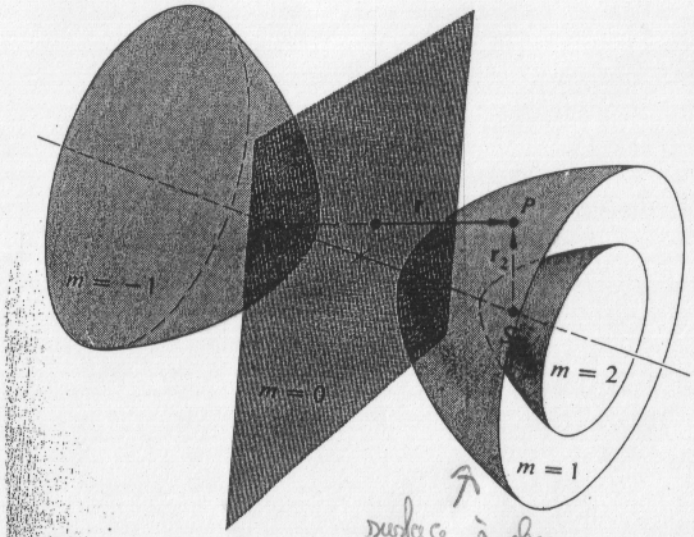
$r = (r_1 + r_2)/2$, $r \approx D$

$\sin\theta = y/r \approx y/D$; $r_2 - r_1 = x \Rightarrow \sin\theta = x/d \Rightarrow y = D\sin\theta$

Int. constr. pour $y_m = m\lambda D/d$ ou bien $\lambda = \frac{y_m d}{m D}$ $= D\frac{x}{d}$

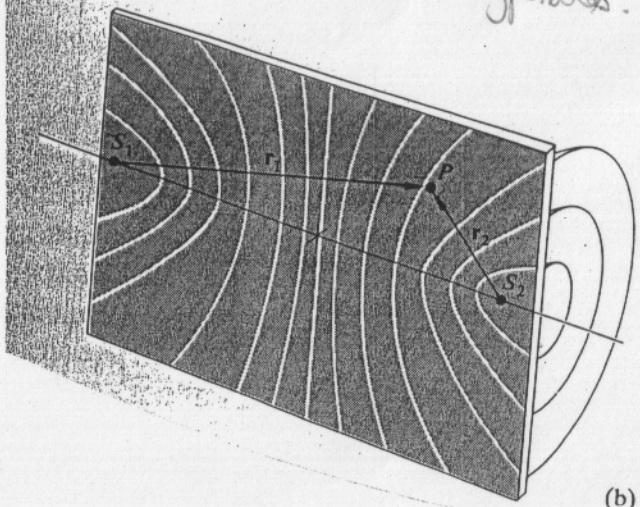
$\uparrow x = m\lambda$

(21)

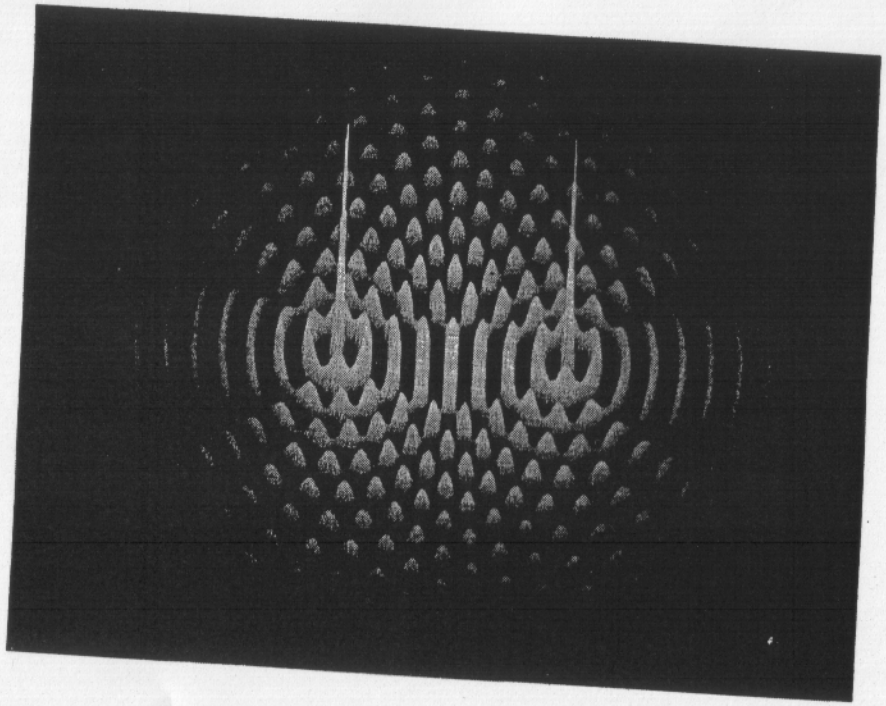


surface à phase constante : hyperboloïdes.

(a)

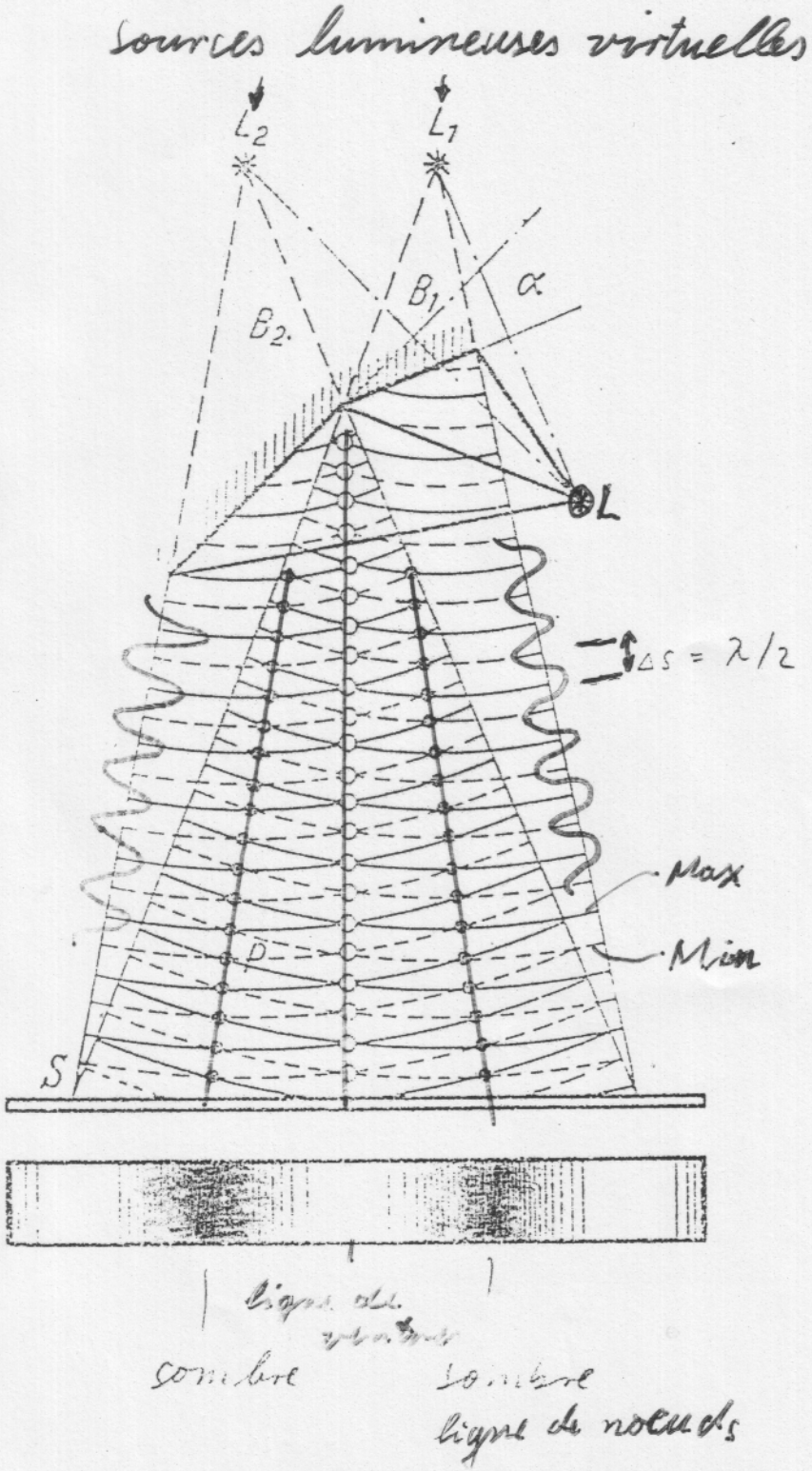


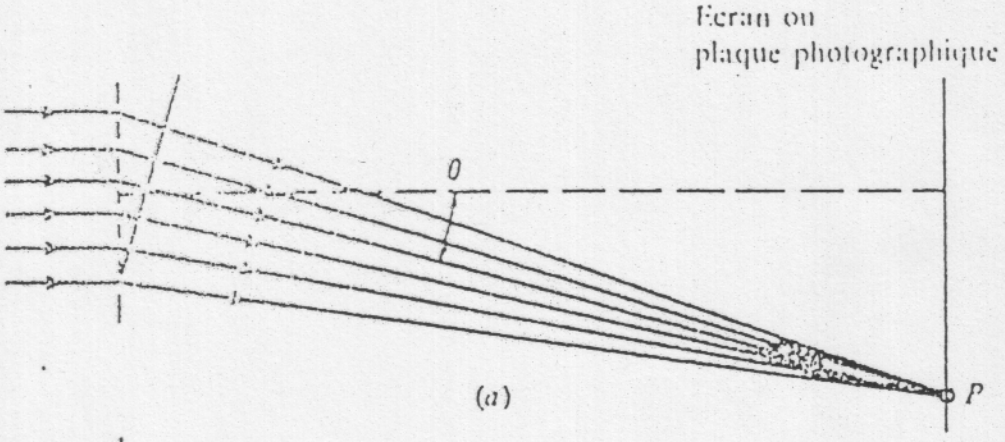
(b)



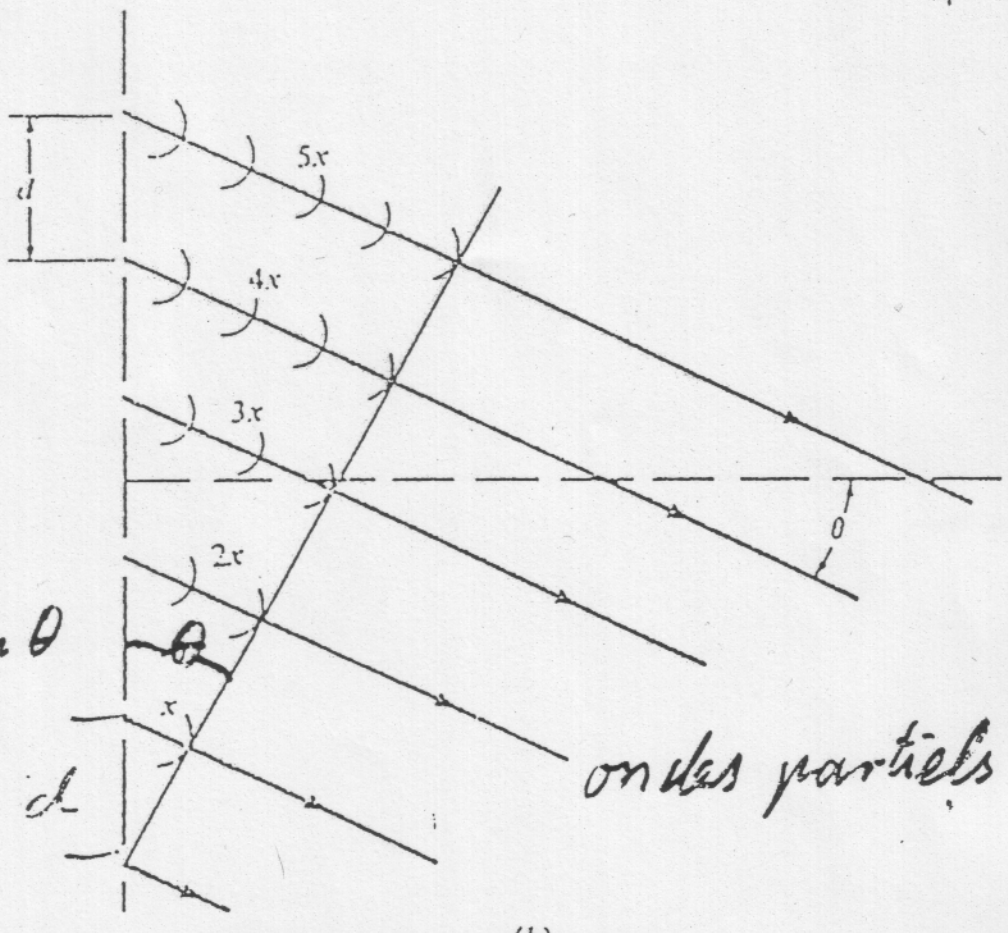
(c)

Miroir double de Fresnel





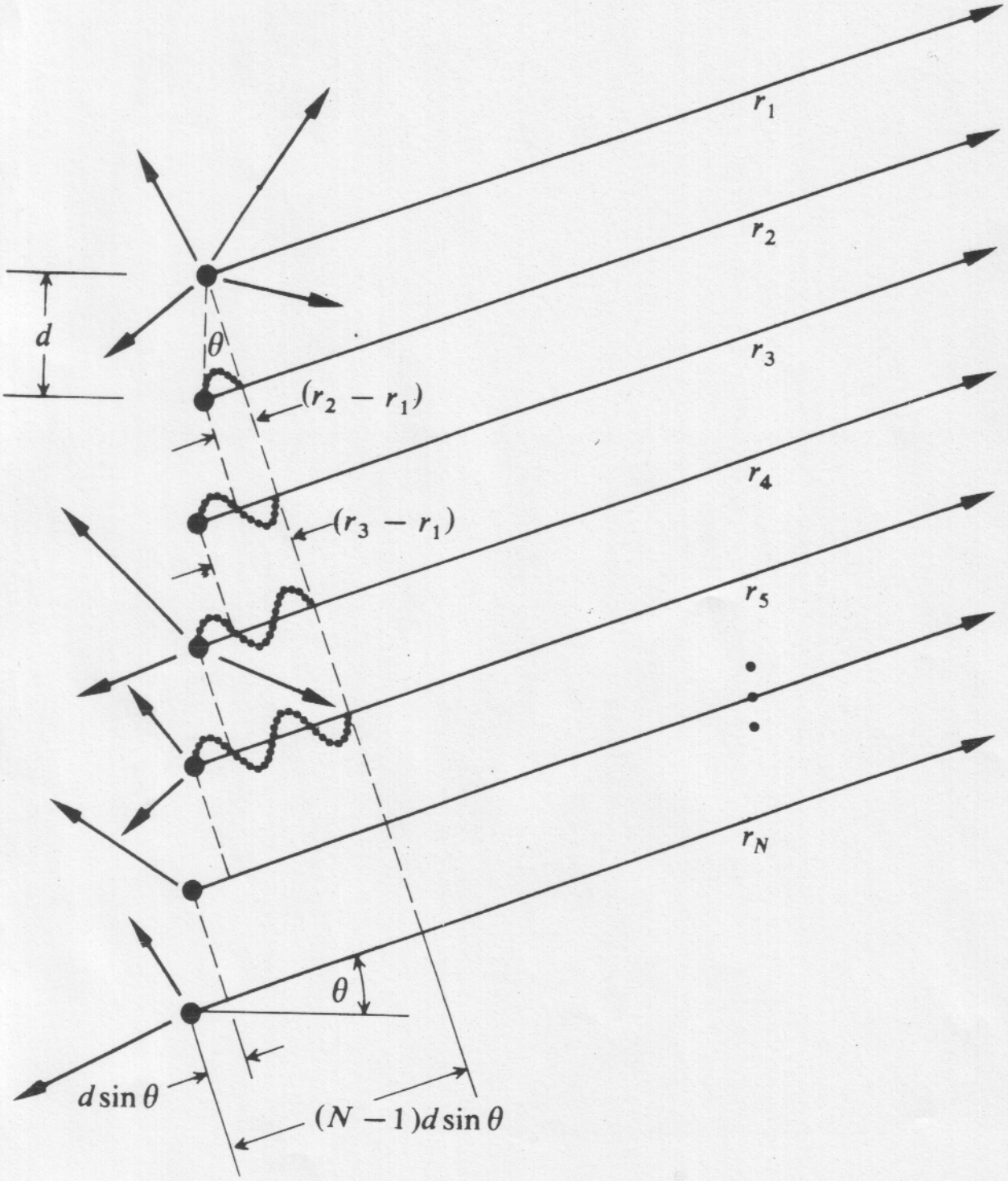
(a)

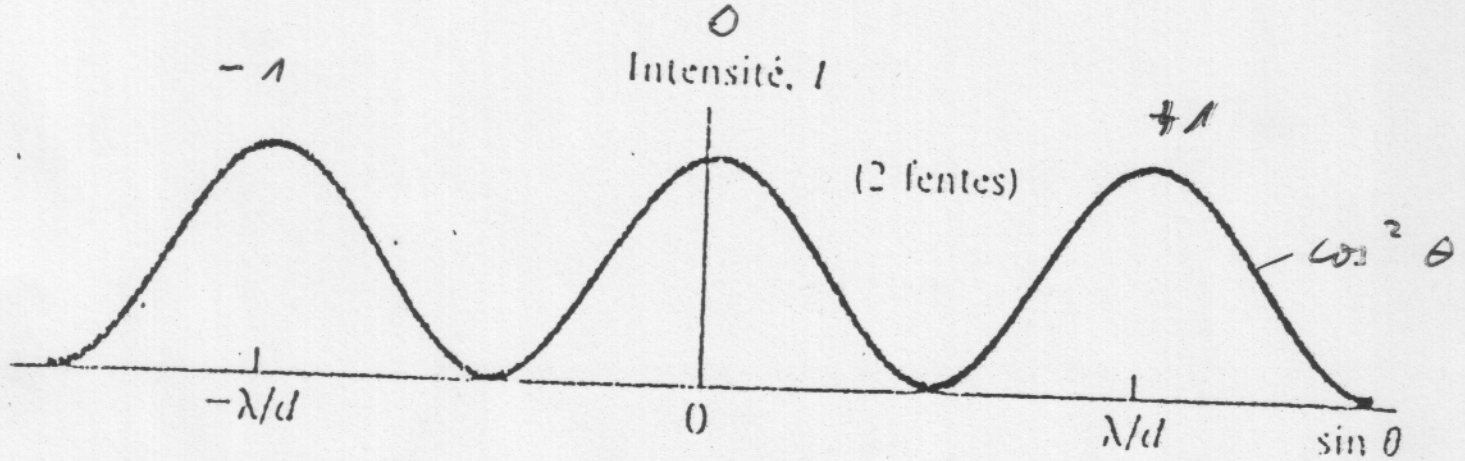


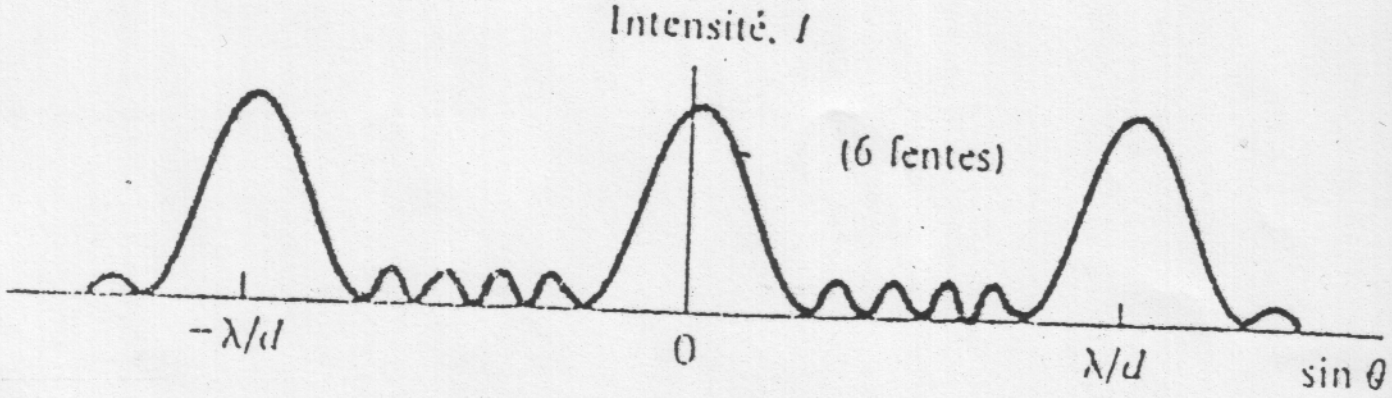
$x = d \cdot \sin\theta$

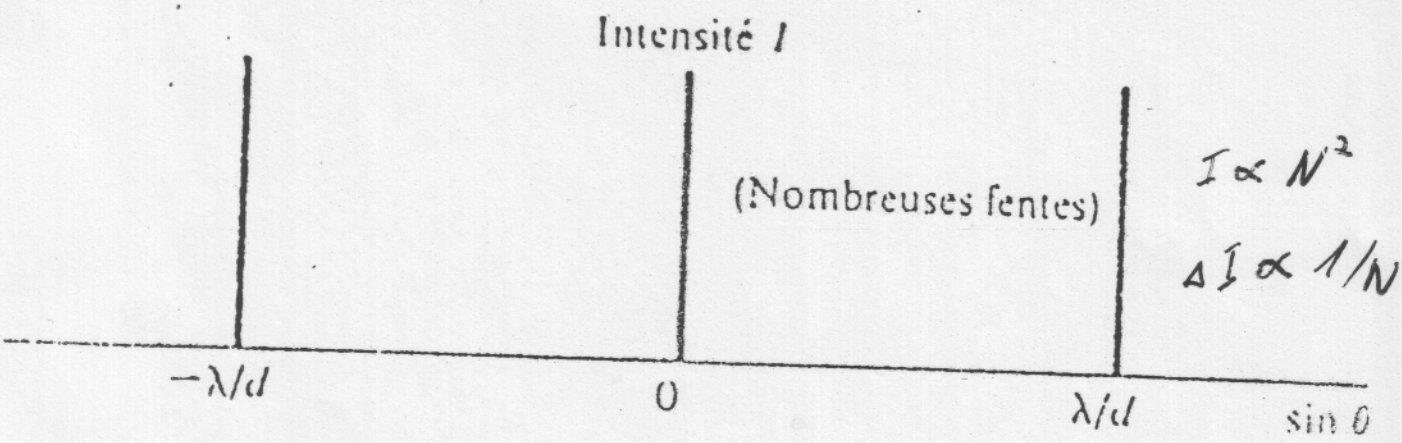
ondes partiels

(b)


r_1
r_2
r_3
r_4
r_5
r_N
d
θ
$(r_2 - r_1)$
$(r_3 - r_1)$
θ
$d \sin \theta$
$(N-1)d \sin \theta$

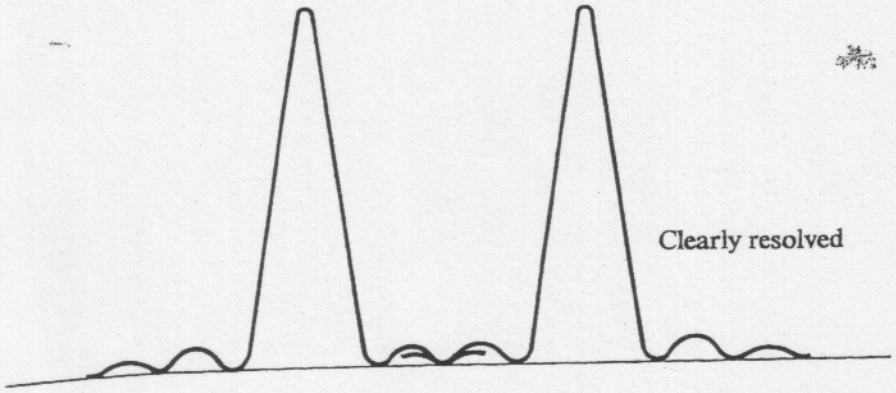


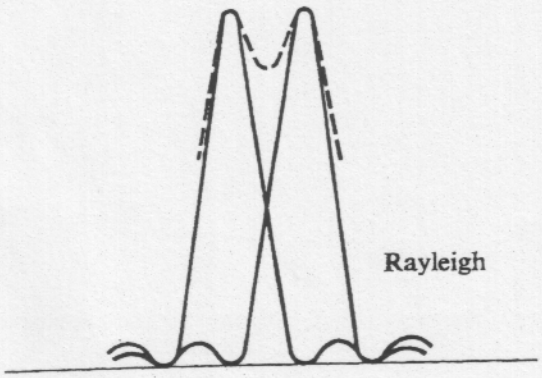


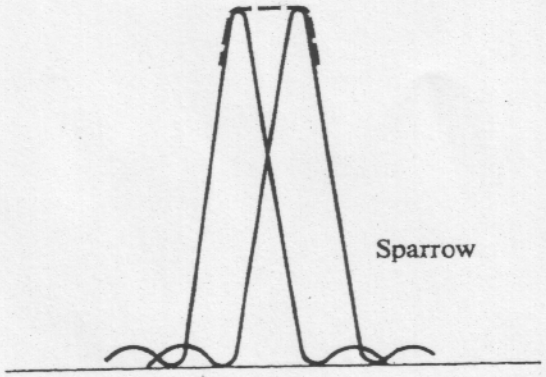


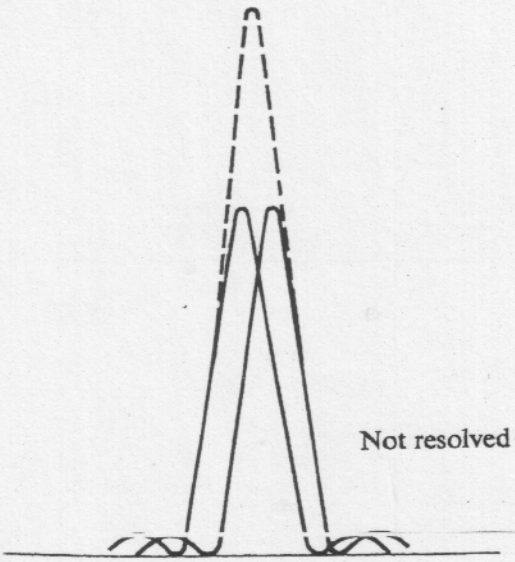
Maxima : $d \sin\theta_m = m\lambda$, m : entier

$m = 0, \pm 1, \pm 2$


Clearly resolved


Rayleigh


Sparrow


Not resolved