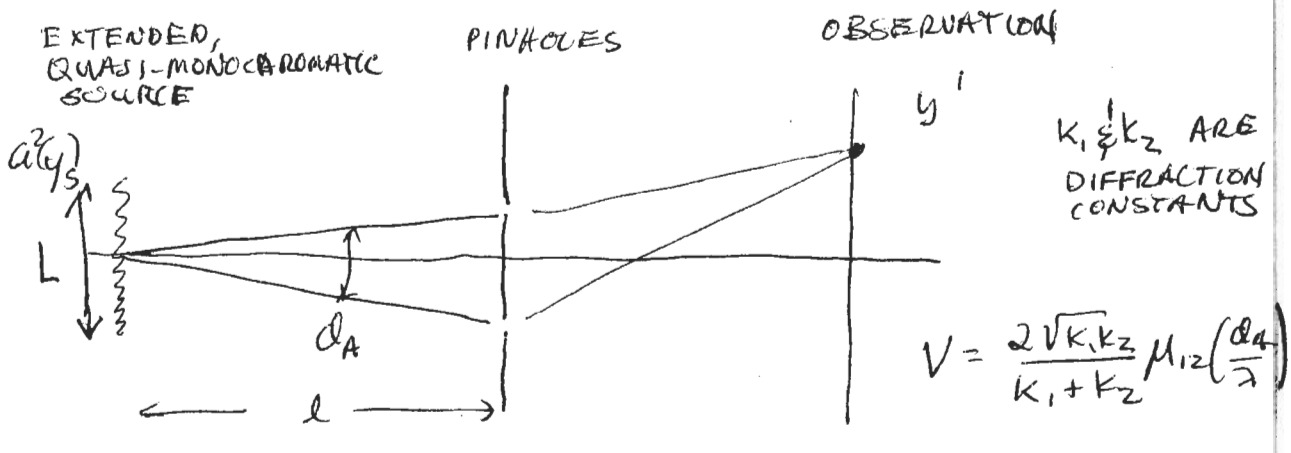
Van-Cittert Zernike

(SPATIAL COHERENCE)



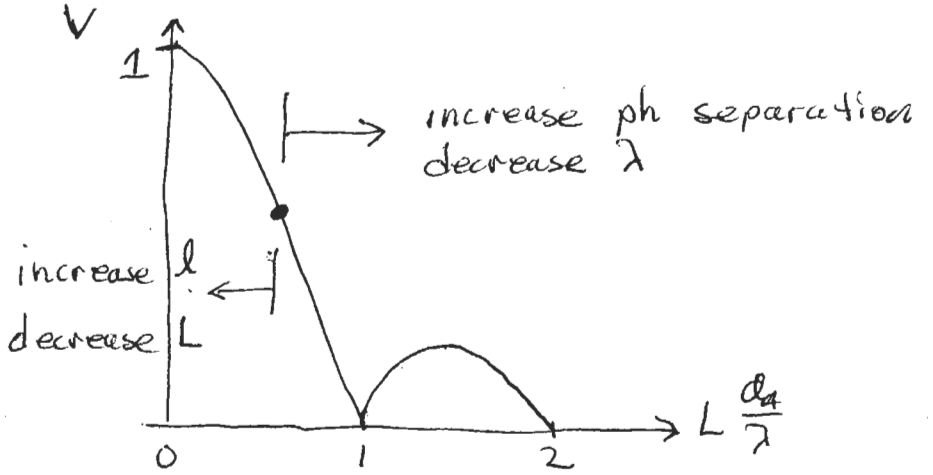
$$\mu_{12}\left(\frac{Q_A}{\lambda}\right) = \left| \frac{F[a^2(y_s)]\, Q_A/\lambda}{I_L} \right|$$

$$I_L = \int_{\text{SOURCE}} a^2(y_s)\, dy_s$$

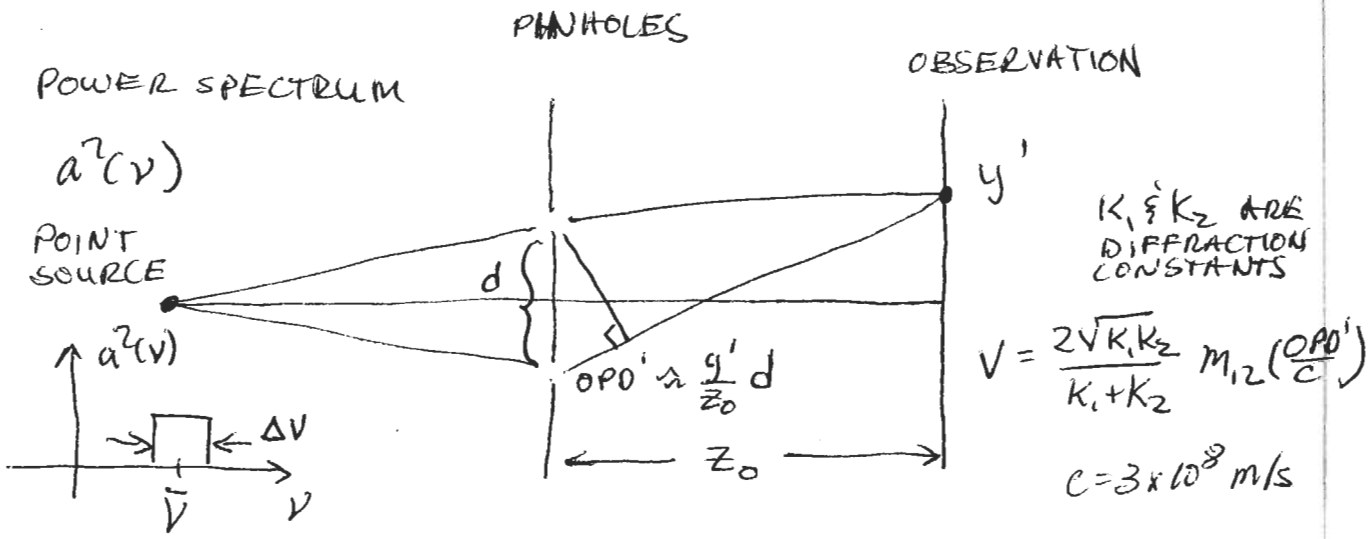
- Visibility does not depend on observation-space parameters.
- Reduce $Q_A \rightarrow$ Increase V

If $a^2(y_s) = \text{rect}\left(\frac{y_s}{L}\right)$

$$V = \left| \text{sinc}\left(L \frac{Q_A}{\lambda}\right) \right|$$



Temporal Coherence



$$m_{12}\left(\frac{OPD'}{c}\right) = \left| \frac{F\left[a^2(\nu)\right]_{\frac{OPD'}{c}}}{I_W} \right|$$

$$I_W = \int_{\infty} a^2(\nu)\, d\nu$$

- Visibility is a function of observation-space parameters
- Reduce $\Delta\nu \rightarrow$ Increase V

If $a^2(y_s) = \text{rect}\left(\frac{\nu - \bar{\nu}}{\Delta\nu}\right)$

$$V = \left|\text{sinc}\left(\Delta\nu \frac{OPD'}{c}\right)\right|$$