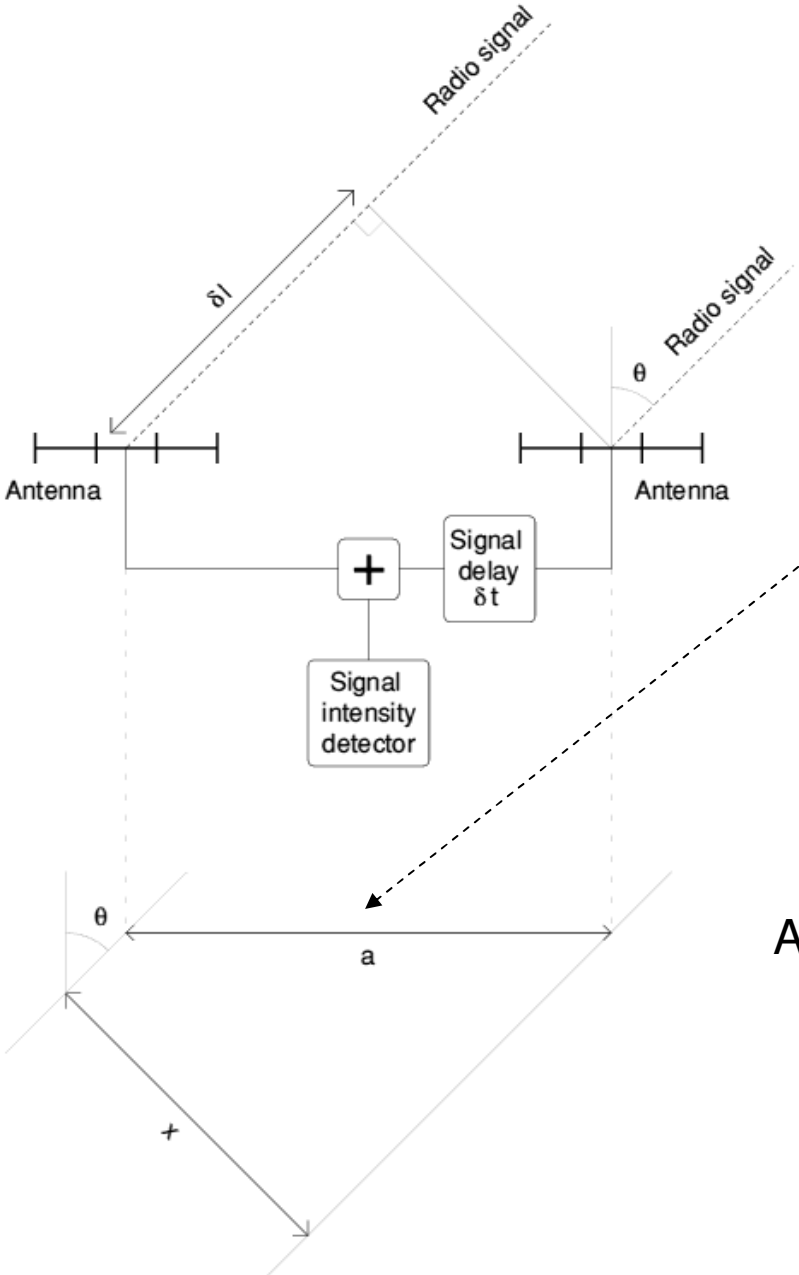
For a rarified gas

$$\langle e^{i\varphi_i} e^{i\varphi_j} \rangle = 0 \qquad \text{When } i \neq j$$

$$\langle \left| \sum A_i \; e^{i\Theta_i} \right|^2 \rangle = \langle \sum A_i^2 \rangle$$



$$\Delta\phi = \frac{2\pi c \Delta t}{\lambda}$$

$$= \frac{2\pi}{\lambda}\left|\Delta\tilde{x}\right|\sin\theta$$

$$\cong \frac{2\pi}{\lambda}\left|\Delta\tilde{x}\right|\tilde{\theta}$$

$$\tilde{\Delta} \equiv \begin{pmatrix} 2\pi\dfrac{\Delta\tilde{x}}{\lambda} \\ 2\pi\dfrac{\Delta\tilde{y}}{\lambda} \end{pmatrix}$$

$$\tilde{\theta} = \begin{pmatrix} \theta_x \\ \theta_y \end{pmatrix}$$

At separation Δ, the signal is proportional to:

$$\int e^{iA\tilde{\theta}} I\left(\tilde{\theta}\right) d^2\tilde{\theta}$$

http://www.geocities.com/capecanaveral/2309/page3.html?200711