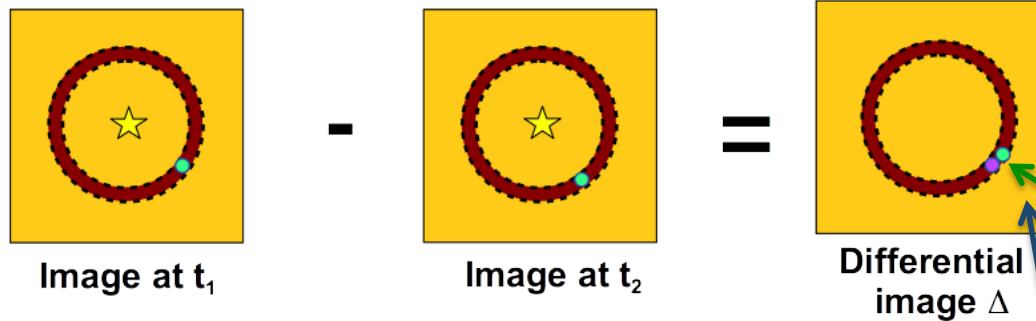


ANDROMEDA

ADI-based algorithm



One couple k
chosen by annuli:
 → smallest time interval (t_1-t_2)
 → sufficient signal distance ($\theta_1-\theta_2$)

Unknowns :

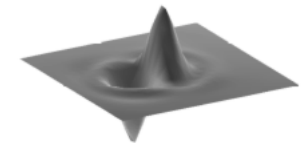
- Initial planet position, r_0
- Planet flux, a

Hypothesis:
 Residual noise n
White, gaussian and non-homogeneous

1st step: ADI

→ “Whitens” the speckle noise
 → Specific planet signature

Model:
 Planet signature p
 Subtraction of 2 **PSFs**



$$L(r_0, a) \propto \exp \left\{ -\frac{1}{2} \frac{\sum_k \sum_r |\Delta(r, k) - a p(r, k, r_0)|^2}{\sigma_n^2(r, k)} \right\}$$

2nd step: Maximum Likelihood

→ Estimation of the flux
 → Provides a detection map