

Progress Report On 3D Orientation Determination

Talon Chandler

October 25, 2017

Distributions of fluorophores

$$\kappa = -3$$



$$\kappa = -2$$



$$\kappa = -0.5$$



$$\kappa = 0$$



$$\kappa = 0.5$$



$$\kappa = 2$$

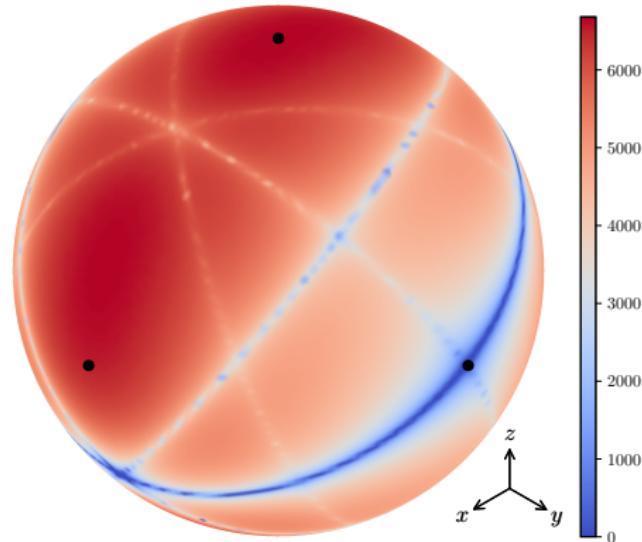


$$\kappa = 3$$



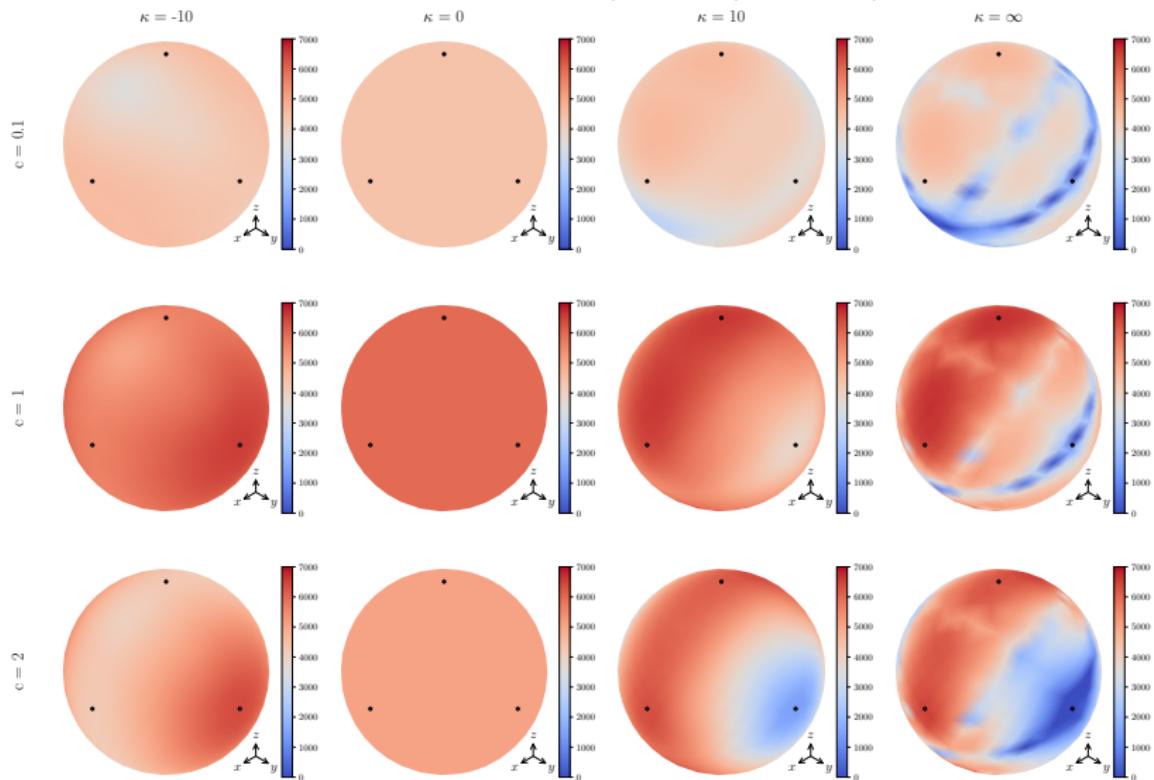
Log-likelihood as a function of the estimate orientation (Θ, Φ)

True orientation: $\Theta = 0, \Phi = 0$



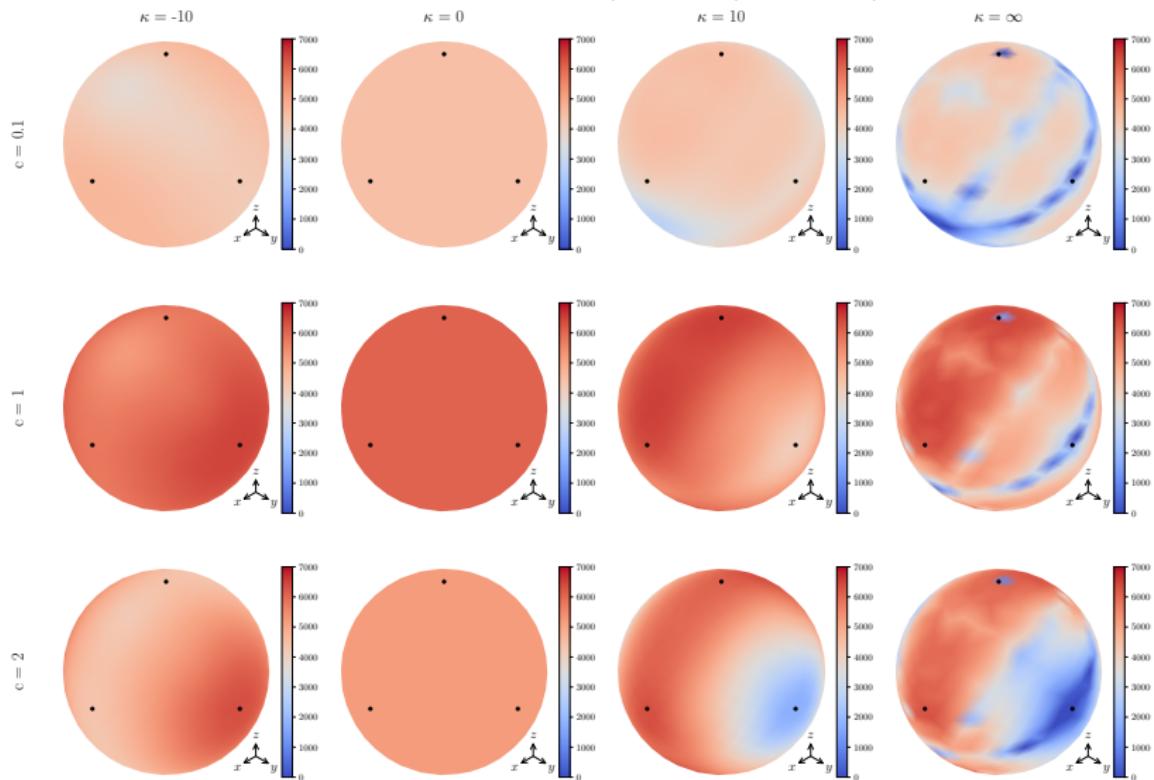
Log-likelihood as a function of the fluorophore distribution (Θ , Φ , κ , c)

True orientation: $\Theta = 0, \Phi = 0, \kappa = \infty, c = 1$



Log-likelihood as a function of the fluorophore distribution (Θ , Φ , κ , c)

True orientation: $\Theta = 0, \Phi = 0, \kappa = 10, c = 1$



Discussion

- ▶ Θ and Φ are bounded
- ▶ κ and c are unbounded...estimate $\log(\kappa)$ and $\log(c)$ instead?