

Unbinned Poisson model $I(\Omega|\boldsymbol{\theta})$: Intensity $N(\Omega)$: Noise $\Sigma(\Omega, \Omega')$: Covariance $\mathcal{E}(\Omega)$: Exposure**Fisher Information Matrix**

$$\mathcal{I}_{ij}(\boldsymbol{\theta}) = - \left\langle \frac{\ln \mathcal{L}(\mathcal{D}|\boldsymbol{\theta})}{\partial \theta_i \partial \theta_j} \right\rangle_{\mathcal{D}(\boldsymbol{\theta})}$$

Additive components

Effective counts

$$\mathcal{I}_{ij}(\boldsymbol{\theta}) \rightarrow (s_i(\boldsymbol{\theta}), b_i(\boldsymbol{\theta}))$$

Exclusion limits

Discovery reach

Model likelihood

Discrimination power

$$V = \int d\boldsymbol{\theta} \sqrt{\det g_{ij}(\boldsymbol{\theta})}$$

Information Geometry

$$g_{ij}(\boldsymbol{\theta}) = \mathcal{I}_{ij}(\boldsymbol{\theta})$$

Confidence contours \simeq equal geodesic distance contours**Information Flux**

$$\mathcal{I}(\boldsymbol{\theta})_{ij} = \int dt \int d\Omega \frac{d\mathcal{E}(\Omega)}{dt} \mathcal{F}(\Omega|\boldsymbol{\theta})_{ij}$$

Optimal observation strategy