

Galaxy detection in the visibility domain

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Problem: galaxy detection in radio interferometric data transfers visibilities \rightarrow images, far from ideal.

Our approach: define priors for galaxy position, flux, shape, then fit a single galaxy visibility model to simulated radio visibilities of multiple galaxy sources.

$$\mathcal{L}(\mathbf{D} \mid \Theta, H) \propto \exp \left[-\frac{\sum_{i=1}^N (|V_i(\Theta) - \tilde{V}_i|^2)}{2\sigma_i^2} \right]$$

Multimodal posterior \rightarrow
sample using MultiNest

