

Why PCs

Disadvantages:

- Modes are **non local**
- Constraints define a **heavily filtered reconstruction**, e.g. sets function to zero beyond observable range
- Eigenfunctions not ranked by their importance within a certain class of models – e.g. freezing and thawing $w(z)$ – better for **paradigm testing** than **model testing**
- Completeness requires **more parameters** than required by model or data
- Including **unconstrained modes** can break **orthogonality**, requiring **external prior** or regularization (e.g. Gaussian processes, see S. Habib's talk)

Ionization History $x_e(z)$