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 $x_e(z)$