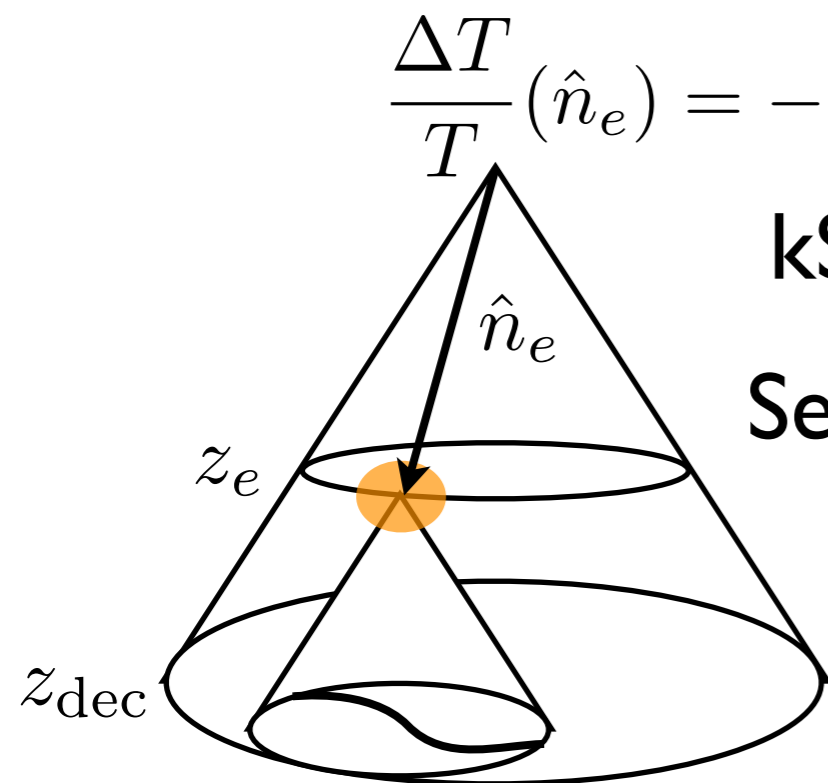


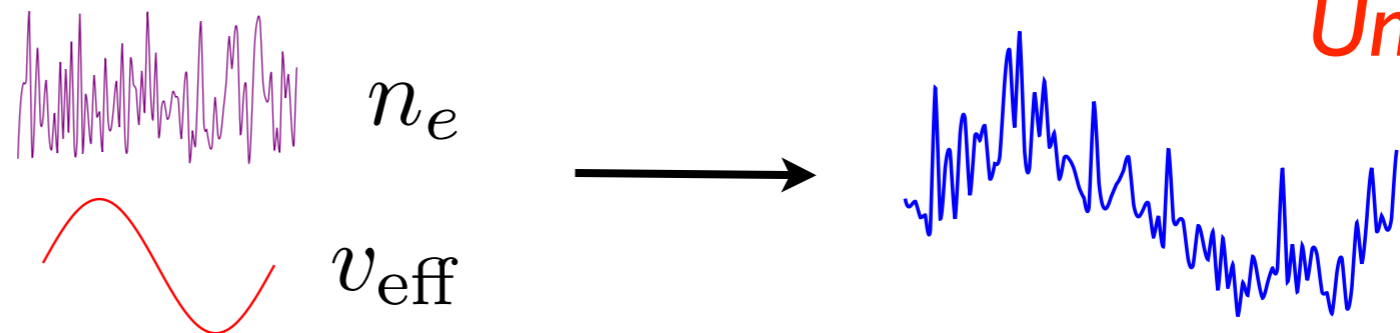
Early Universe constraints using kSZ tomography

(Matthew C. Johnson, Perimeter Institute & York University)



kSZ - Map of each electron's CMB dipole

Sensitive to Gpc variations in v_{eff} \longrightarrow **Early Universe!**



Signal: Asymmetry in Temp-Matter cross-power w/ characteristic dependence on redshift.

Example: Bubble Collisions

- LSST+Planck: Sensitive to variations in primordial potential at 10^{-4} level over horizon volume.
- LSST+ future full-sky CMB (e.g. Prism) gives another order of magnitude.
- What about CMB S4?

(arxiv: 1501.00511)

Could be used to probe

- Ultra large-scale map of Universe.
- Features in the low- l CMB power spectrum.
- Axis of Evil.
- Topology.
- (other large-scale exotica).

(work in progress.....)