**Lit Review Notes:**

**General notes:**

We don’t frame MCMC in a Bayesian context. We do it in a function optimization context. This never seems to be done in the literature. We can probably keep what we have, but add some Bayes.

**Fast and reliable Markov chain Monte Carlo technique for cosmological parameter estimation:**

Uses convergence of the variance of the MCMC sample mean to test convergence of the chain.

Gets a measure of the efficiency of chains w.r.t. ideal chains. Could be useful for ranking parameter sensitivities.

Uses power spectra of chains to calculate variance of sample mean

**Hamiltonian Monte Carlo methods for efficient parameter estimation in steady state dynamical systems:**

Adds a momentum term into the calculation of the posterior probability.

Can be augmented by including the metric tensor of the parameter space in the kinetic energy calculation.

This metric calculation would be incredibly expensive for us, and their simplifications assume the ODE’s have reached steady-state.

**Comprehensive benchmarking of Markov chain Monte Carlo methods for dynamical systems:**

Do substantial convergence tests on a multitude of different MC algs.

Frames the error in terms of a function h of the actual data y as opposed to time-series LSQ. This is what we do with binning, so this is nice.

**Random note about sigma:**

Typically, sigma is fitted along with the parameters; however, since it represents measurement noise—and we have no measurement noise since we are using simulated data—we can fix it to an arbitrarily small value. Maybe finite precision arithmetic could be a source of error, but it will be on a level of 1e-16.