L2 between state means and variances Dataset 13 15  $10^{1}$  $L_2(\mu_1:\tau,\hat{\mu}_1:\tau)$ 10 10° 5 0  $10^{-1}$ 2.5 2.0  $L_2(\sigma_{1:T'}^2, \hat{\sigma}_{1:T}^2)$ 10<sup>0</sup> 1.5 1.0 is smc 0.5 csis  $10^{-1}$ 0.0  $10^{3}$ 0 2500 5000 7500 10000  $10^{1}$  $10^{2}$ 10<sup>4</sup> Number of particles Number of particles