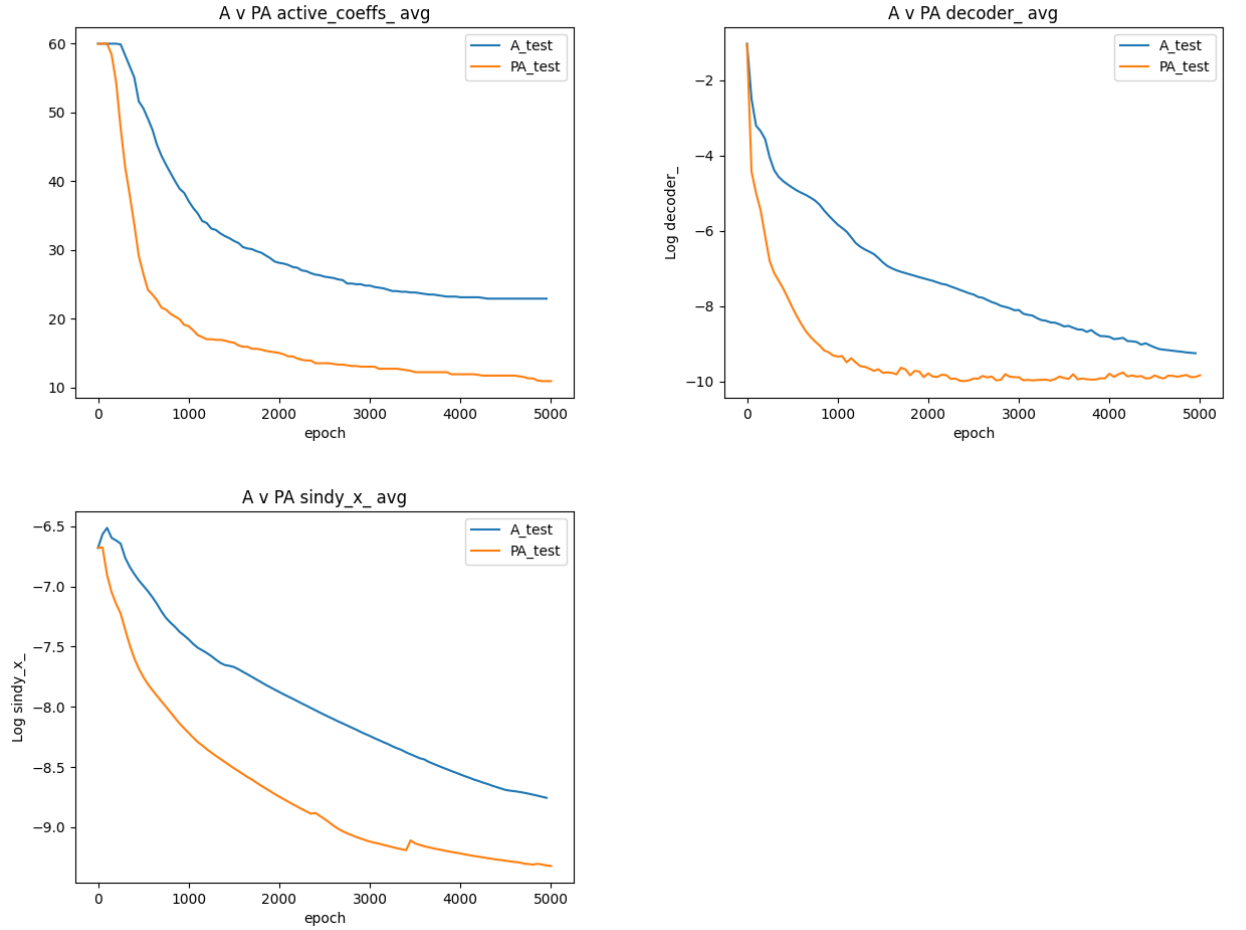


### Sample results for PA-Sindy algorithm

Train data was of dimension  $128 \times 32000$ , generated from Lorentz system.

Test data was of dimension  $128 \times 5000$ , generated from same Lorentz system.

Test loss values and coefficient counts for each averaged over 10 runs is given in the plots below. (sindy\_x loss is multiplied by weight hyper-param  $10^{-4}$ )



Next plots are same setup, except the coefficient for the submodels are initialized randomly instead of uniformly to one. Note we no longer achieve better sparsity but the `sindy_x` loss is much much better than in the uniform initialization case. The same does not hold for A-sindy with random initialization. Random init of A-sindy yields better sparsity but worse Loss.

