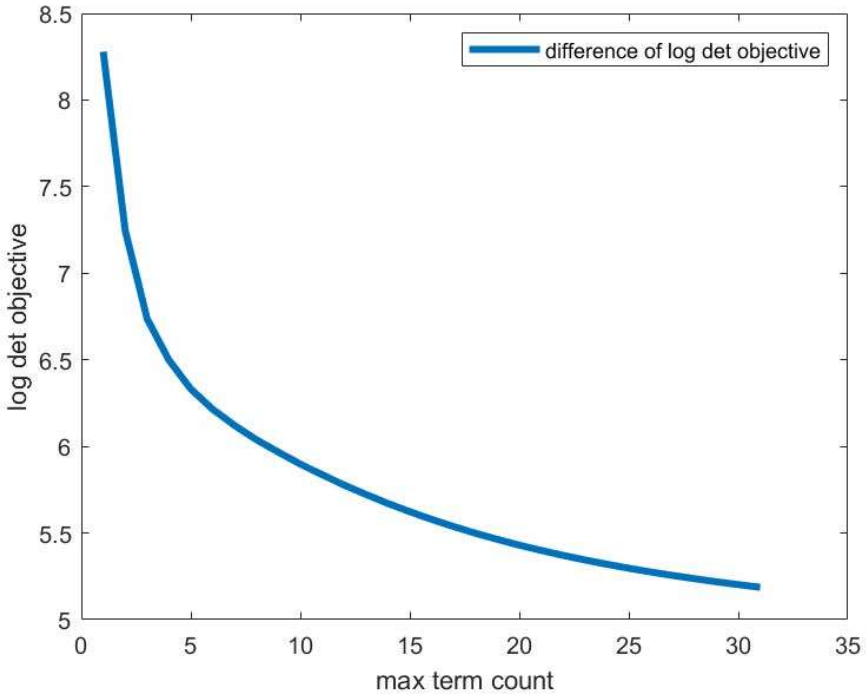
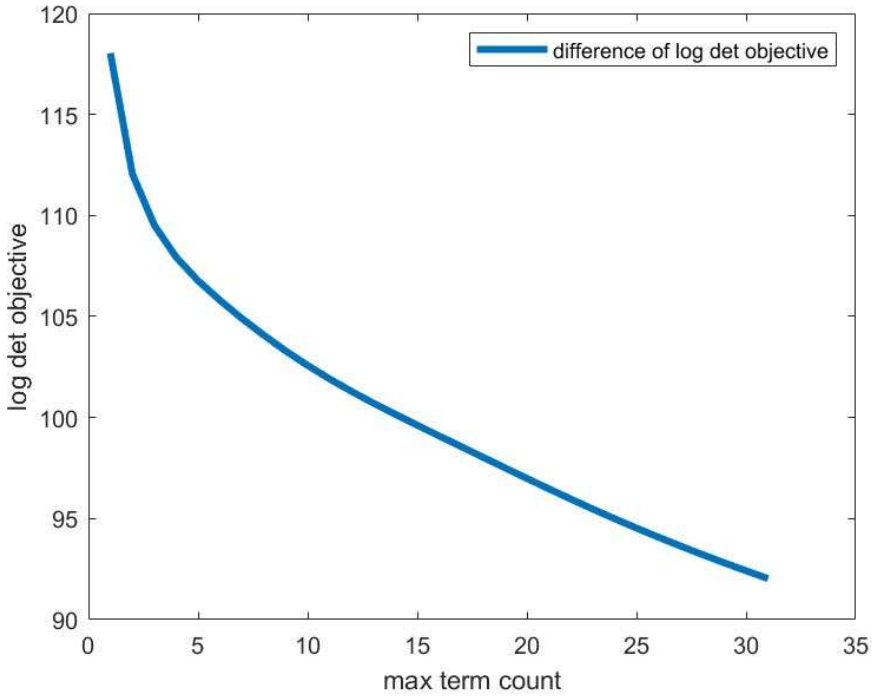
4/7/2021

There is a free parameter of how large the projected subspace is



When we only project to the top 10 eigenvectors of the OG



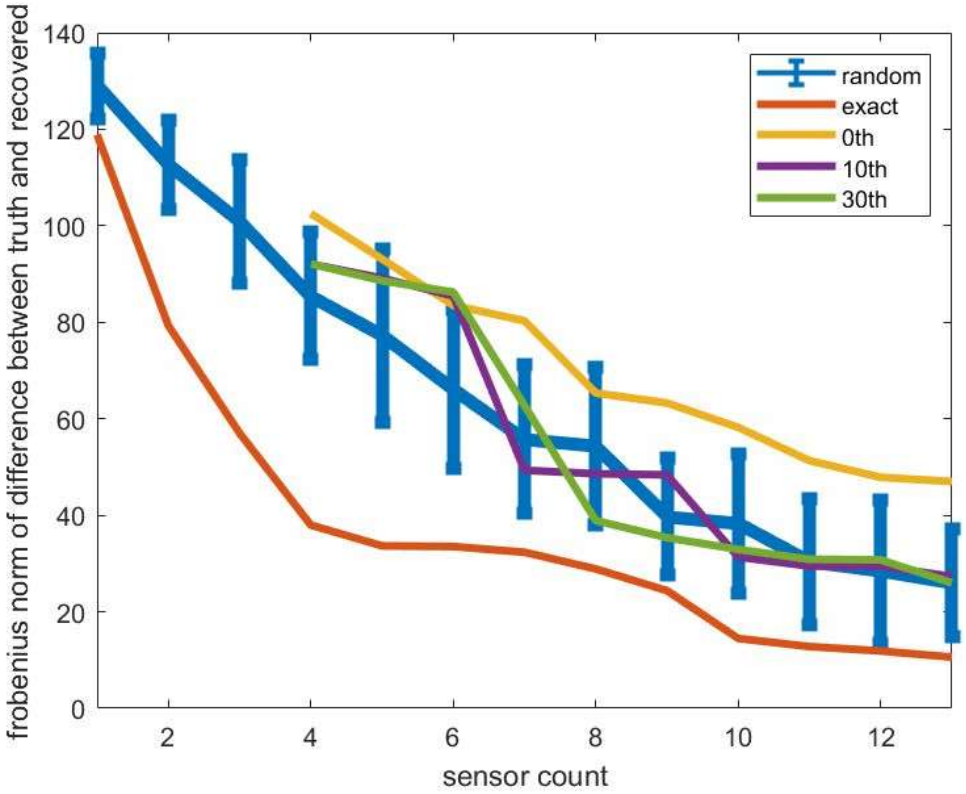
When we only project to the top 20 eigenvectors of the OG

The are in log terms.

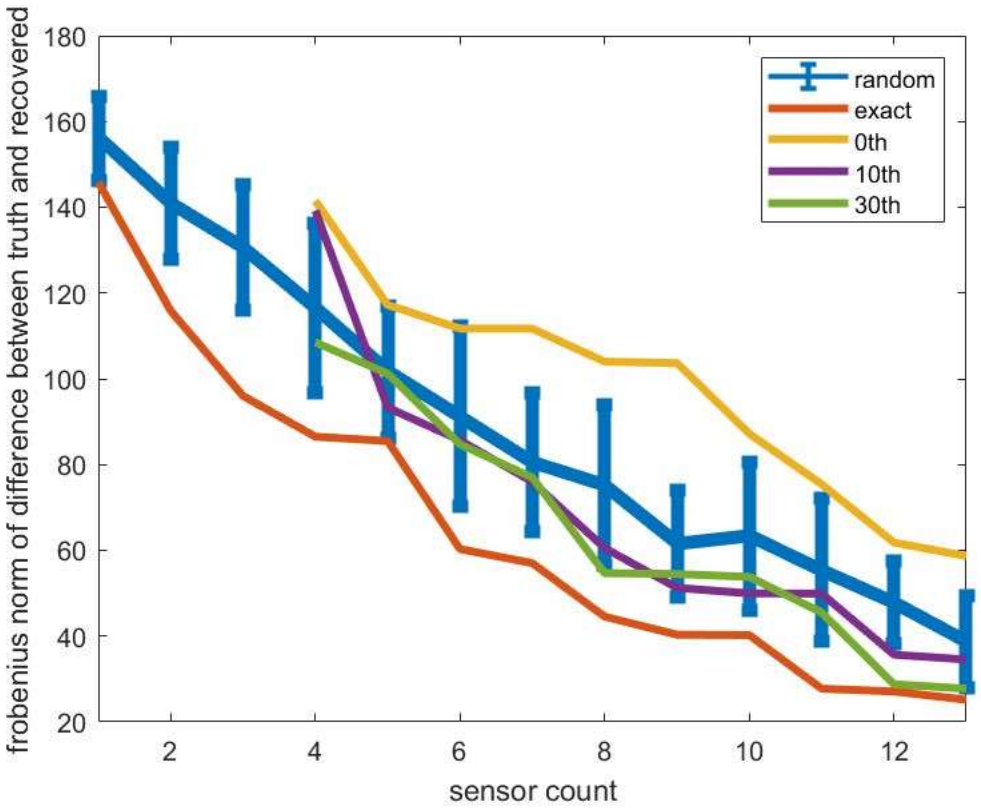
The conclusion is that although the approximation gets better and better as we add more terms, the absolute quality of the approximation is still poor.

We are trying to approximate the observability gramian and we should choose a subspace that can approximate well.

Now, if we only project to the top 10 eigenvectors.



150 space points



We want to select a projection subspace that is large enough so that we can do better than random.

We also don’t want to select a projection subspace that is too large and we cannot approximately accurately.

What if we project to a constant subspace?

We project to the top 10 eigenvectors spanned by the observability gramian given by the initial 3 sensors.