

20节点树形同步 仿真结果

23-04-2021 13:36

所有方案噪声设置如下

Noise levels:

Phase (offset) noise std = 1.000000e-06

Freq (skew) noise std = 1.000000e-06

Observation (offset) noise std = 4.000000e-06

写了一个作图程序

plotResults4Paper.m

仿真的结果保存在数据文件中，

Result_Knewa_noise0*.mat

Result_Kold_noise0*.mat

noise03 的效果对比最明显，这个也是用noise03做得

结论： 优化得到的两个矩阵 Ka， Kb 的同步性能没有明显差异

旧的默认LMI方法

02 代表相同噪声

good02

maximum std in t=[300,800]: [offset=3.743090e-05 skew=1.295460e-05]

average std in t=[300,800]: [offset=1.979356e-05, skew=7.788999e-06]

Noise03

maximum std in t=[300,800]: [offset=5.809082e-05 skew=1.247522e-05]

average std in t=[300,800]: [offset=3.072250e-05, skew=7.924430e-06]

Noise04

maximum std in t=[300,800]: [offset=5.139971e-05 skew=1.217831e-05]

average std in t=[300,800]: [offset=2.285558e-05, skew=7.725530e-06]

Noise05

maximum std in t=[300,800]: [offset=4.587592e-05 skew=1.244203e-05]

average std in t=[300,800]: [offset=2.333839e-05, skew=7.771437e-06]

优化后的 Ka

Ka =

[0.089267697012743 -0.071498708323390;

0.097945896670515 0.299574632312155];

good02

maximum std in t=[300,800]: [offset=3.092304e-05 skew=1.591152e-05]

average std in t=[300,800]: [offset=1.523012e-05, skew=8.889267e-06]

Noise 03

maximum std in t=[300,800]: [offset=2.983636e-05 skew=1.510837e-05]

average std in t=[300,800]: [offset=1.541116e-05, skew=9.019041e-06]

Noise 04

maximum std in t=[300,800]: [offset=2.401348e-05 skew=1.473323e-05]

average std in t=[300,800]: [offset=1.298077e-05, skew=8.711730e-06]

Noise 05

maximum std in t=[300,800]: [offset=3.814599e-05 skew=1.503376e-05]

average std in t=[300,800]: [offset=1.753666e-05, skew=8.847525e-06]

优化后的Kb

Kb=[0.136517830649692 -0.072338483097365;

0.080167639975444 0.297171905799192]

good02

maximum std in t=[300,800]: [offset=3.323125e-05 skew=1.508455e-05]

average std in t=[300,800]: [offset=1.631070e-05, skew=8.578573e-06]

Noise 05

maximum std in t=[300,800]: [offset=2.948064e-05 skew=1.443342e-05]

average std in t=[300,800]: [offset=1.565100e-05, skew=8.696381e-06]

Noise 04

maximum std in t=[300,800]: [offset=2.421614e-05 skew=1.392420e-05]

average std in t=[300,800]: [offset=1.297698e-05, skew=8.408531e-06]

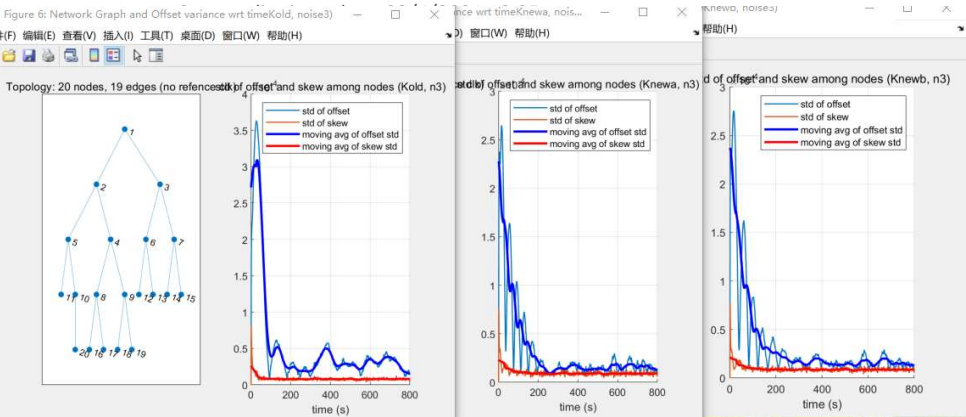
Noise 05

maximum std in t=[300,800]: [offset=3.884014e-05 skew=1.417232e-05]

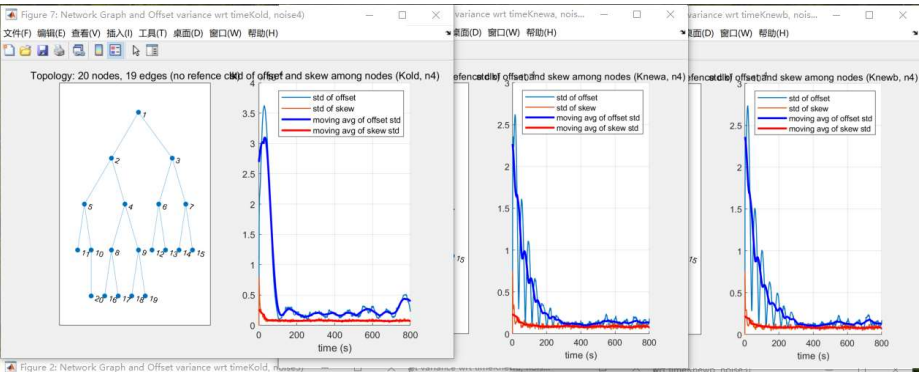
average std in t=[300,800]: [offset=1.846552e-05, skew=8.535169e-06]

结论： 优化得到的两个矩阵 Ka， Kb 的同步性能没有明显差异

Noise03 结果对比图

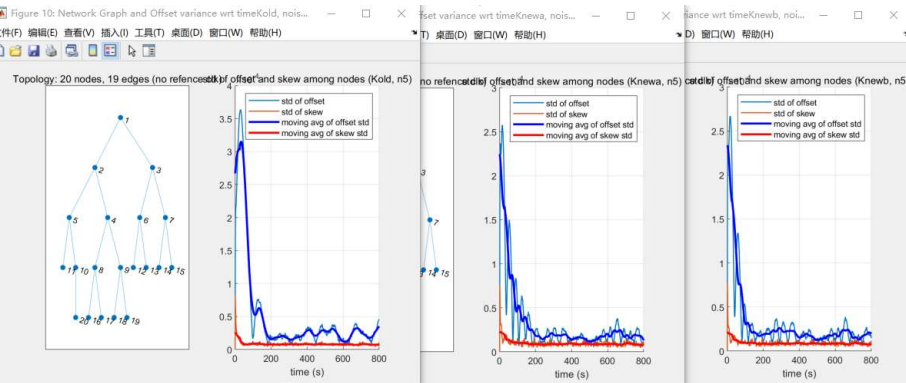


Noise04 结果对比图



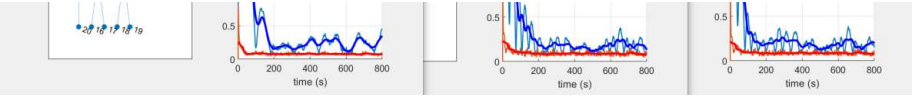
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Noise05 结果对比图





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