Summary

This is a book, containing the results summarized from the Light curve simulated data from Alex, shown in figure(1). Here we have used 3 filters from the data. The original time delay and magnification in the data is found in the title of the plot. We tried with changing the node spacing in the recontruction process. So an array of node spacing prior range was chosen and for each of this value, the reconstruction was done and the results are compared, which can be seen in the table in next page. The posterior plots and the reconstructed images for each of this rows from the table are subsequently presented in the following pages in the same order as of the rows in the table's node-space values. Changing the upper range of the time delay maximum range, can however change the reconstruction and the fitting statistics. The upper range of this parameter which is called as 'dt_max'in the program, used in this run of the code, can be found in the naming nomenclature of the folder TD_50, meaning the uppper range of the time delay max is 50 day (the default lower limit is 0). The folder name also shows the number of parameter used which is $NP = 8$.

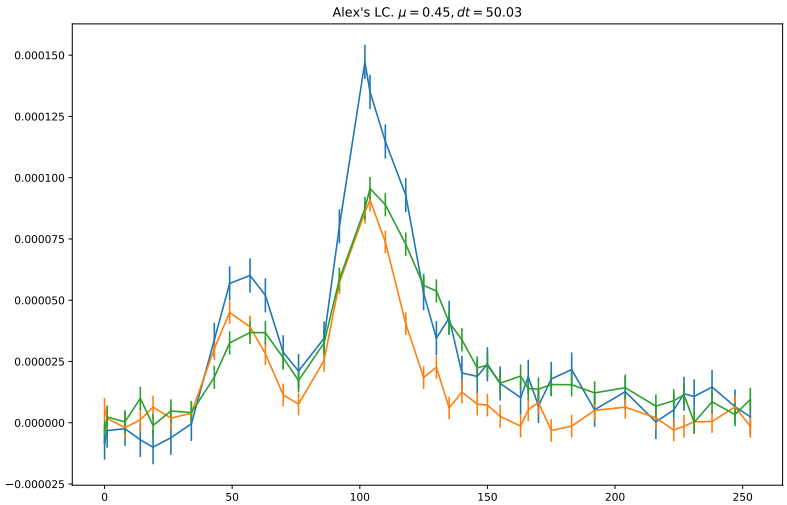
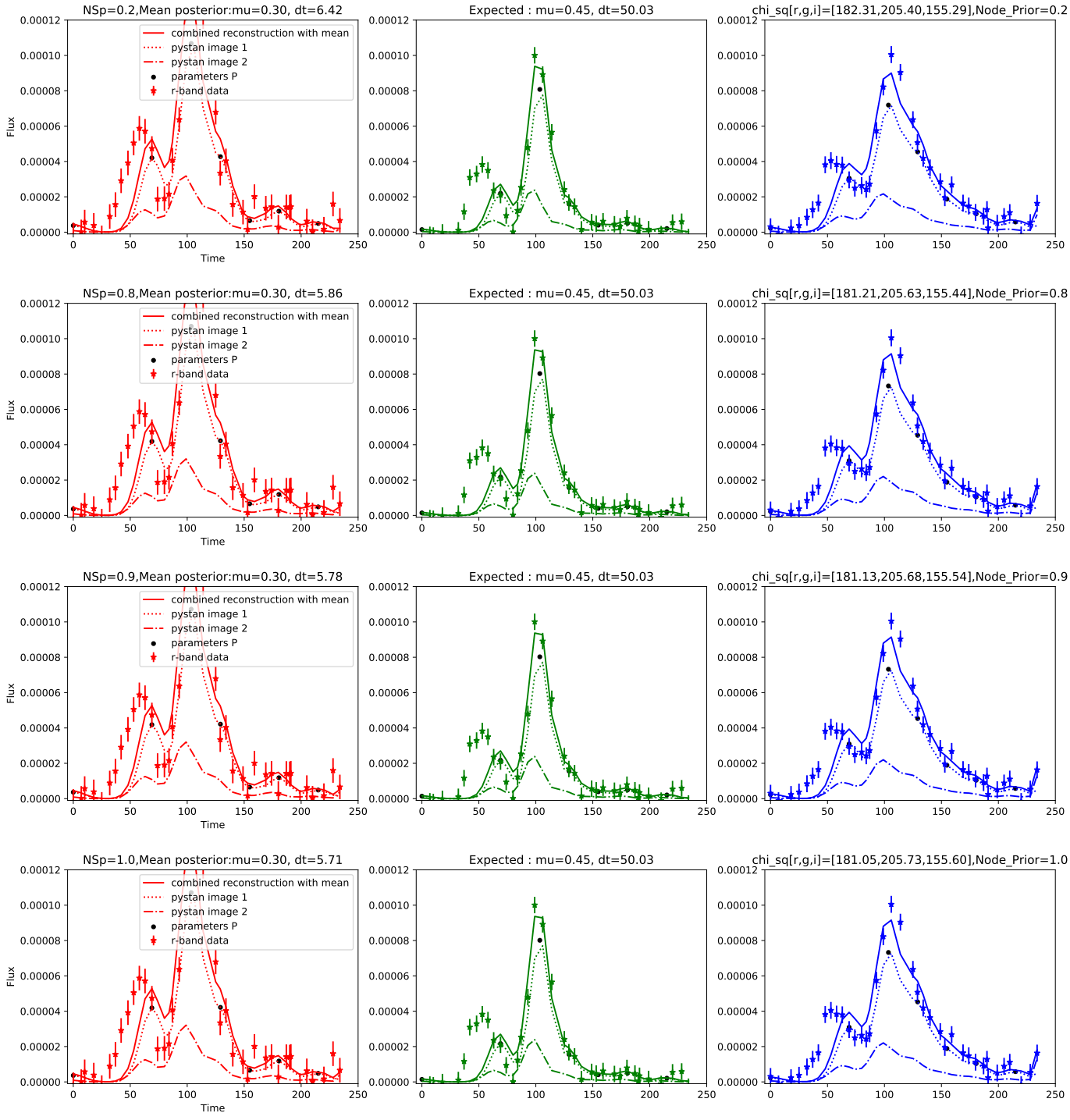
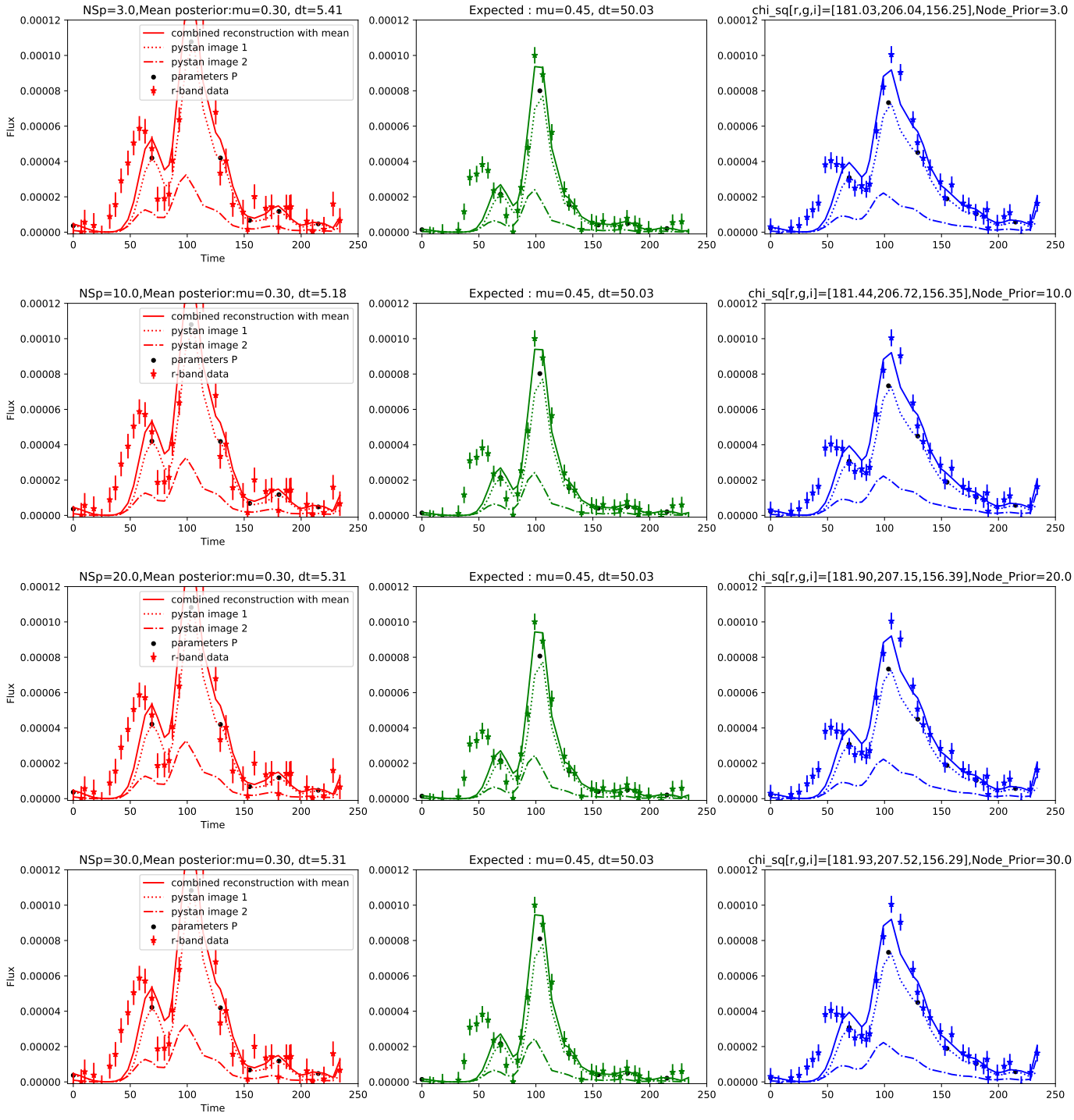


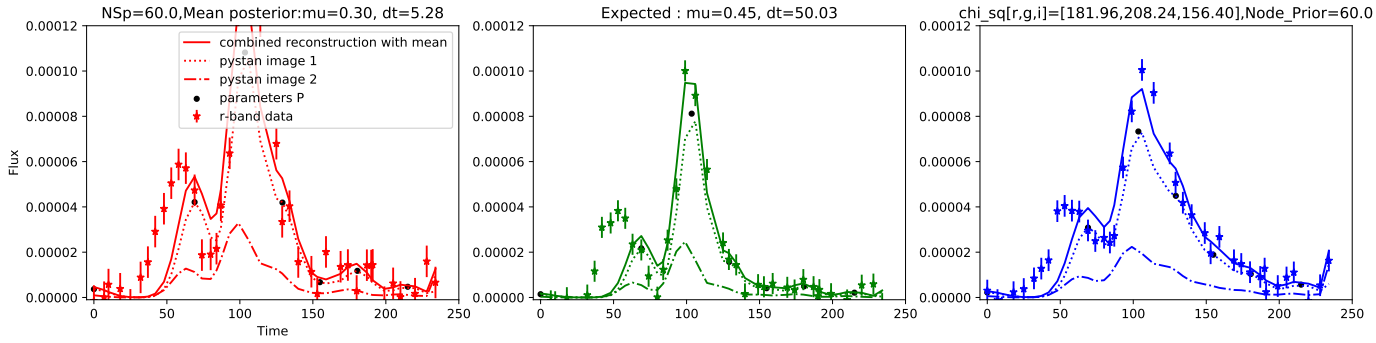
Figure 1: Alex's simulated light curve, customised to produce 2 images, with a time delay and magnification(ralative) shown in the top header of the plot. Here we used only 3 filter data, which are shown above.
X-axis = Time Delay in Days, Y-Axis = Flux.

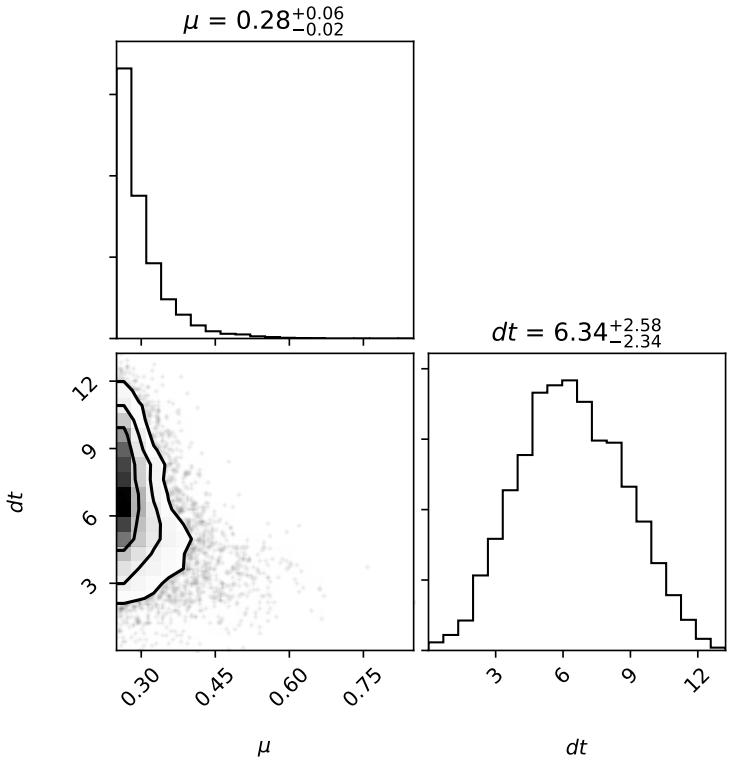
Table in the next page, showing the reconstruction statistics, **as a function of the node space parameter(1^{st} column)** for a given dt_max(which in this case is 50 for $NP = 8$ parameters.

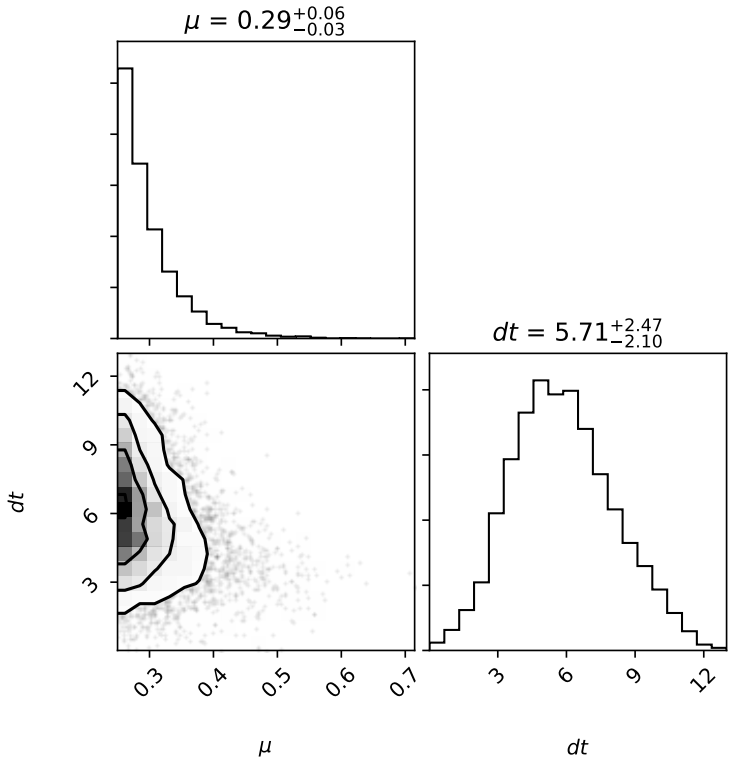
nspace	mu_expec	dt_expec	mu_pos	dt_pos	chi_r	chi_g	chi_i
0.2	0.4477611940298508	50.0321	0.30153381804168505	6.4185933177941195	182.3080415262672	205.4032934166695	155.290355064275
0.8	0.4477611940298508	50.0321	0.3005119368121446	5.856172492542374	181.212699809519	205.63044727119978	155.44492710823266
0.9	0.4477611940298508	50.0321	0.3001159927545969	5.7790023155934	181.12525134928734	205.68305701877003	155.5443934767694
1.0	0.4477611940298508	50.0321	0.3008318722810384	5.706701308422223	181.04915412736568	205.72506941102938	155.60039889804554
3.0	0.4477611940298508	50.0321	0.30174674354323	5.405060499192692	181.02717034386407	206.0447599996813	156.24770809156166
10.0	0.4477611940298508	50.0321	0.3031273145386862	5.1836404199221 63	181.44319190729018	206.7233915550635	156.35248841227914
20.0	0.4477611940298508	50.0321	0.3038130769326966	5.3099272671181215	181.89699050682424	207.15481726844968	156.39336606688596
30.0	0.4477611940298508	50.0321	0.3031838550028894	5.306066800194836	181.92803388604318	207.51915328823276	156.29220282343636
60.0	0.4477611940298508	50.0321	0.3042111738960928	5.2810635970937945	181.958136653884	208.23837897822074	156.40160669245972

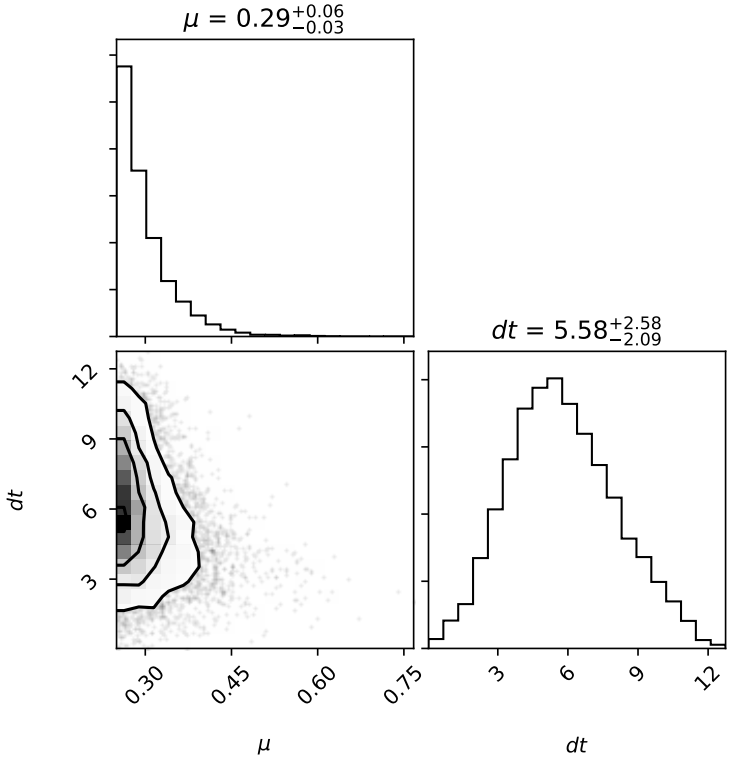

NSp=0.2,Mean posterior:mu=0.30, dt=6.42
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[182.31,205.40,155.29],Node_Prior=0.2
NSp=0.8,Mean posterior:mu=0.30, dt=5.86
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.21,205.63,155.44],Node_Prior=0.8
NSp=0.9,Mean posterior:mu=0.30, dt=5.78
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.13,205.68,155.54],Node_Prior=0.9
NSp=1.0,Mean posterior:mu=0.30, dt=5.71
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.05,205.73,155.60],Node_Prior=1.0
combined reconstruction with mean
pystan image 1
pystan image 2
parameters P
r-band data
Flux
Time

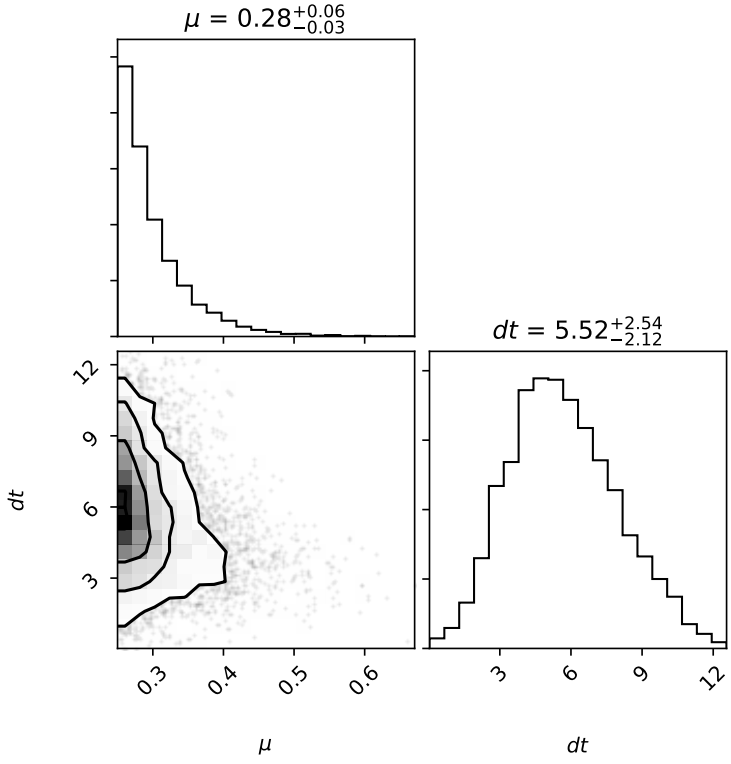

NSp=3.0,Mean posterior:mu=0.30, dt=5.41
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.03,206.04,156.25],Node_Prior=3.0
NSp=10.0,Mean posterior:mu=0.30, dt=5.18
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.44,206.72,156.35],Node_Prior=10.0
NSp=20.0,Mean posterior:mu=0.30, dt=5.31
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.90,207.15,156.39],Node_Prior=20.0
NSp=30.0,Mean posterior:mu=0.30, dt=5.31
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.93,207.52,156.29],Node_Prior=30.0
combined reconstruction with mean
pystan image 1
pystan image 2
parameters P
r-band data
Flux
Time

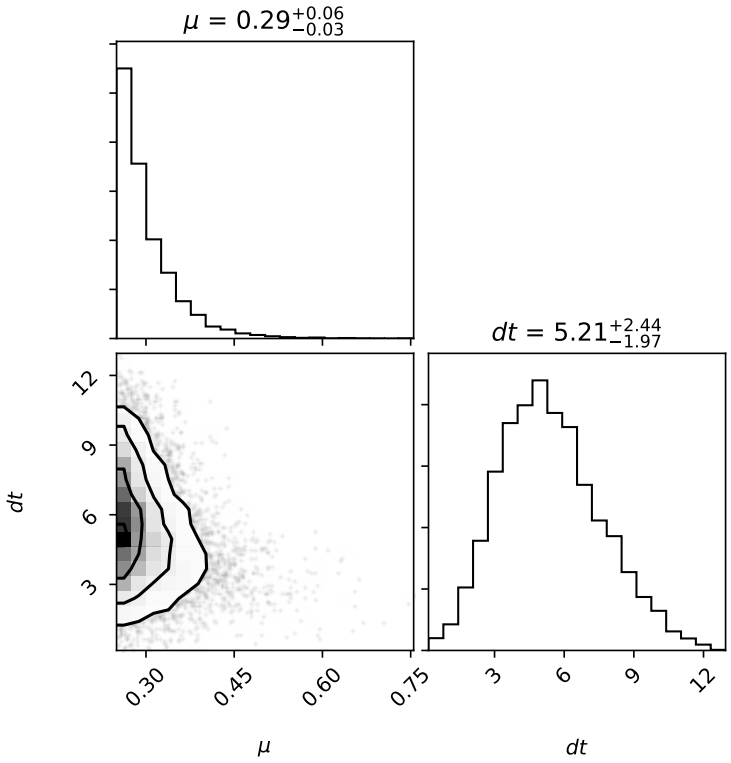

NSp=60.0,Mean posterior:mu=0.30, dt=5.28
Expected : mu=0.45, dt=50.03
chi_sq[r,g,i]=[181.96,208.24,156.40],Node_Prior=60.0
combined reconstruction with mean
pystan image 1
pystan image 2
parameters P
r-band data
Flux
Time
0.00012
0.00010
0.00008
0.00006
0.00004
0.00002
0.00000
0
50
100
150
200
250

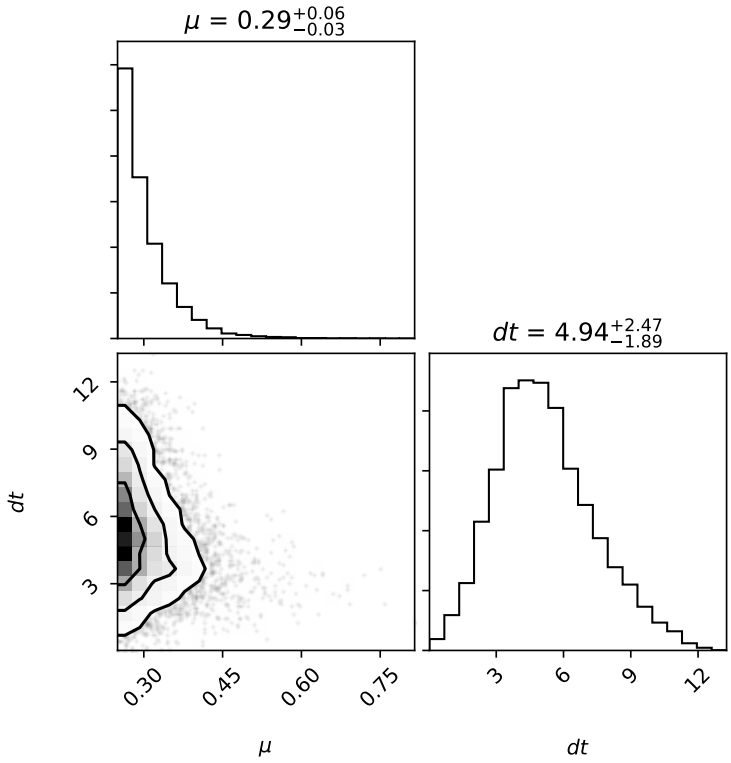

$\mu = 0.28^{+0.06}_{-0.02}$
$dt = 6.34^{+2.58}_{-2.34}$
dt
μ

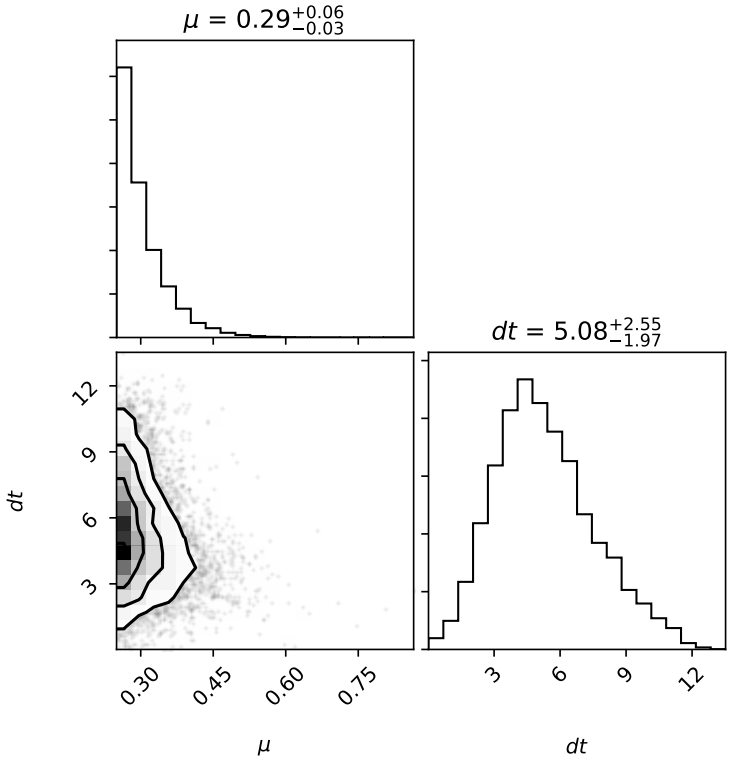

$\mu = 0.29^{+0.06}_{-0.03}$
$dt = 5.71^{+2.47}_{-2.10}$
dt
μ

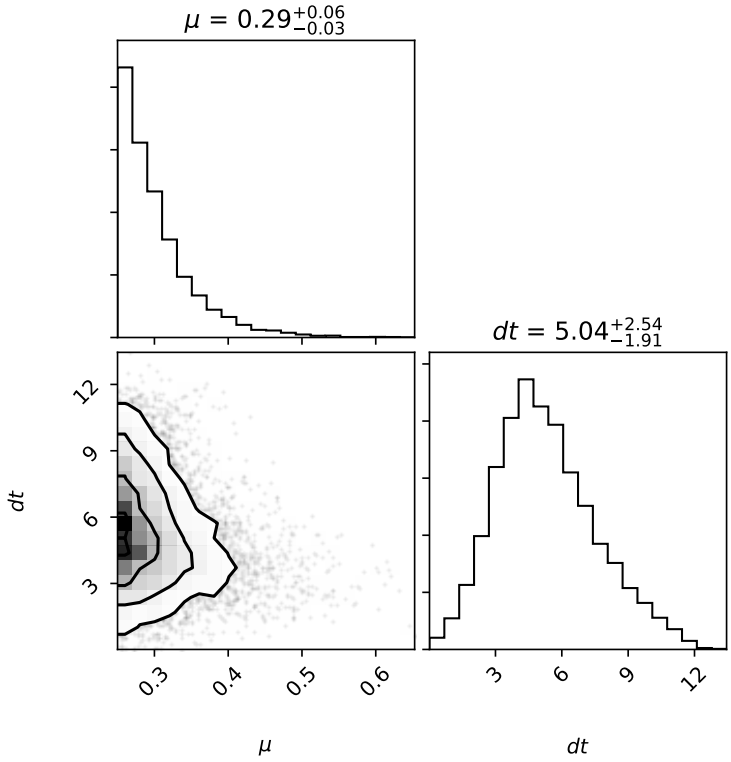

$\mu = 0.29^{+0.06}_{-0.03}$
$dt = 5.58^{+2.58}_{-2.09}$
dt
μ

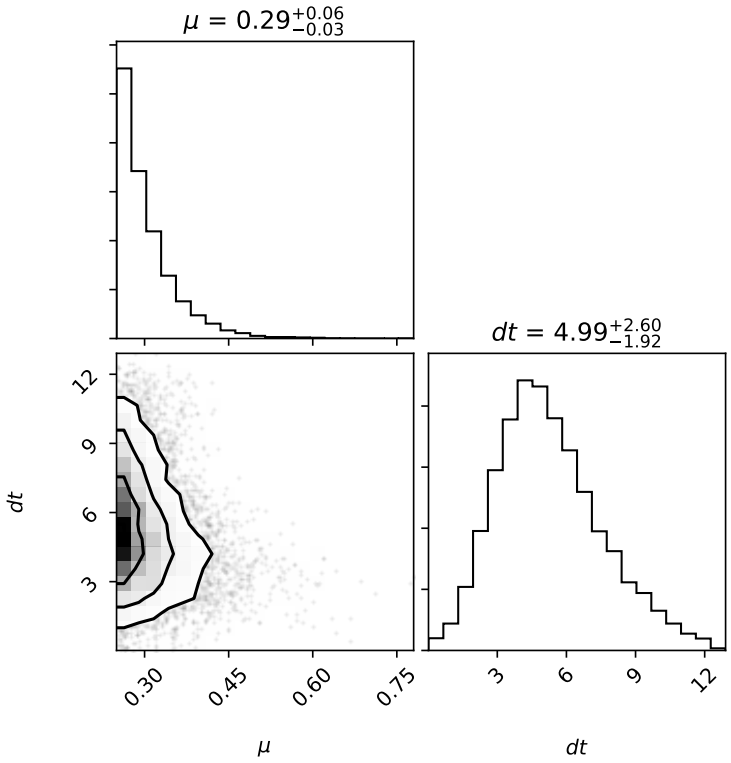

$\mu = 0.28^{+0.06}_{-0.03}$
$dt = 5.52^{+2.54}_{-2.12}$
dt
μ


$\mu = 0.29^{+0.06}_{-0.03}$
$dt = 5.21^{+2.44}_{-1.97}$
dt
μ
dt


$\mu = 0.29^{+0.06}_{-0.03}$
$dt = 4.94^{+2.47}_{-1.89}$
dt
μ
dt


$\mu = 0.29^{+0.06}_{-0.03}$
$dt = 5.08^{+2.55}_{-1.97}$
dt
μ
dt


$\mu = 0.29^{+0.06}_{-0.03}$
$dt = 5.04^{+2.54}_{-1.91}$
dt
μ
dt


$\mu = 0.29^{+0.06}_{-0.03}$
$dt = 4.99^{+2.60}_{-1.92}$
dt
12
9
6
3
0.30
0.45
0.60
0.75
μ
3
6
9
12
dt