drosophila_217_post.csv_run_10_20250529_143952

May 29, 2025

```
/Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3
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Loading file from: /Users/navehr/Dropbox/naveh/weizmann/uri alon/aging/code_3/ba
ysian02/posterior_csvs_baysian01/DROSOPHILA/drosophila_217_post.csv
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Reading drosofila_217_seed
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1 # 1. Density coner plot

A sample is 1 parameter set scanned. For the corner plot below, the quantiles (represented by the solid lines) are 0.16,0.5,0.84 of the samples. Dots represent individual samples (outside the line surrounding 0.84 of the samples) The parameter search is performed in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c but we also show the regular parameters

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(16,)
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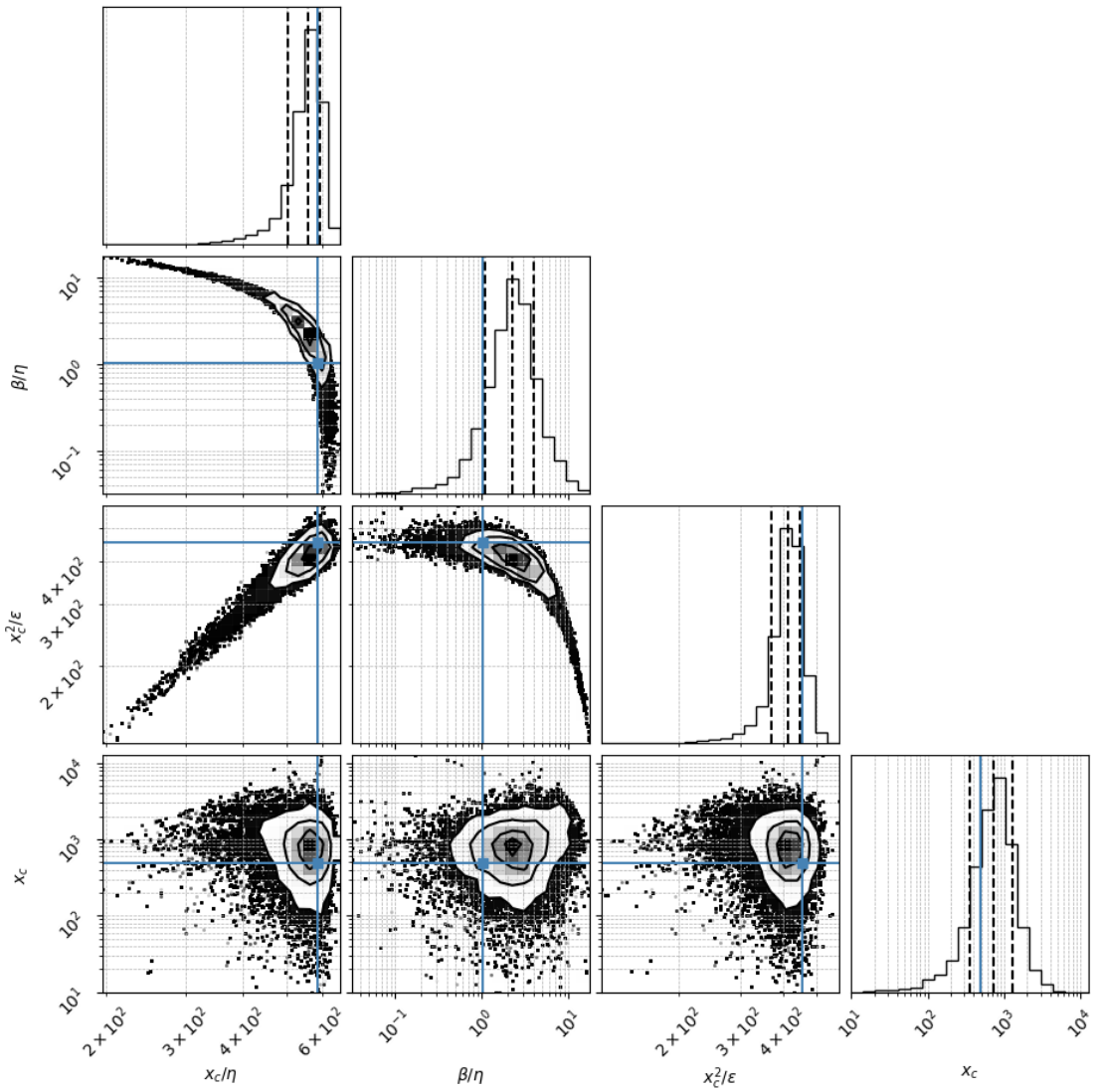
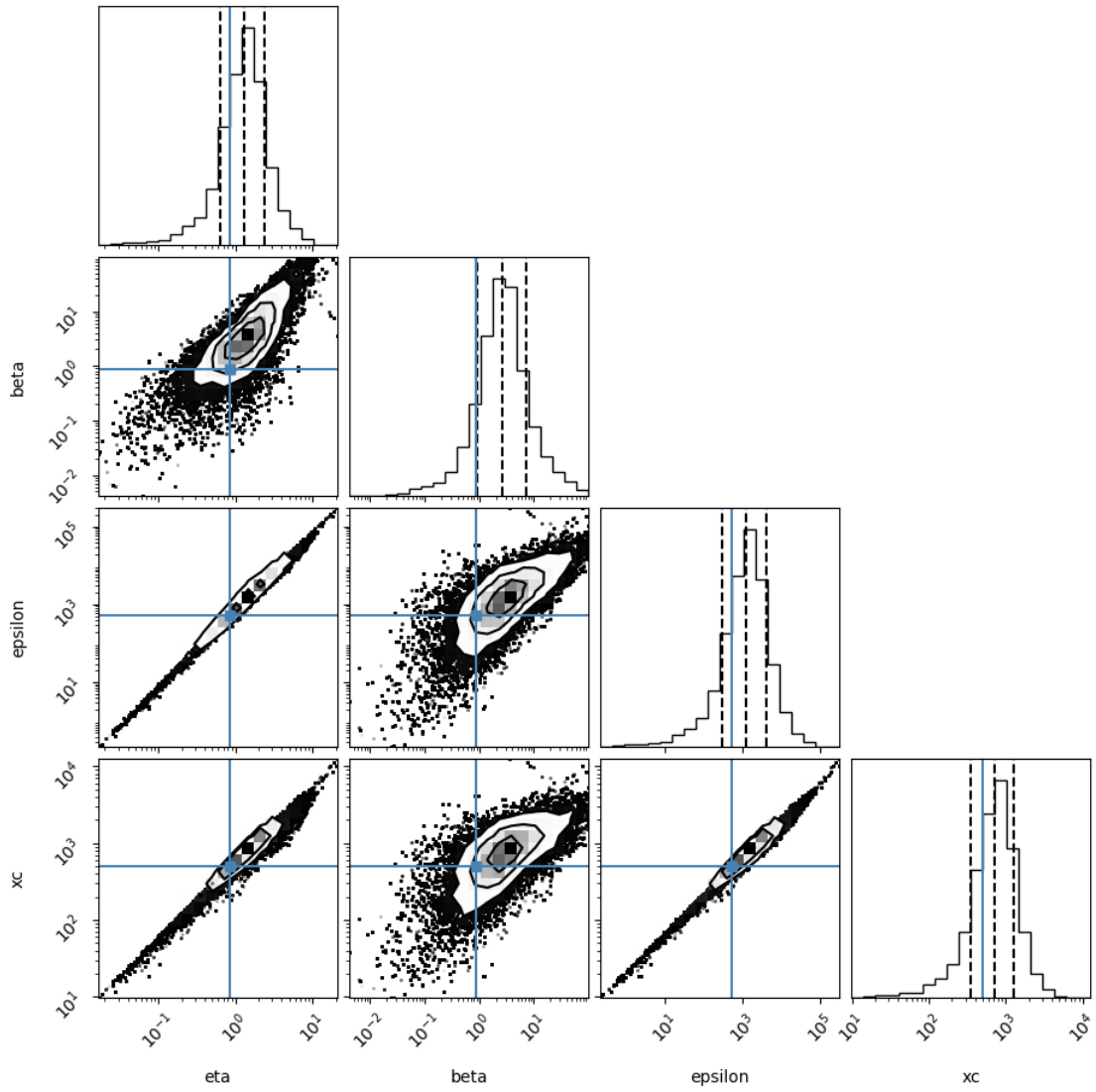
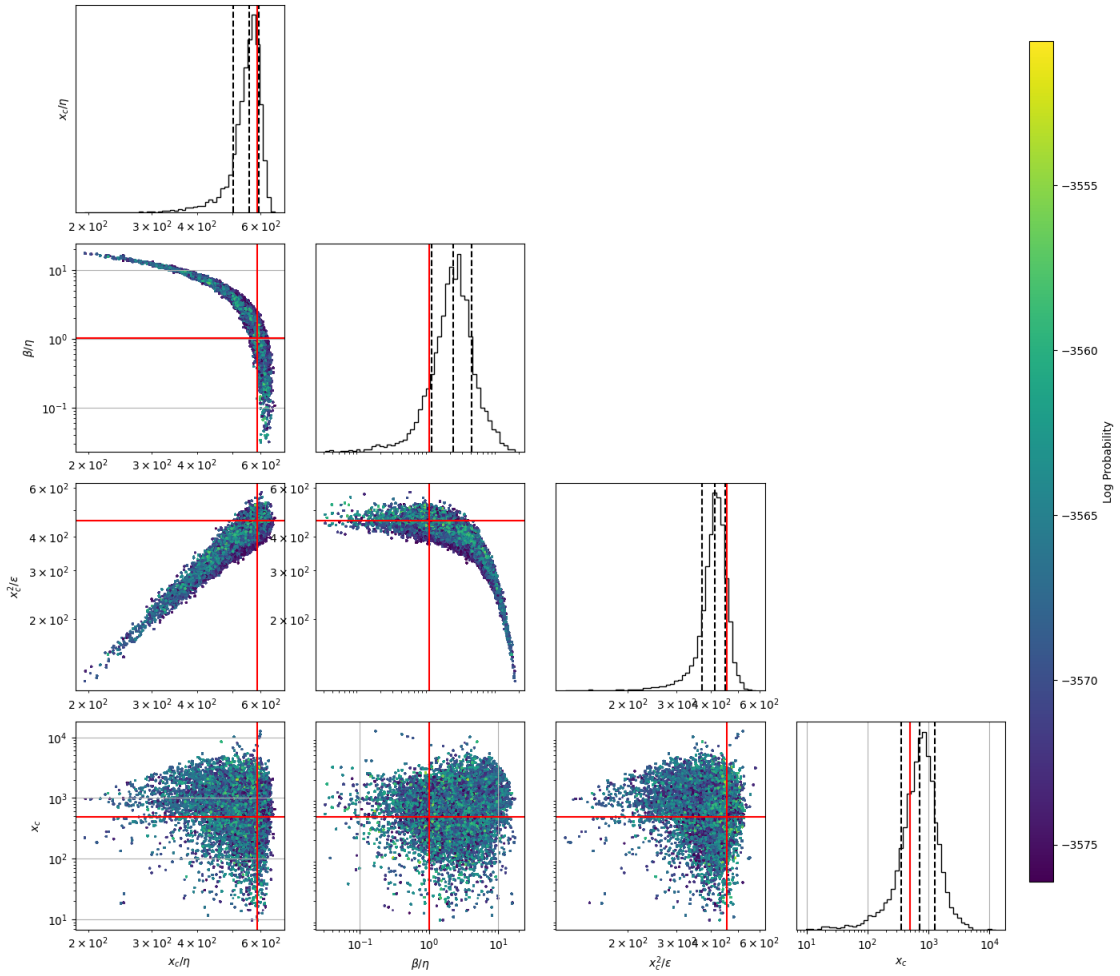

β/η
x_c^2/ε
x_c
x_c/η
β/η
x_c^2/ε
x_c



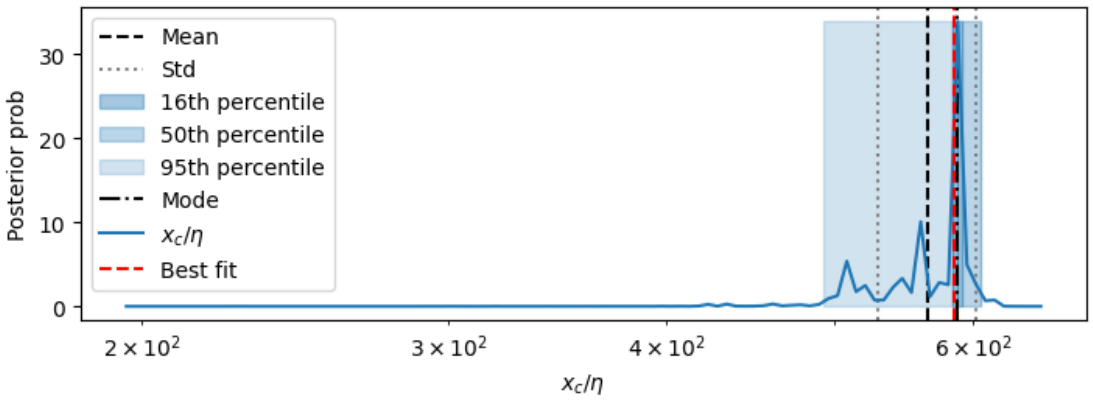
2 2. Heat map corner plot of raw samples

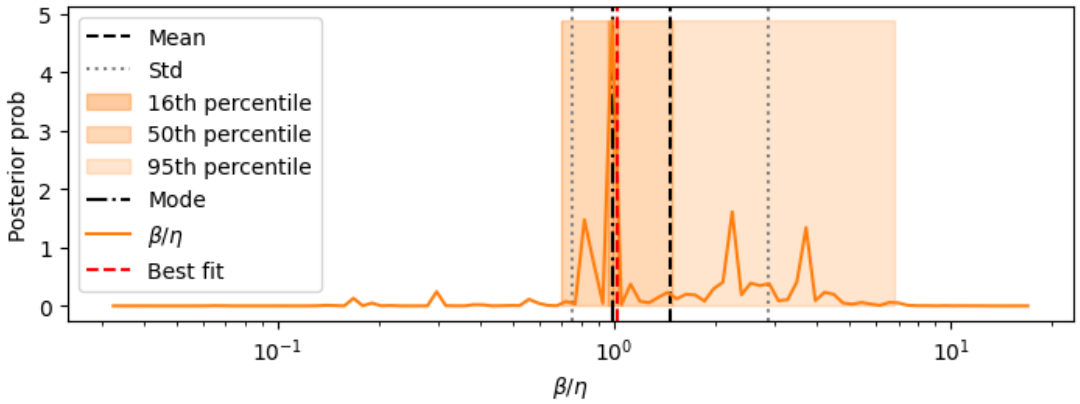
This plot shows all the raw sample points and their lnprobability

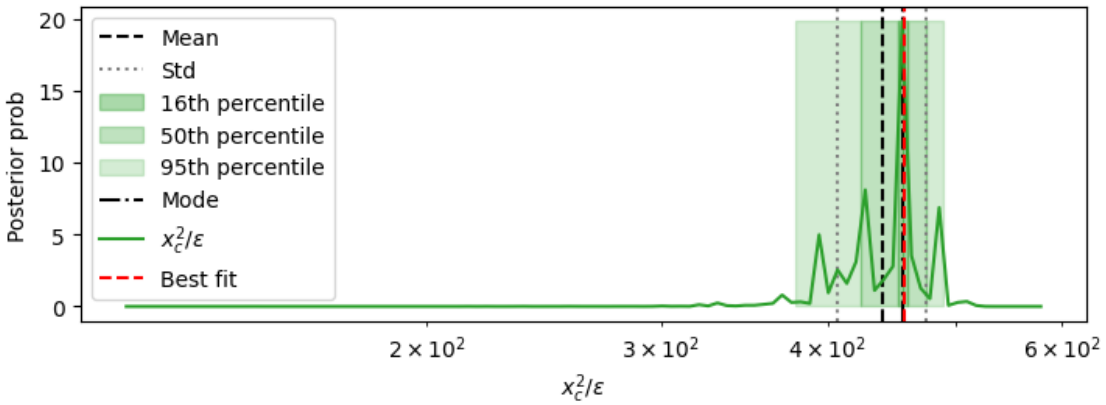


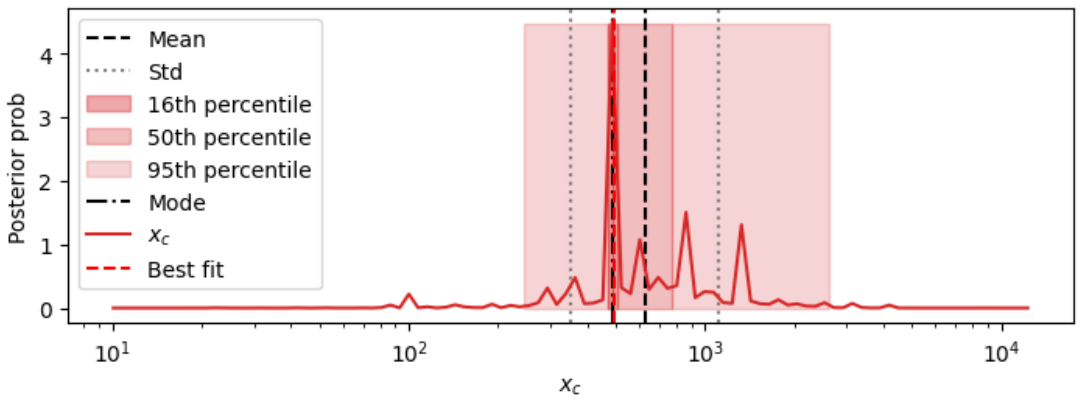
3 3. Posterior distributions of parameters

1d marginalizations of posterior distributions. we use a grid of size nbins=100-150

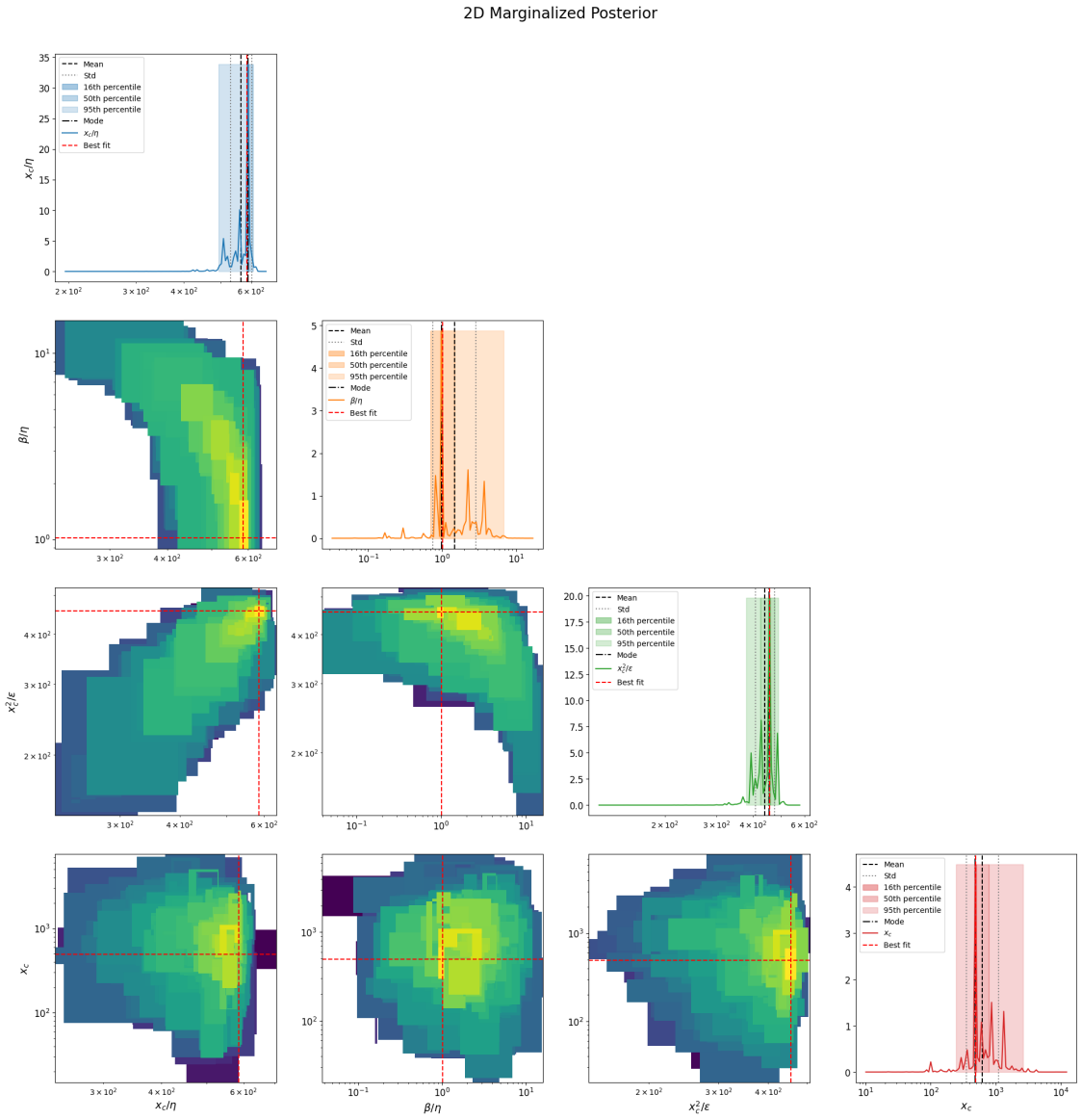

Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c/η
Best fit
Posterior prob
x_c/η


Mean
Std
16th percentile
50th percentile
95th percentile
Mode
β/η
Best fit
Posterior prob
β/η


Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c^2/ε
Best fit
Posterior prob
x_c^2/ε


Mean
Std
16th percentile
50th percentile
95th percentile
Mode
x_c
Best fit
Posterior prob
x_c

2D marginalizations of posterior distributions



4 4. Table of results

mode is the marginalized mode, max_likwlihood is the sample with highest likelihood mode_overall is the 4D posterior mode

	mean	std	mode	\
xc/eta	564.703	[37.603, 35.255]	588.022	

beta/eta	1.468	[1.411, 0.719]	2.392
xc^2/epsilon	439.582	[34.689, 32.152]	448.203
xc	625.092	[489.438, 274.505]	560.846
eta	1.182	[2.846, 0.835]	0.57
beta	1.506	[7.329, 1.249]	6.214
epsilon	991.981	[10112.467, 903.366]	211.347
sqrt(xc/eta)	23.767	[0.767, 0.743]	24.102
s= eta^0.5*xc^1.5/epsilon	18.526	[0.928, 0.884]	17.965
beta*xc/epsilon	1.166	[1.051, 0.553]	1.805
eta*xc/epsilon	0.78	[0.0274, 0.0264]	0.777
Fx=beta^2/eta*xc	0.00339	[0.00975, 0.00252]	0.00882
Dx =beta*epsilon/eta*xc^2	0.00314	[0.00328, 0.0016]	0.00512
Pk=beta*k/epsilon	0.000791	[0.000747, 0.000384]	0.000846
Fk=beta^2/eta*k	3.16	[14.069, 2.58]	21.166
Dk =beta*epsilon/eta*k^2	2996.252	[18342.748, 2575.543]	5375.378
Fk^2/Dk=beta^3/eta*epsilon	0.00149	[0.0129, 0.00134]	0.00105
epsilon/beta^2	478.878	[2547.181, 403.095]	887.55
k/beta	0.427	[1.248, 0.318]	0.546
k^2/epsilon	0.000386	[0.00204, 0.000325]	0.00118
best fit_MedianLifetime	31.89	0.51	31.89
best fit_MaxLifetime	53.97	0	53.97
data_MedianLifetime	31.0	0.47	31.0
data_MaxLifetime	53.0	0	53.0

	percentile_16 \
xc/eta	[577.353, 591.622]
beta/eta	[2.175, 2.63]
xc^2/epsilon	[444.637, 459.075]
xc	[541.071, 671.106]
eta	[0.444, 0.682]
beta	[4.829, 7.995]
epsilon	[148.377, 346.799]
sqrt(xc/eta)	[24.028, 24.323]
s= eta^0.5*xc^1.5/epsilon	[17.872, 18.248]
beta*xc/epsilon	[1.644, 2.109]
eta*xc/epsilon	[0.775, 0.783]
Fx=beta^2/eta*xc	[0.00625, 0.0109]
Dx =beta*epsilon/eta*xc^2	[0.00456, 0.00621]
Pk=beta*k/epsilon	[0.000716, 0.000894]
Fk=beta^2/eta*k	[14.305, 26.774]
Dk =beta*epsilon/eta*k^2	[4231.171, 8010.441]
Fk^2/Dk=beta^3/eta*epsilon	[0.00078, 0.00142]
epsilon/beta^2	[722.792, 1089.864]
k/beta	[0.425, 0.635]
k^2/epsilon	[0.000829, 0.00168]
best fit_MedianLifetime	[31.400000000000002, 32.4]
best fit_MaxLifetime	[53.97, 53.97]

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data_MedianLifetime                      [30.58, 31.47]
data_MaxLifetime                           [53.0, 53.0]

                                          percentile_50  \
xc/eta                                  [556.592, 598.888]
beta/eta                                    [1.917, 4.093]
xc^2/epsilon                            [423.827, 466.469]
xc                                      [468.701, 894.351]
eta                                         [0.444, 2.472]
beta                                      [1.177, 13.237]
epsilon                                  [128.8, 3843.776]
sqrt(xc/eta)                              [23.592, 24.472]
s= eta^0.5*xc^1.5/epsilon                 [17.687, 18.827]
beta*xc/epsilon                             [1.282, 3.064]
eta*xc/epsilon                              [0.759, 0.791]
Fx=beta^2/eta*xc                          [0.0036, 0.0248]
Dx =beta*epsilon/eta*xc^2                [0.00362, 0.00988]
Pk=beta*k/epsilon                       [0.000574, 0.00111]
Fk=beta^2/eta*k                             [2.552, 31.316]
Dk =beta*epsilon/eta*k^2              [1180.508, 15165.343]
Fk^2/Dk=beta^3/eta*epsilon               [0.000523, 0.0128]
epsilon/beta^2                          [160.335, 1249.757]
k/beta                                      [0.171, 1.164]
k^2/epsilon                            [0.000132, 0.00194]
best fit_MedianLifetime     [31.400000000000002, 32.4]
best fit_MaxLifetime                     [53.97, 53.97]
data_MedianLifetime                      [30.58, 31.47]
data_MaxLifetime                           [53.0, 53.0]

                                          percentile_95 max_likelihood  \
xc/eta                                  [492.631, 613.69]        585.496
beta/eta                                    [0.697, 5.271]          1.018
xc^2/epsilon                            [372.972, 497.255]        456.506
xc                                      [245.631, 2274.24]        493.355
eta                                         [0.188, 7.229]          0.843
beta                                      [0.0946, 29.659]          0.858
epsilon                                [20.466, 27866.514]        533.179
sqrt(xc/eta)                              [22.195, 24.773]         24.197
s= eta^0.5*xc^1.5/epsilon                 [16.617, 20.249]         18.866
beta*xc/epsilon                             [0.536, 3.93]          0.794
eta*xc/epsilon                              [0.724, 0.829]           0.78
Fx=beta^2/eta*xc                          [0.000789, 0.0568]        0.00177
Dx =beta*epsilon/eta*xc^2                  [0.00143, 0.0145]        0.00223
Pk=beta*k/epsilon                        [0.000109, 0.00654]       0.000805
Fk=beta^2/eta*k                             [0.243, 280.912]          1.748
Dk =beta*epsilon/eta*k^2               [239.375, 268060.869]       2171.961
Fk^2/Dk=beta^3/eta*epsilon                [0.000158, 0.571]        0.00141
```
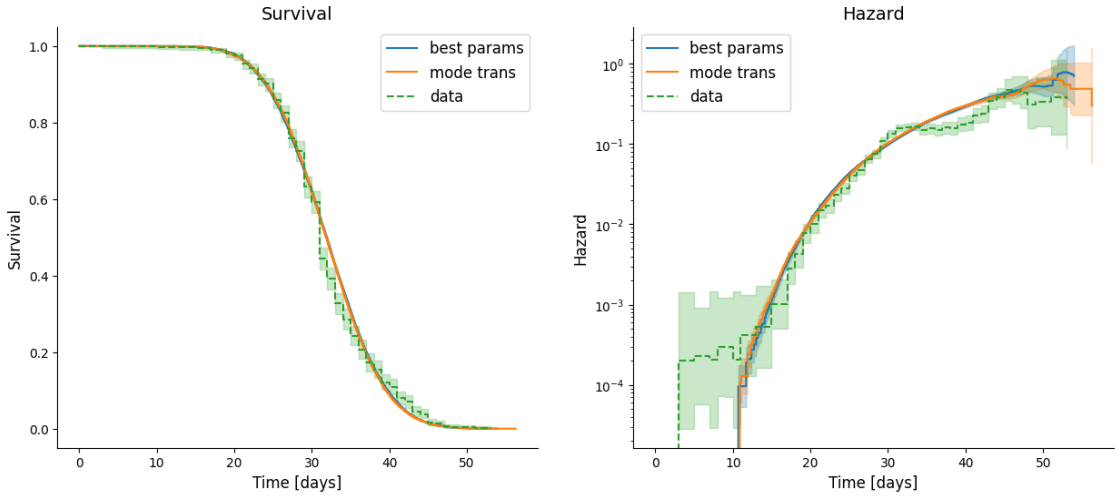
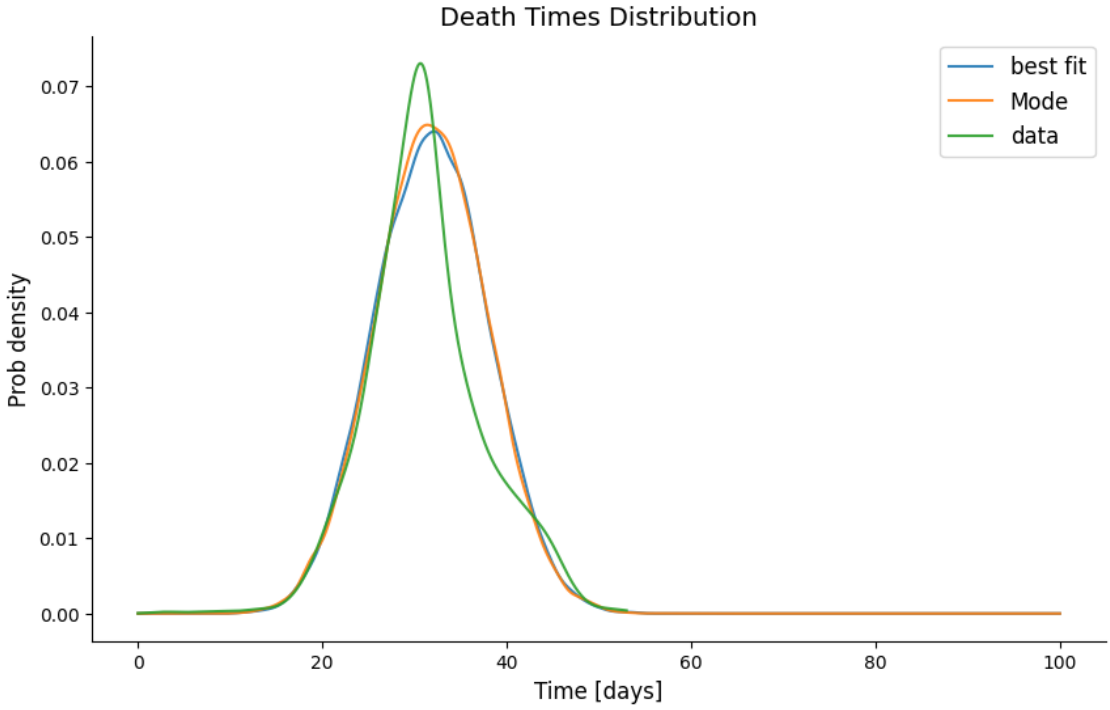

epsilon/beta^2	[10.374, 2841.477]	724.043
k/beta	[0.0152, 2.884]	0.583
k^2/epsilon	[8.96e-06, 0.00919]	0.000469
best fit_MedianLifetime	[31.400000000000002, 32.4]	31.89
best fit_MaxLifetime	[53.97, 53.97]	53.97
data_MedianLifetime	[30.58, 31.47]	31.0
data_MaxLifetime	[53.0, 53.0]	53.0

	mode_overall
xc/eta	585.496
beta/eta	1.018
xc^2/epsilon	456.506
xc	493.355
eta	4.416
beta	3.942
epsilon	14184.322
sqrt(xc/eta)	24.197
s= eta^0.5*xc^1.5/epsilon	18.866
beta*xc/epsilon	0.794
eta*xc/epsilon	0.78
Fx=beta^2/eta*xc	0.00177
Dx =beta*epsilon/eta*xc^2	0.00223
Pk=beta*k/epsilon	0.000805
Fk=beta^2/eta*k	1.748
Dk =beta*epsilon/eta*k^2	5076.738
Fk^2/Dk=beta^3/eta*epsilon	0.000817
epsilon/beta^2	724.043
k/beta	0.583
k^2/epsilon	0.000469
best fit_MedianLifetime	NaN
best fit_MaxLifetime	NaN
data_MedianLifetime	NaN
data_MaxLifetime	NaN

5 5. Fits of simulations to data

best params is the sample with highest likelihood. mode trans is the 4D posterior mode in the transformed space of x_c/η, β/η, x_c^2/ϵ, x_c


Survival
best params
mode trans
data
Survival
Time [days]
Hazard
best params
mode trans
data
Hazard
Time [days]


Death Times Distribution
best fit
Mode
data
Prob density
Time [days]