Denmark_M_1900_post.csv_run_16_20250529_151207

May 29, 2025

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/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/HUMANS/Denmark_M_1900_post.csv
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Reading Humans_M
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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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(25,)
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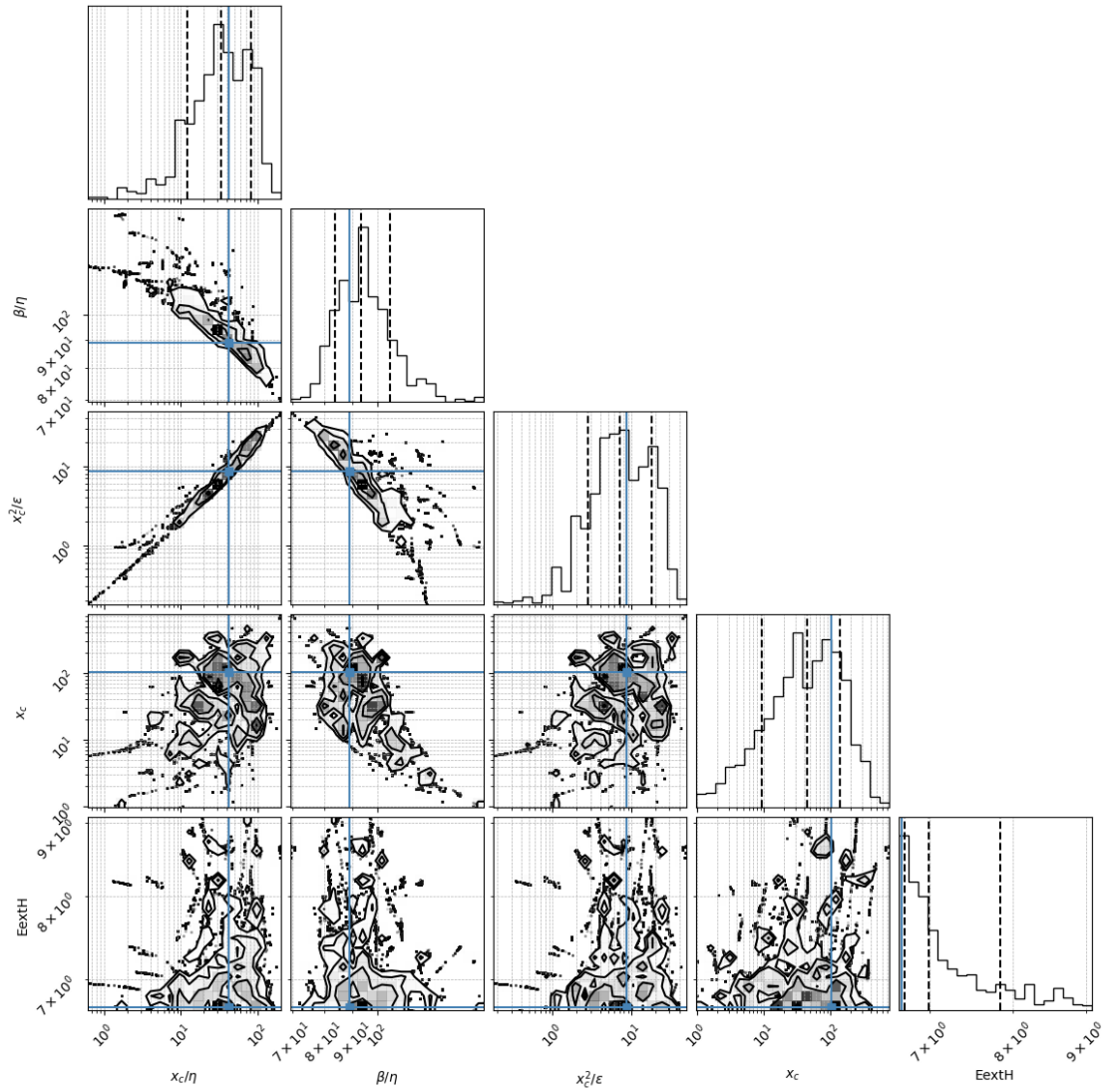
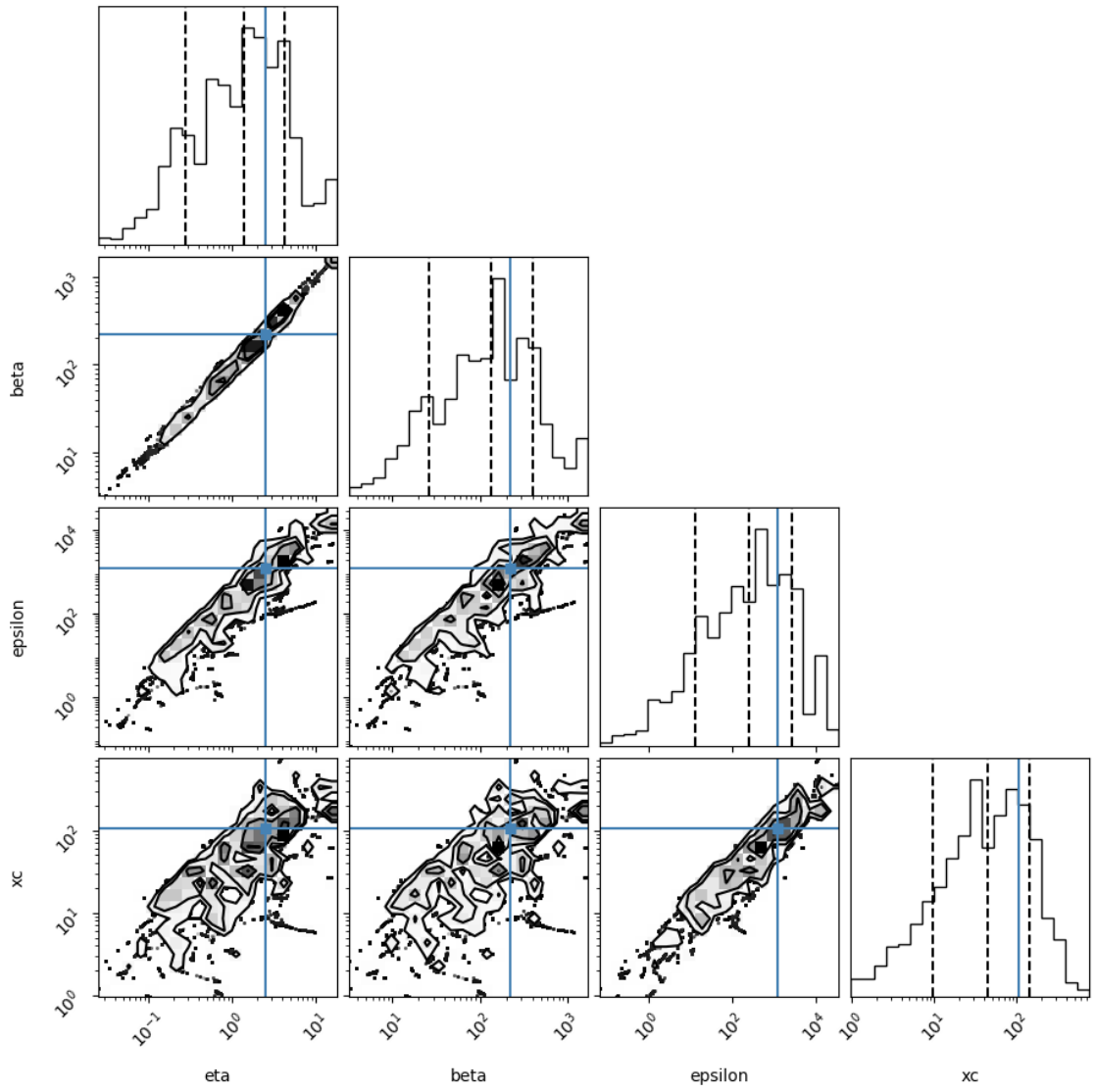
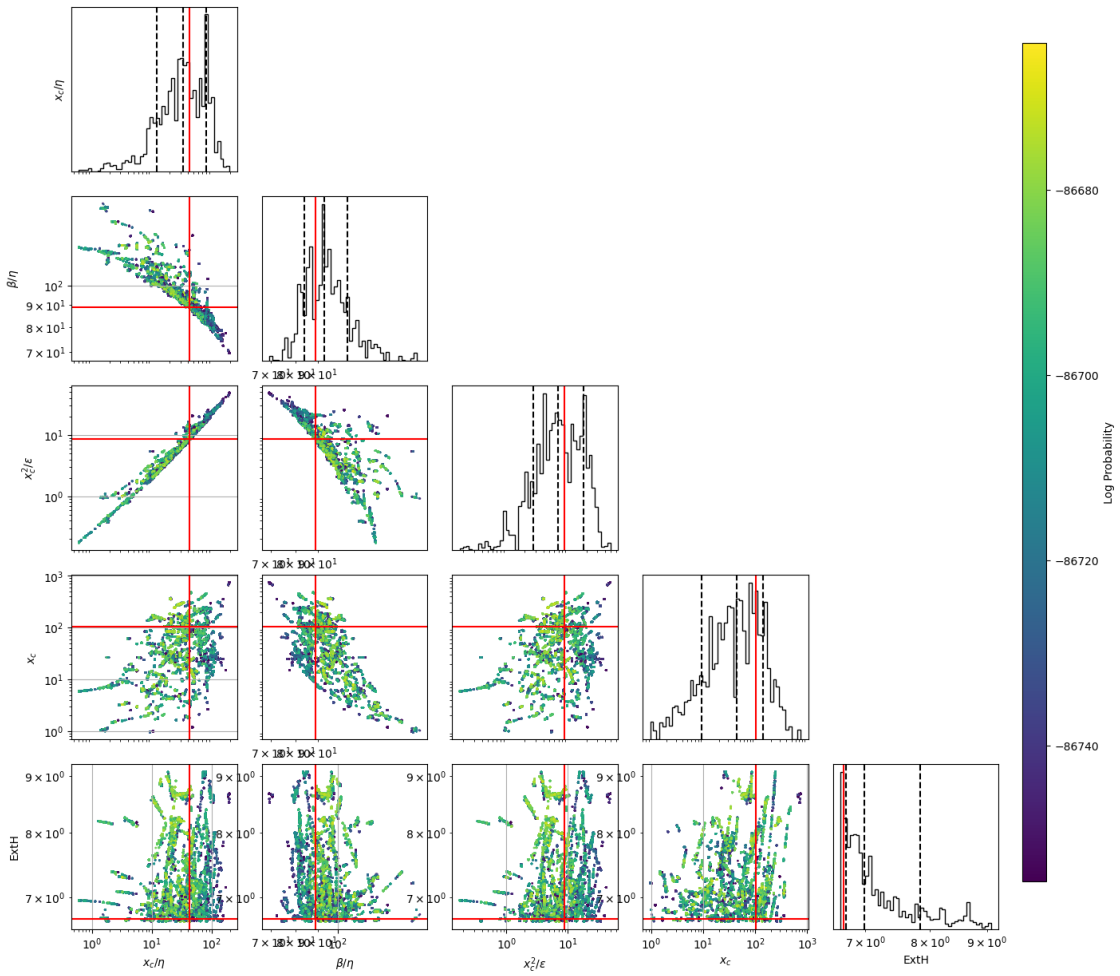

x_c/η
β/η
x_c^2/ε
x_c
EextH



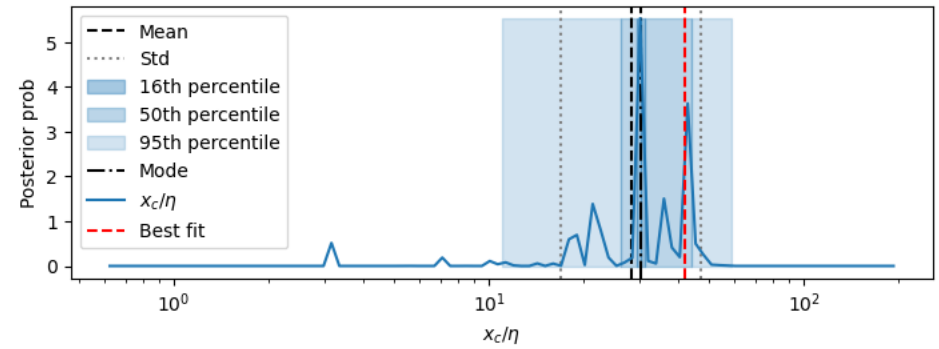
2 2. Heat map corner plot of raw samples

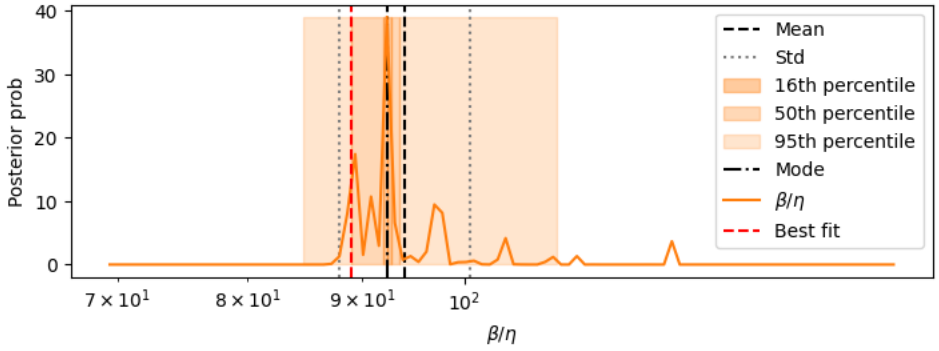
This plot shows all the raw sample points and their lnprobability

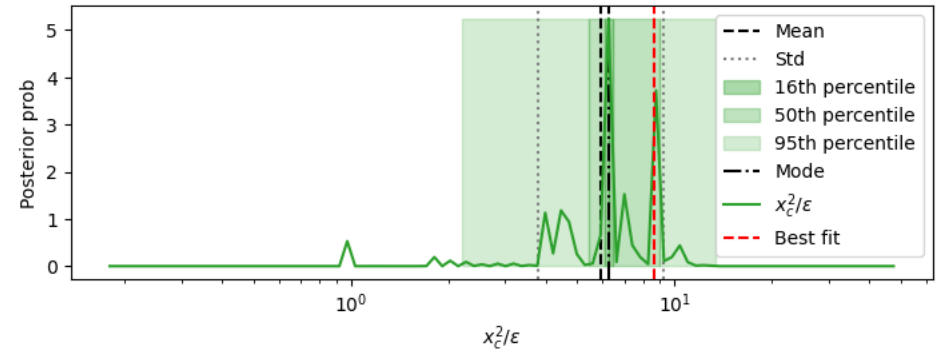


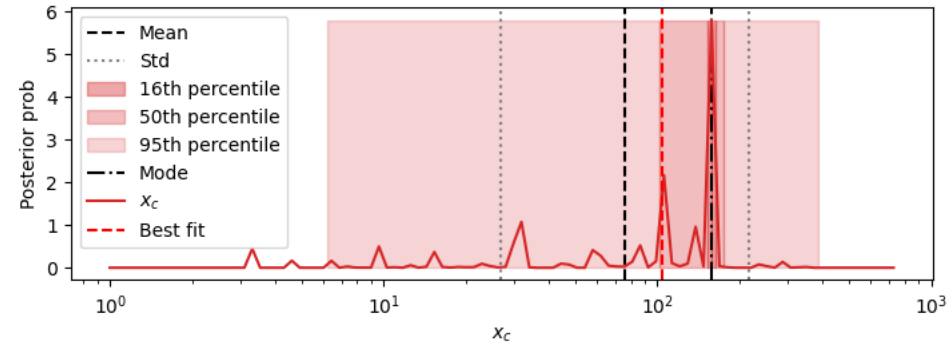
3 3. Posterior distributions of parameters

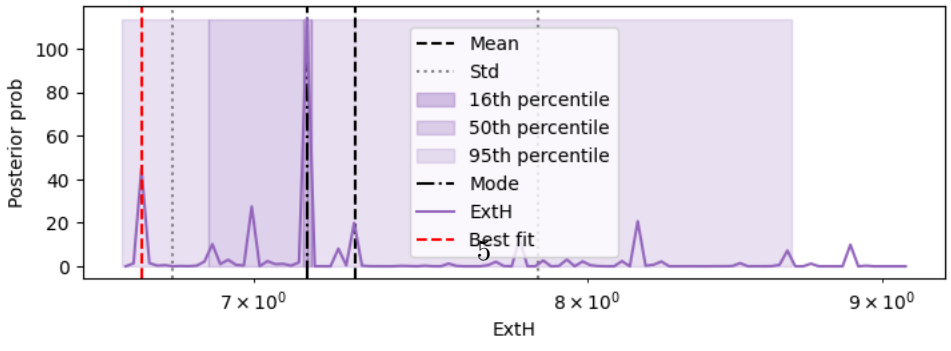
1d marginalizations of posterior distributions. we use a grid of size nbins=100-150


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

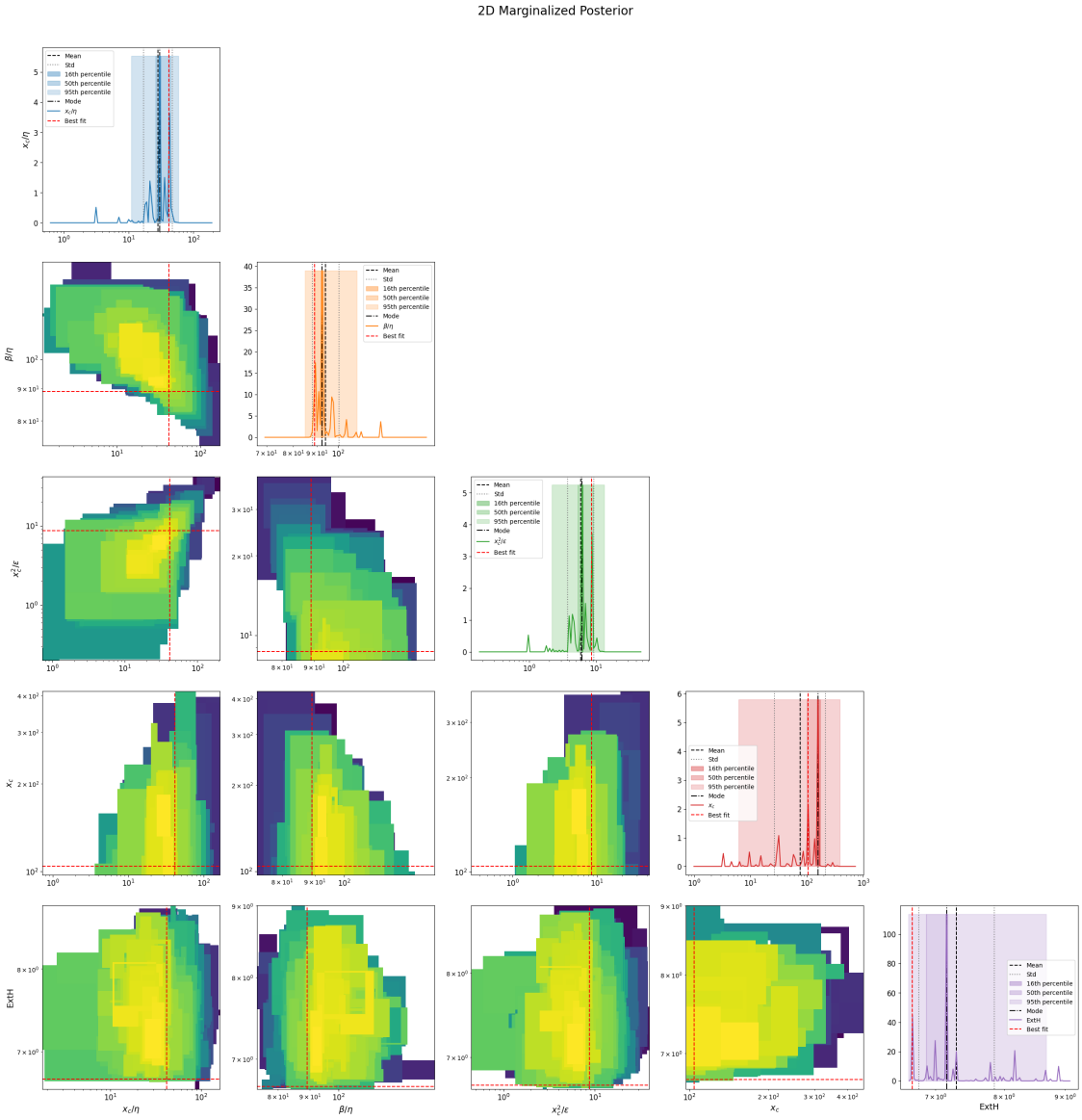

Mean
Std
16th percentile
50th percentile
95th percentile
Mode
β/η
Best fit
Posterior prob
β/η


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


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

2D marginalizations of posterior distributions

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Rescaling the samples TIME by 365
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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	\
xc/eta	28.27	[18.831, 11.302]	
beta/eta	94.029	[6.49, 6.071]	
xc^2/epsilon	5.922	[3.368, 2.147]	
xc	75.754	[139.268, 49.065]	
ExtH	7.289	[0.553, 0.514]	
eta	2.828	[3.518, 1.568]	
beta	267.322	[324.71, 146.617]	
epsilon	1075.967	[5047.851, 886.917]	
sqrt(xc/eta)	5.22	[1.466, 1.145]	
s= eta^0.5*xc^1.5/epsilon	1.083	[0.227, 0.188]	
beta*xc/epsilon	19.717	[2.941, 2.559]	
eta*xc/epsilon	0.222	[0.0177, 0.0164]	
Fx=beta^2/eta*xc	631.488	[660.665, 322.873]	
Dx =beta*epsilon/eta*xc^2	27.703	[21.317, 12.047]	
Pk=beta*k/epsilon	0.122	[0.209, 0.077]	
Fk=beta^2/eta*k	49422.87	[59030.033, 26900.466]	
Dk =beta*epsilon/eta*k^2	349314.743	[1990531.769, 297165.686]	
Fk^2/Dk=beta^3/eta*epsilon	6442.275	[7500.425, 3465.598]	
epsilon/beta^2	0.0261	[0.00261, 0.00237]	
k/beta	0.00222	[0.000253, 0.000227]	
k^2/epsilon	0.0002	[5.17e-05, 4.11e-05]	
best fit_MedianLifetime	74.0	0.51	
best fit_MaxLifetime	106.35	0	
data_MedianLifetime	70.0	0.51	
data_MaxLifetime	104.0	0	

	mode	percentile_16	\
xc/eta	40.366	[39.215, 44.027]	
beta/eta	91.57	[90.459, 91.944]	
xc^2/epsilon	6.62	[6.436, 7.203]	
xc	137.988	[124.865, 152.49]	
ExtH	6.908	[6.897, 6.963]	
eta	4.69	[4.538, 5.176]	
beta	448.398	[407.924, 492.888]	
epsilon	1631.164	[1339.056, 1742.063]	
sqrt(xc/eta)	6.353	[6.084, 6.446]	
s= eta^0.5*xc^1.5/epsilon	1.114	[1.069, 1.161]	
beta*xc/epsilon	19.205	[19.028, 19.383]	
eta*xc/epsilon	0.205	[0.204, 0.206]	
Fx=beta^2/eta*xc	188.48	[182.059, 224.151]	
Dx =beta*epsilon/eta*xc^2	13.716	[13.297, 15.054]	
Pk=beta*k/epsilon	0.089	[0.0784, 0.0928]	
Fk=beta^2/eta*k	87454.937	[79449.921, 96266.503]	
Dk =beta*epsilon/eta*k^2	1465773.894	[1208690.141, 1777538.372]	
Fk^2/Dk=beta^3/eta*epsilon	4443.744	[3921.868, 4632.701]	
epsilon/beta^2	0.0244	[0.0235, 0.0254]	

k/beta	0.00238	[0.00216, 0.00261]
k^2/epsilon	0.000175	[0.000163, 0.000186]
best fit_MedianLifetime	74.0	[73.51, 74.51]
best fit_MaxLifetime	106.35	[106.35, 106.35]
data_MedianLifetime	70.0	[69.5, 70.51]
data_MaxLifetime	104.0	[104.0, 104.0]

	percentile_50 \
xc/eta	[31.111, 44.027]
beta/eta	[89.726, 92.695]
xc^2/epsilon	[5.75, 9.023]
xc	[89.491, 152.49]
ExtH	[6.875, 7.118]
eta	[3.058, 5.528]
beta	[246.298, 559.149]
epsilon	[902.404, 2266.361]
sqrt(xc/eta)	[5.419, 6.635]
s= eta^0.5*xc^1.5/epsilon	[0.933, 1.193]
beta*xc/epsilon	[18.68, 19.744]
eta*xc/epsilon	[0.201, 0.209]
Fx=beta^2/eta*xc	[169.864, 317.021]
Dx =beta*epsilon/eta*xc^2	[9.752, 16.017]
Pk=beta*k/epsilon	[0.061, 0.11]
Fk=beta^2/eta*k	[50761.695, 109411.509]
Dk =beta*epsilon/eta*k^2	[432153.101, 2021406.478]
Fk^2/Dk=beta^3/eta*epsilon	[3608.464, 5472.372]
epsilon/beta^2	[0.0202, 0.0274]
k/beta	[0.00191, 0.00381]
k^2/epsilon	[0.000143, 0.000213]
best fit_MedianLifetime	[73.51, 74.51]
best fit_MaxLifetime	[106.35, 106.35]
data_MedianLifetime	[69.5, 70.51]
data_MaxLifetime	[104.0, 104.0]

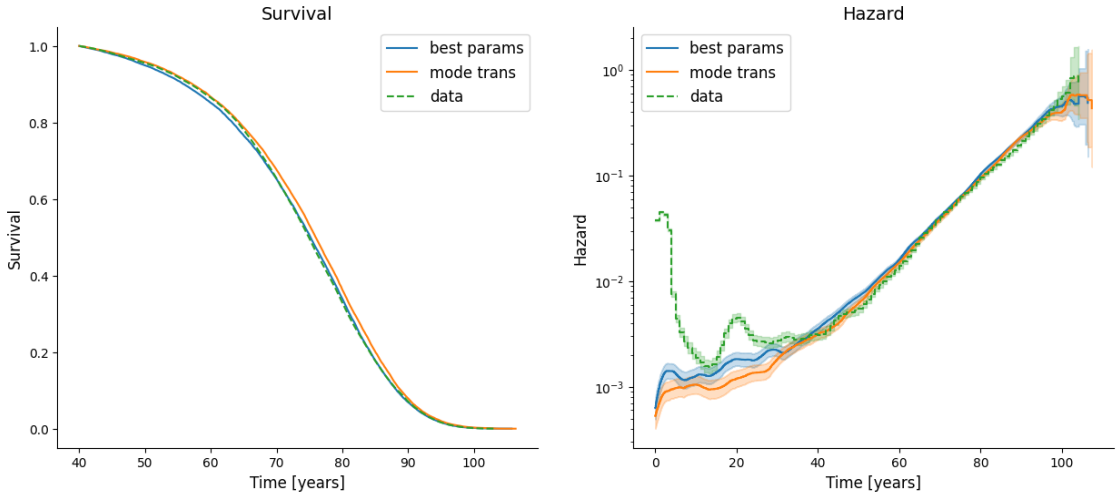
	percentile_95	max_likelihood \
xc/eta	[18.48, 49.43]	41.88
beta/eta	[88.278, 98.929]	89.025
xc^2/epsilon	[3.877, 10.685]	8.692
xc	[14.811, 317.324]	104.469
ExtH	[6.641, 8.176]	6.693
eta	[1.067, 6.306]	2.494
beta	[57.742, 634.319]	222.069
epsilon	[19.886, 16304.904]	1255.585
sqrt(xc/eta)	[4.176, 7.031]	6.472
s= eta^0.5*xc^1.5/epsilon	[0.836, 1.445]	1.343
beta*xc/epsilon	[18.339, 20.868]	18.477
eta*xc/epsilon	[0.196, 0.232]	0.208

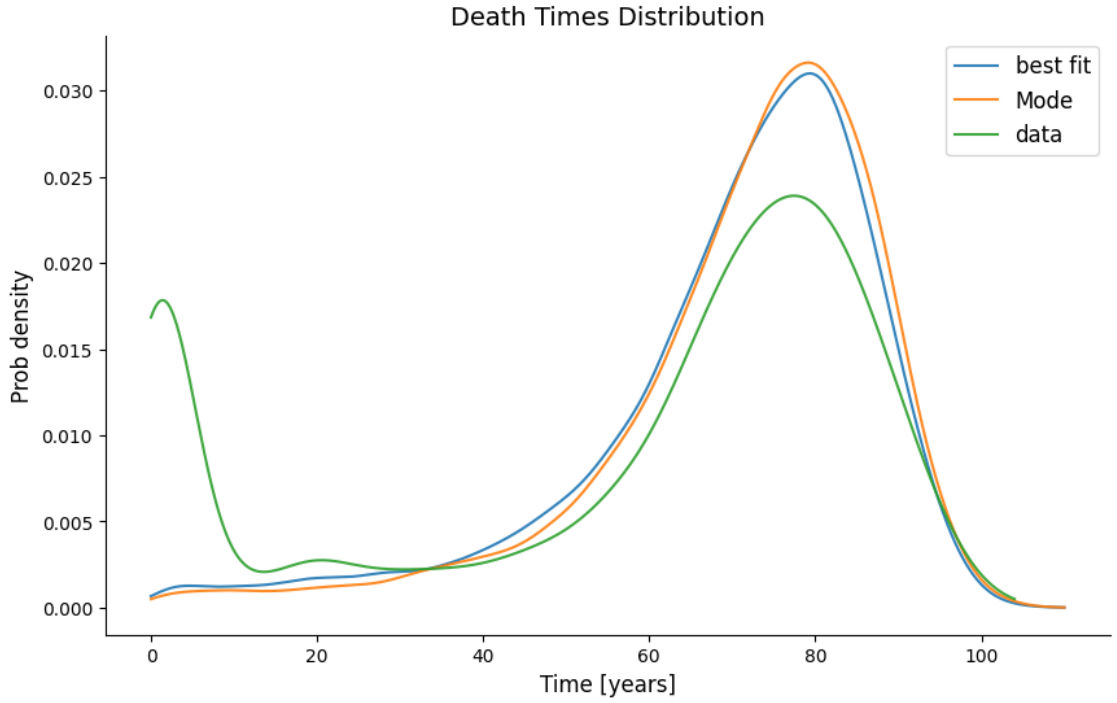
Fx=beta^2/eta*xc	[158.486, 634.14]	189.24
Dx =beta*epsilon/eta*xc^2	[8.614, 29.783]	10.242
Pk=beta*k/epsilon	[0.0474, 0.822]	0.0884
Fk=beta^2/eta*k	[13239.271, 150671.998]	39539.488
Dk =beta*epsilon/eta*k^2	[8030.876, 2972745.005]	447114.351
Fk^2/Dk=beta^3/eta*epsilon	[3054.788, 10654.687]	3496.58
epsilon/beta^2	[0.00759, 0.0295]	0.0255
k/beta	[0.00074, 0.00813]	0.00225
k^2/epsilon	[1.53e-05, 0.00174]	0.000199
best fit_MedianLifetime	[73.51, 74.51]	74.0
best fit_MaxLifetime	[106.35, 106.35]	106.35
data_MedianLifetime	[69.5, 70.51]	70.0
data_MaxLifetime	[104.0, 104.0]	104.0

	mode_overall
xc/eta	29.971
beta/eta	92.175
xc^2/epsilon	6.142
xc	161.152
ExtH	7.158
eta	5.377
beta	495.618
epsilon	4228.501
sqrt(xc/eta)	5.475
s= eta^0.5*xc^1.5/epsilon	1.122
beta*xc/epsilon	18.888
eta*xc/epsilon	0.235
Fx=beta^2/eta*xc	1091.187
Dx =beta*epsilon/eta*xc^2	42.571
Pk=beta*k/epsilon	0.0586
Fk=beta^2/eta*k	91367.312
Dk =beta*epsilon/eta*k^2	1559050.066
Fk^2/Dk=beta^3/eta*epsilon	5354.533
epsilon/beta^2	0.0255
k/beta	0.00225
k^2/epsilon	0.000199
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 [years]
Hazard
best params
mode trans
data
Hazard
Time [years]


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