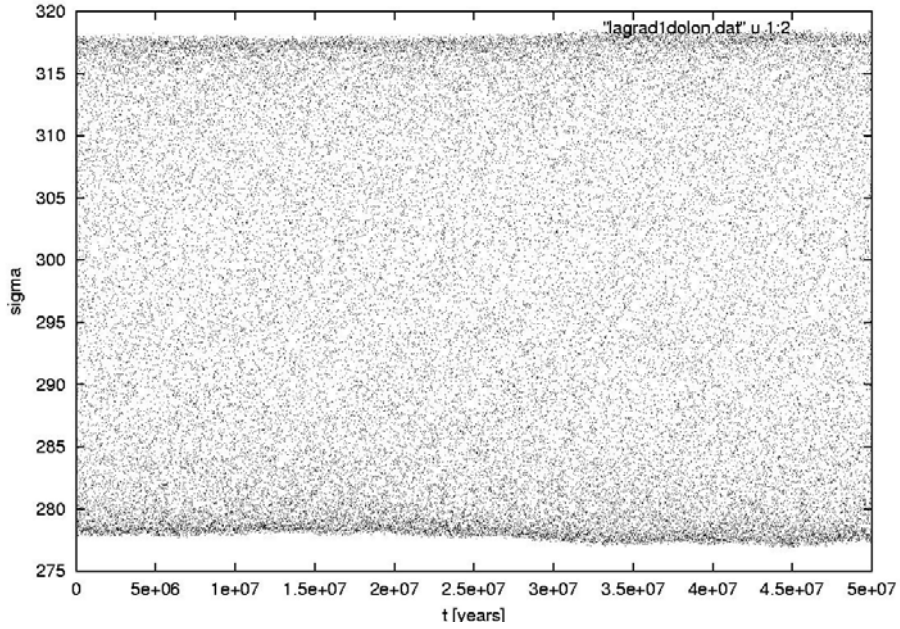
AUSTRIAN-HUNGARIAN WORKSHOP 2002

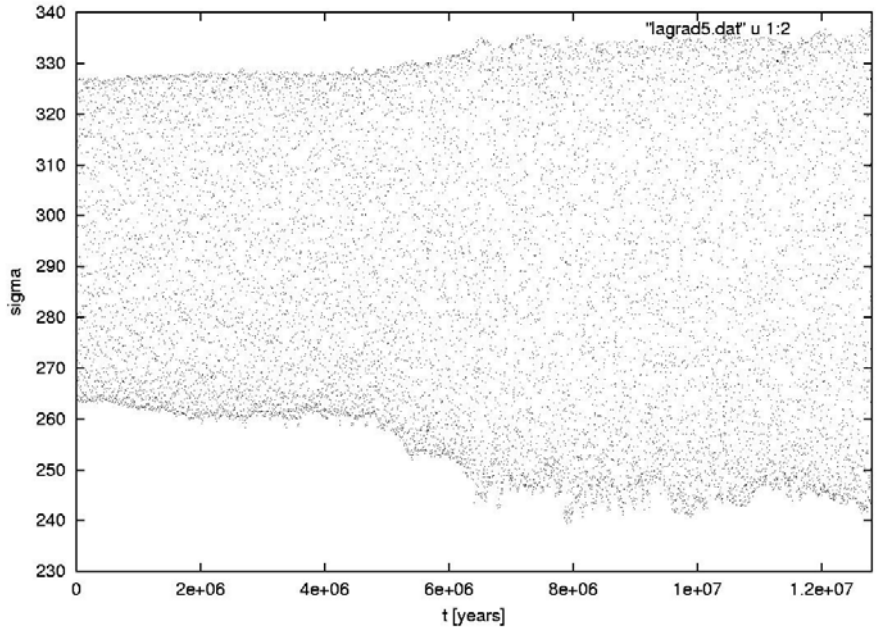
Stability of Trojans with
high inclined orbits

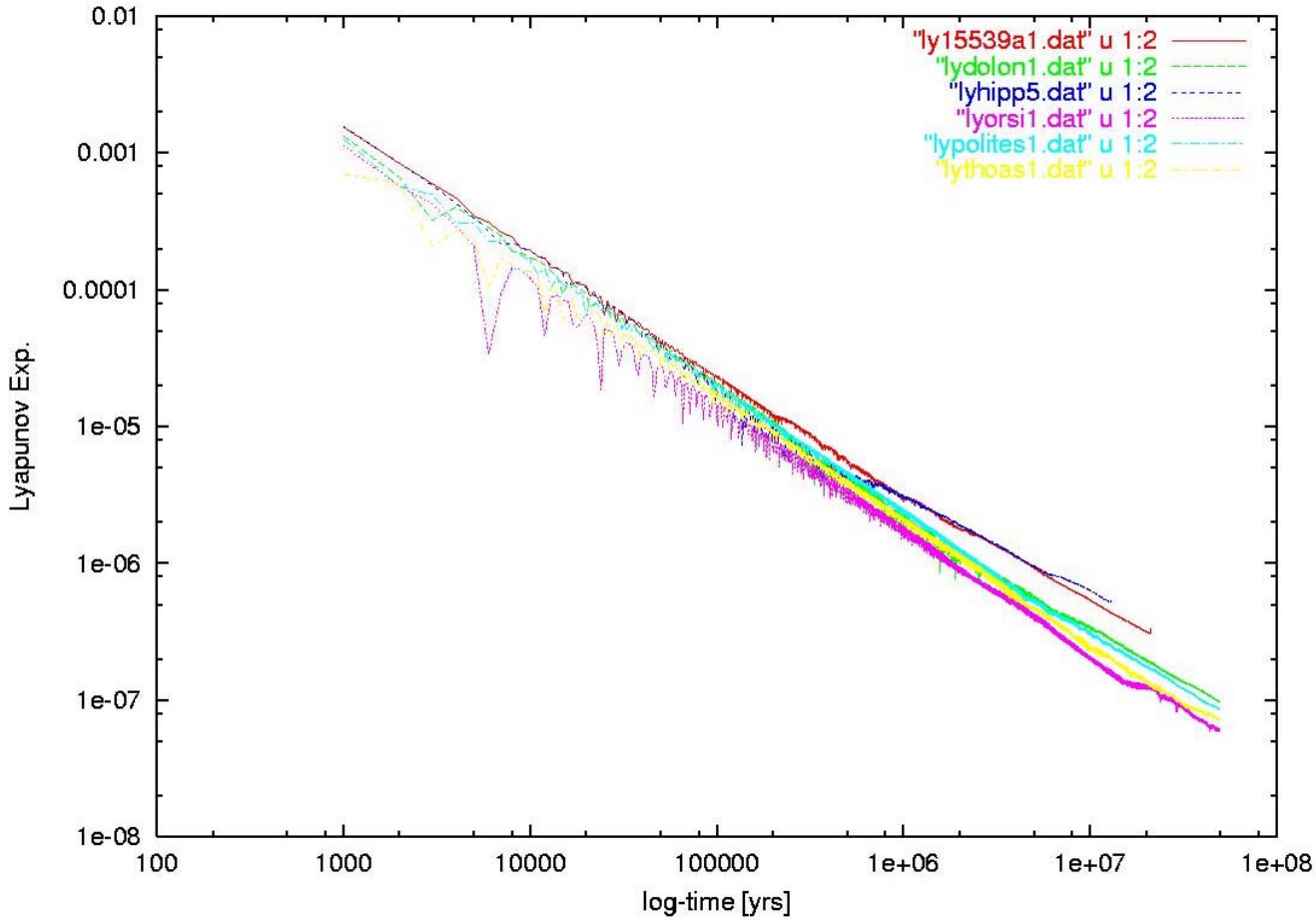
Fast orbit classifaction

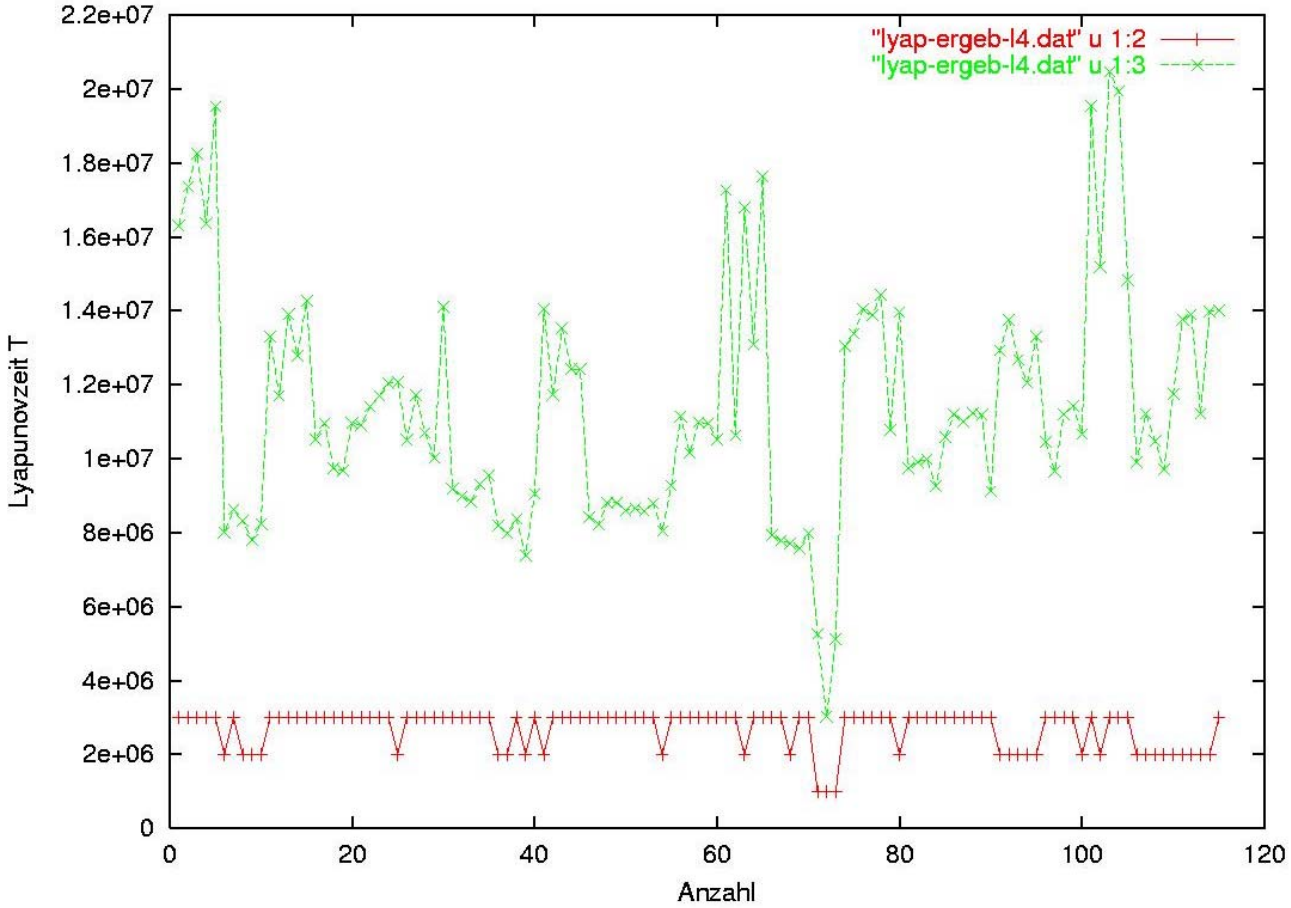
Lyapunov characteristic exponent

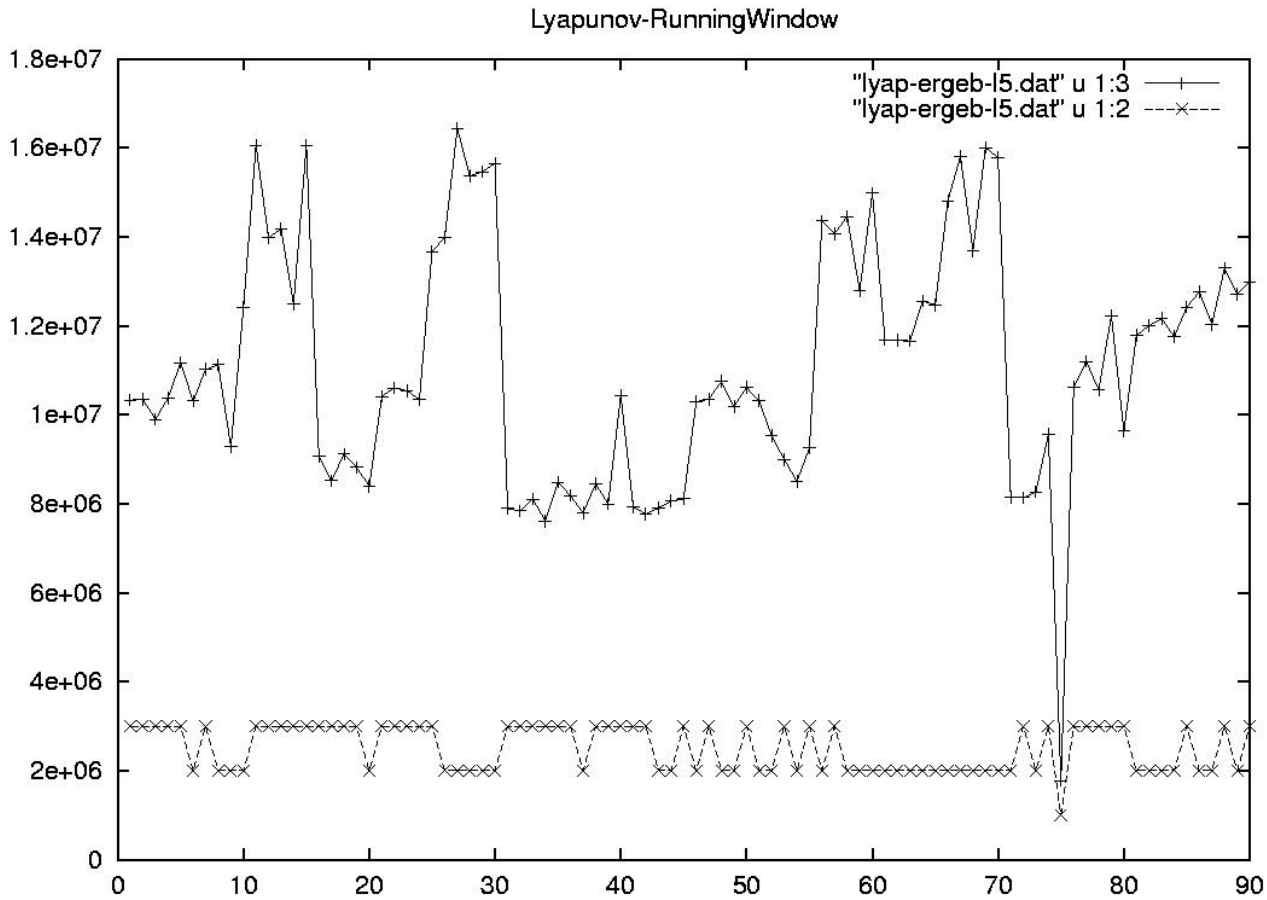
Delaunay-elements


"lagrad1dolon.dat" u 1:2
sigma
t [years]
320
315
310
305
300
295
290
285
280
275
0
5e+06
1e+07
1.5e+07
2e+07
2.5e+07
3e+07
3.5e+07
4e+07
4.5e+07
5e+07


"lagrad5.dat" u 1:2
sigma
t [years]
340
330
320
310
300
290
280
270
260
250
240
230
0
2e+06
4e+06
6e+06
8e+06
1e+07
1.2e+07


"ly15539a1.dat" u 1:2
"lydolon1.dat" u 1:2
"lyhipp5.dat" u 1:2
"lyorsi1.dat" u 1:2
"lypolites1.dat" u 1:2
"lythoas1.dat" u 1:2
Lyapunov Exp.
0.01
0.001
0.0001
1e-05
1e-06
1e-07
1e-08
100
1000
10000
100000
1e+06
1e+07
1e+08
log-time [yrs]


"lyap-ergeb-l4.dat" u 1:2
"lyap-ergeb-l4.dat" u 1:3
Lyapunovzeit T
Anzahl
2.2e+07
2e+07
1.8e+07
1.6e+07
1.4e+07
1.2e+07
1e+07
8e+06
6e+06
4e+06
2e+06
0
0
20
40
60
80
100
120


Lyapunov-RunningWindow
"lyap-ergeb-l5.dat" u 1:3
"lyap-ergeb-l5.dat" u 1:2
1.8e+07
1.6e+07
1.4e+07
1.2e+07
1e+07
8e+06
6e+06
4e+06
2e+06
0
0
10
20
30
40
50
60
70
80
90

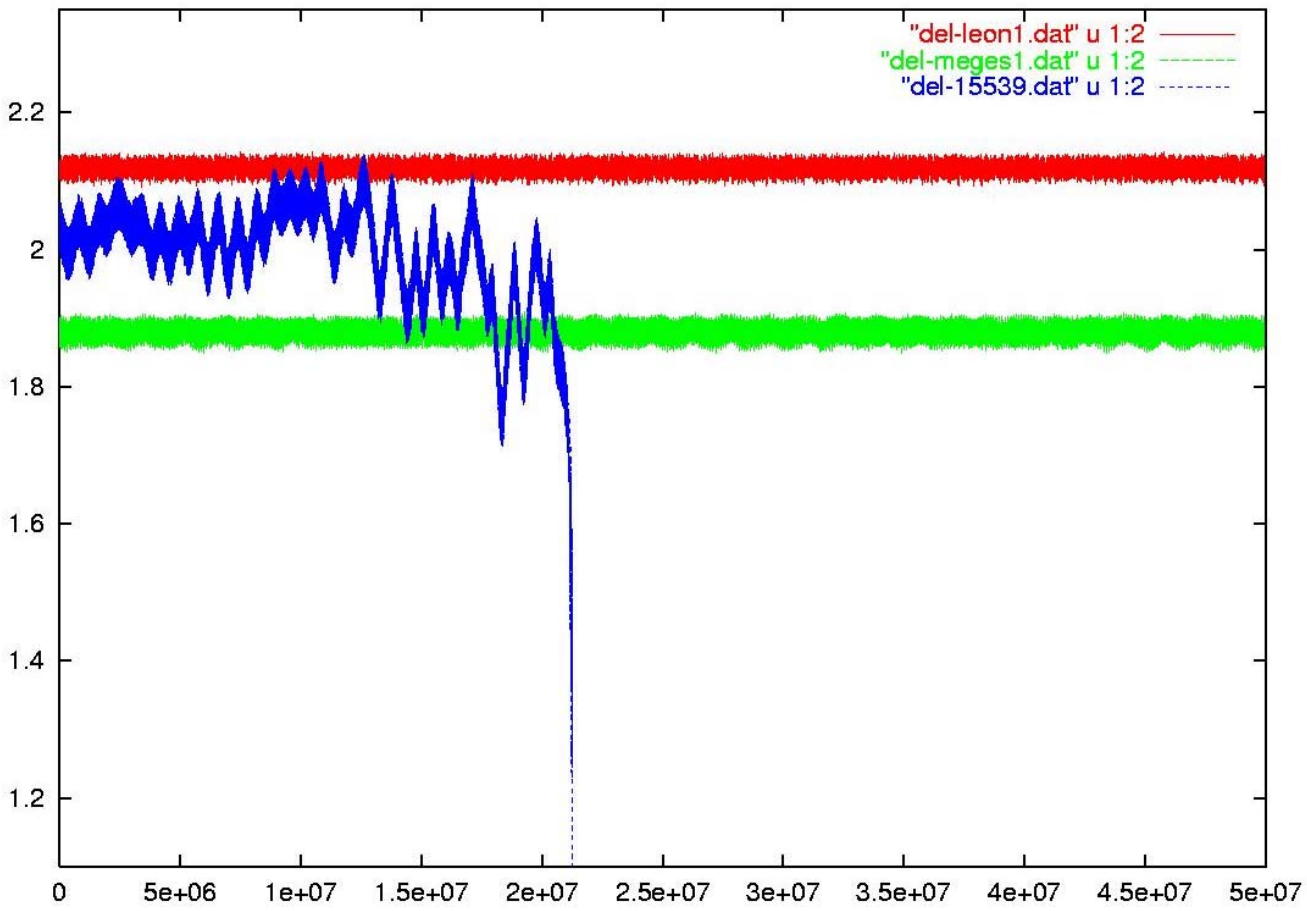
Delaunay-Elements

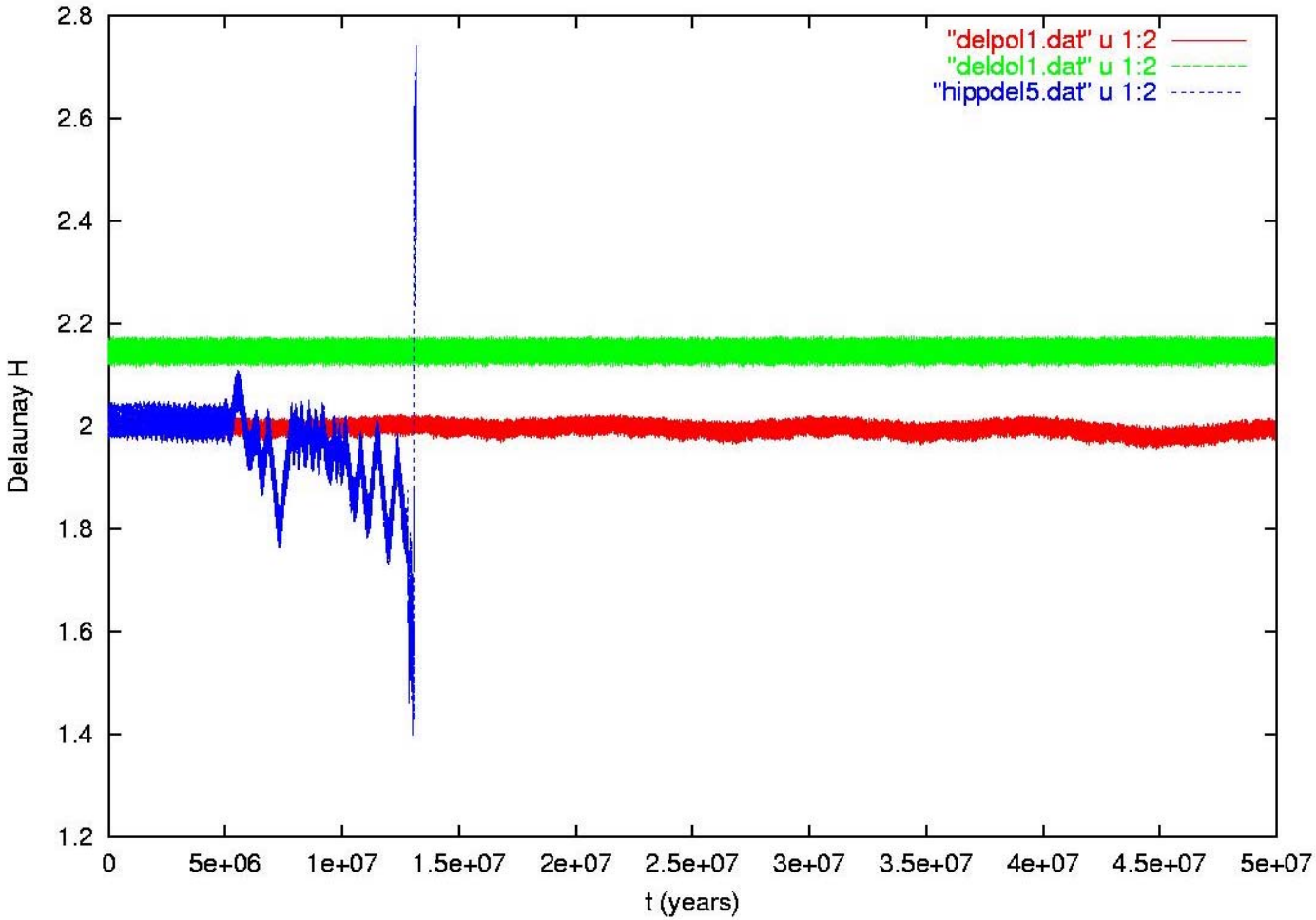
$l = M \qquad g = \omega \qquad h = \Omega$

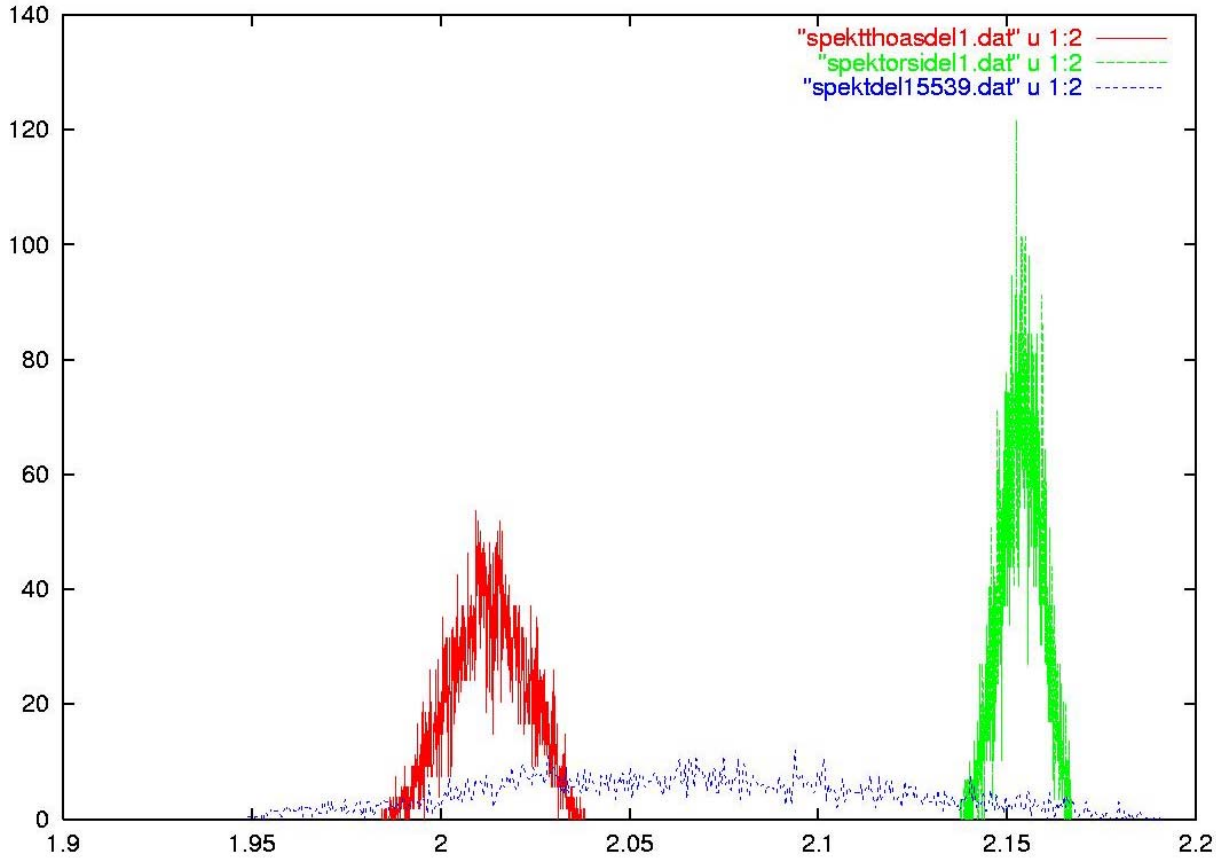
$$L = \mu * \sqrt{\mu a}$$

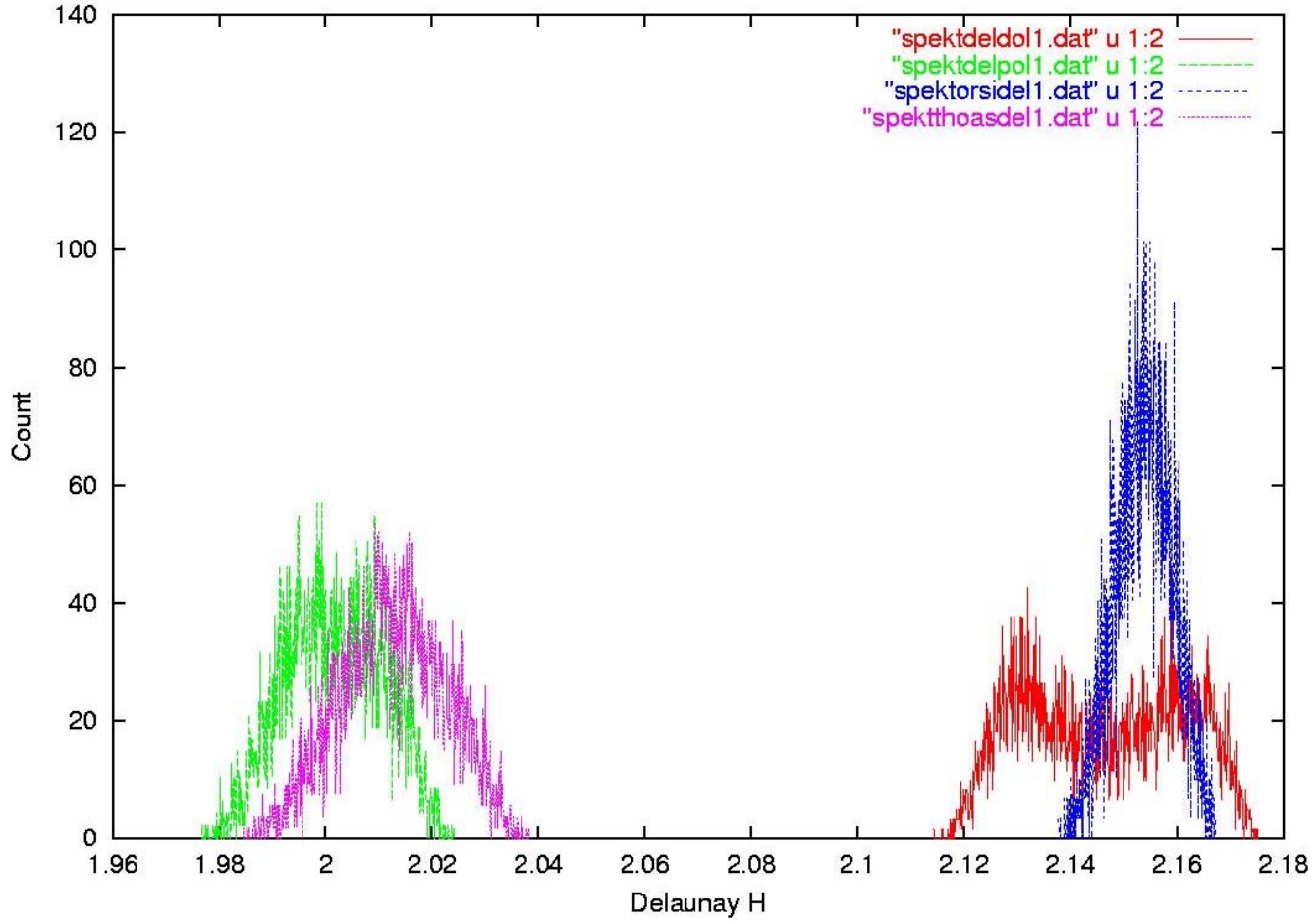
$$G = \mu * \sqrt{\mu a(1 - e^2)}$$

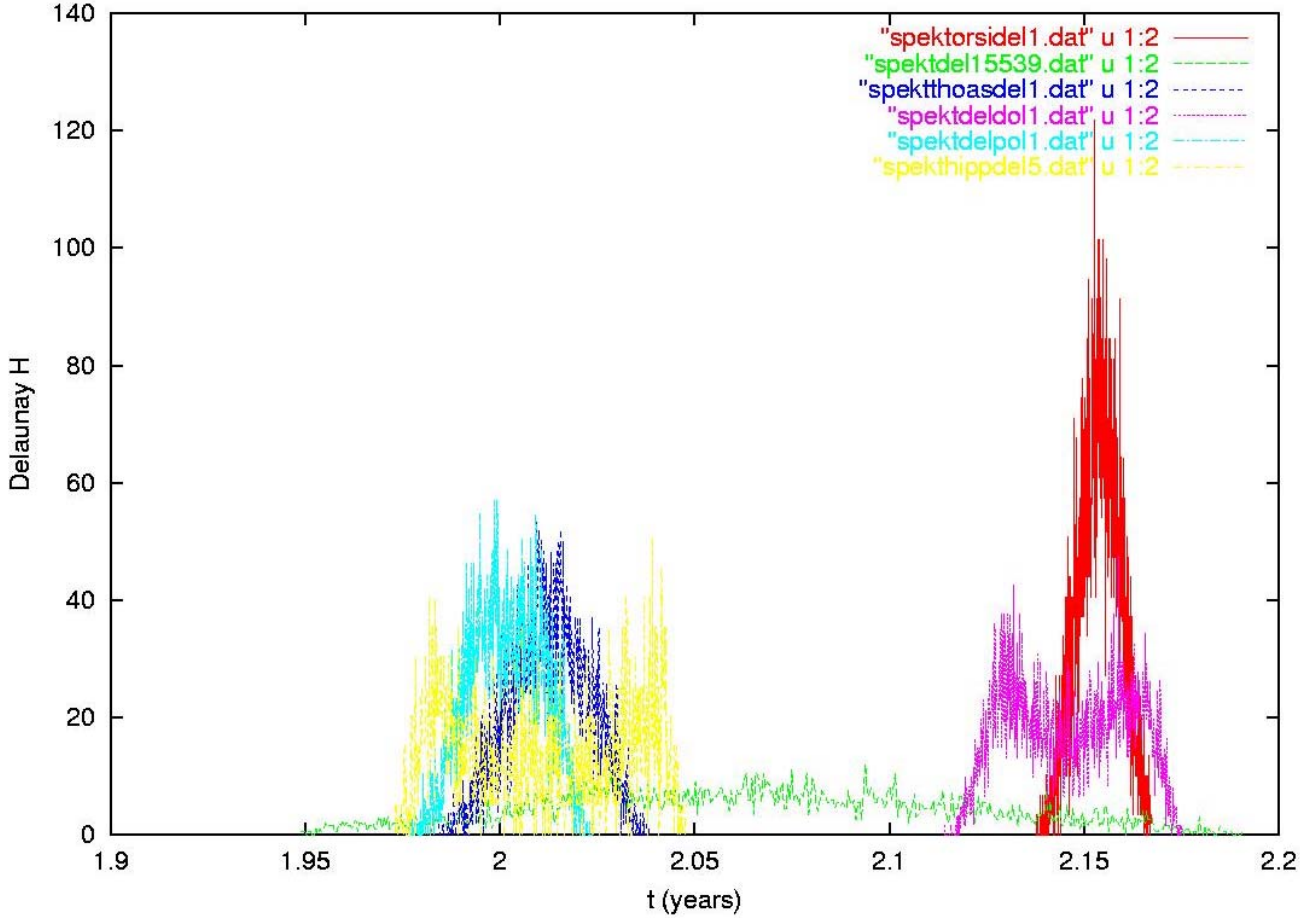
$$H = \mu * \sqrt{\mu a(1 - e^2)} \cos i$$


"del-leon1.dat" u 1:2
"del-meges1.dat" u 1:2
"del-15539.dat" u 1:2
2.2
2
1.8
1.6
1.4
1.2
0
5e+06
1e+07
1.5e+07
2e+07
2.5e+07
3e+07
3.5e+07
4e+07
4.5e+07
5e+07


"delpol1.dat" u 1:2
"deldol1.dat" u 1:2
"hippdel5.dat" u 1:2
Delaunay H
t (years)
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
0
5e+06
1e+07
1.5e+07
2e+07
2.5e+07
3e+07
3.5e+07
4e+07
4.5e+07
5e+07


"spektthoasdel1.dat" u 1:2
"spektorsidel1.dat" u 1:2
"spektdel15539.dat" u 1:2
140
120
100
80
60
40
20
0
1.9
1.95
2
2.05
2.1
2.15
2.2


"spektdeldol1.dat" u 1:2
"spektdelpol1.dat" u 1:2
"spektorsidel1.dat" u 1:2
"spektthoasdel1.dat" u 1:2
Count
Delaunay H
0
20
40
60
80
100
120
140
1.96
1.98
2
2.02
2.04
2.06
2.08
2.1
2.12
2.14
2.16
2.18


"spektorsidel1.dat" u 1:2
"spektdel15539.dat" u 1:2
"spektthoasdel1.dat" u 1:2
"spektdeldol1.dat" u 1:2
"spektdelpol1.dat" u 1:2
"spekthippdel5.dat" u 1:2
Delaunay H
t (years)
0
20
40
60
80
100
120
140
1.9
1.95
2
2.05
2.1
2.15
2.2