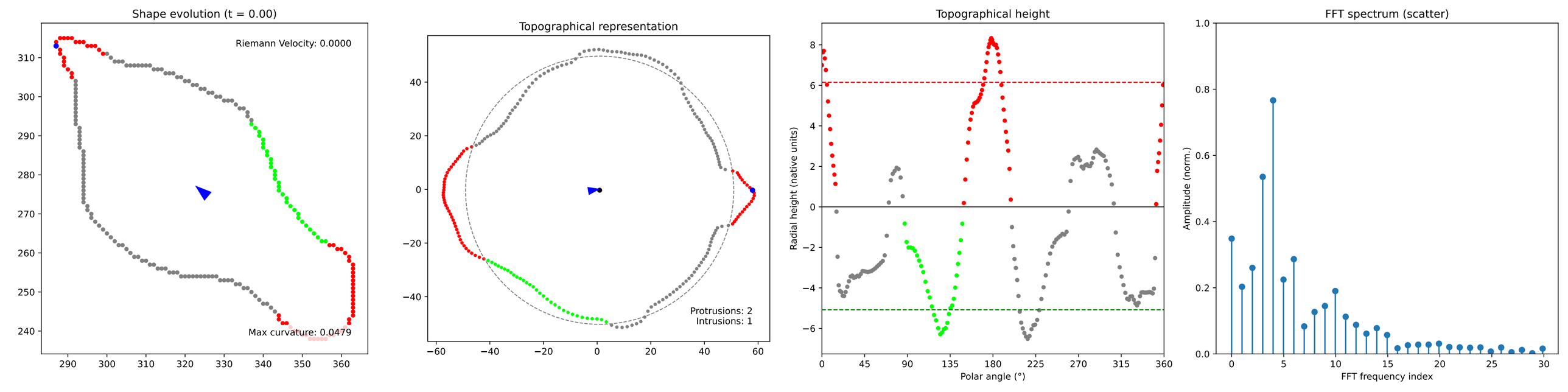
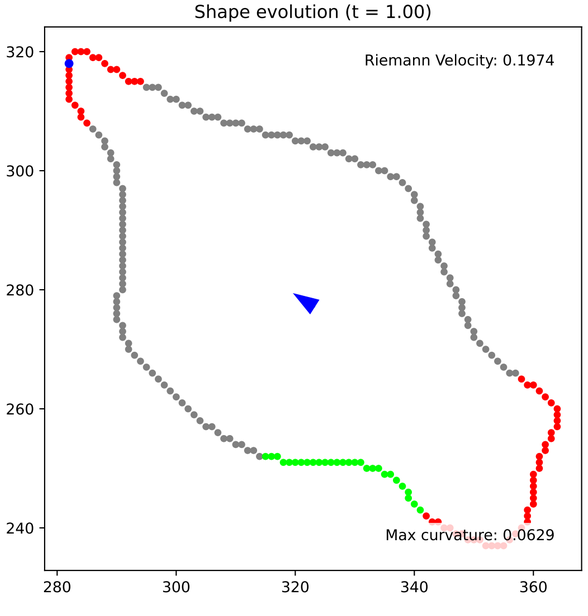
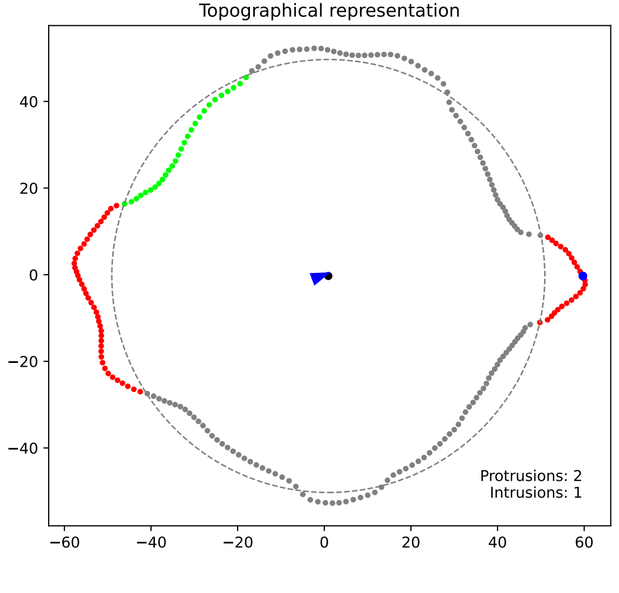
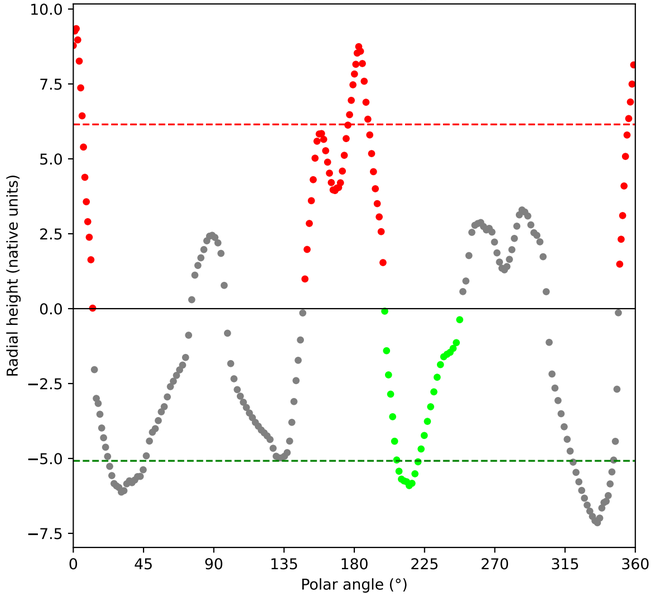
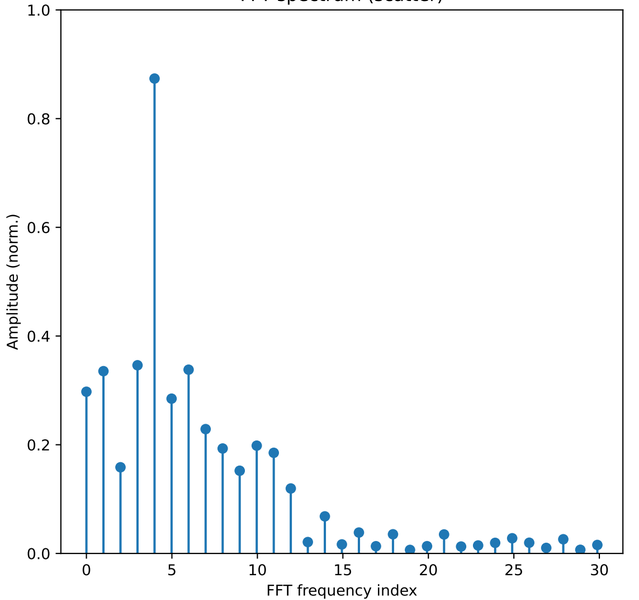
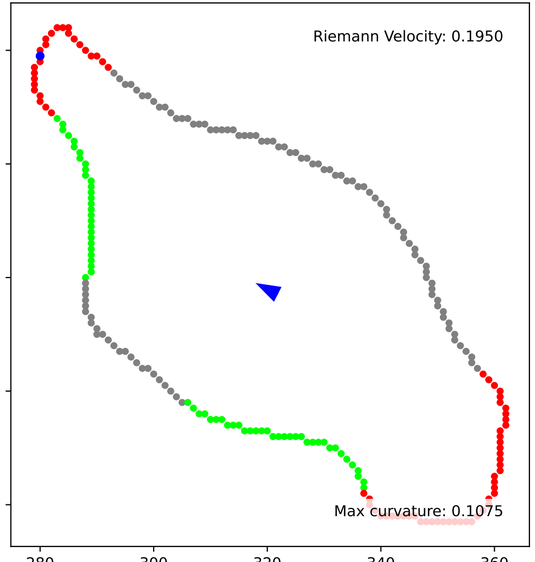

Shape evolution (t = 0.00)
Riemann Velocity: 0.0000
Max curvature: 0.0479
Topographical representation
Protrusions: 2
Intrusions: 1
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

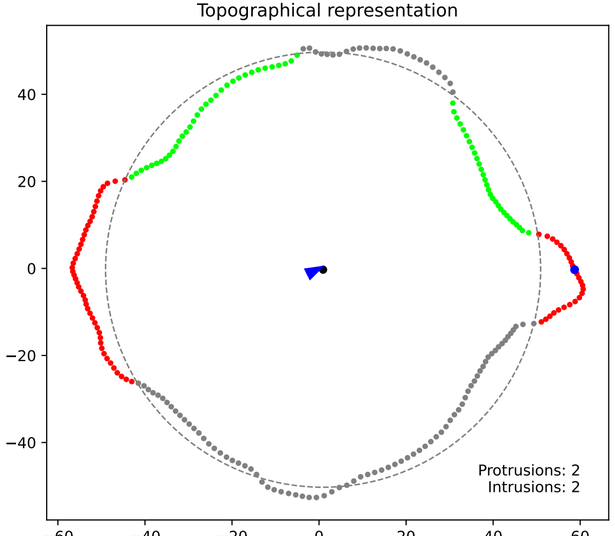

Shape evolution (t = 1.00)
Riemann Velocity: 0.1974
Max curvature: 0.0629

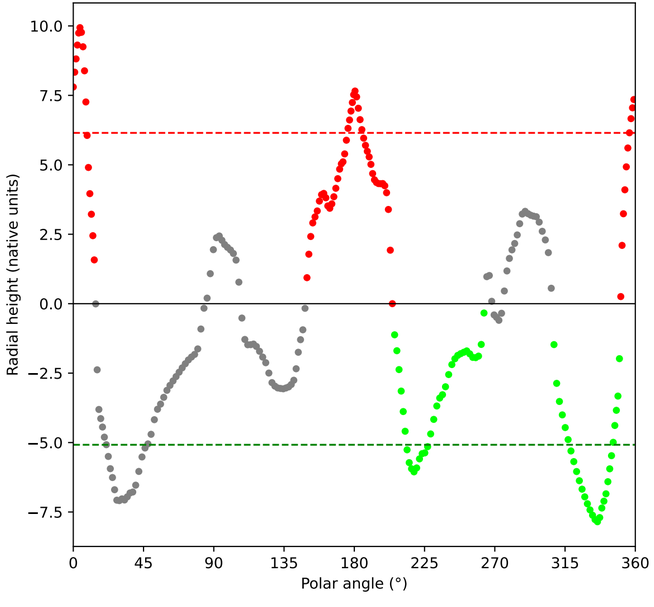

Topographical representation
Protrusions: 2
Intrusions: 1

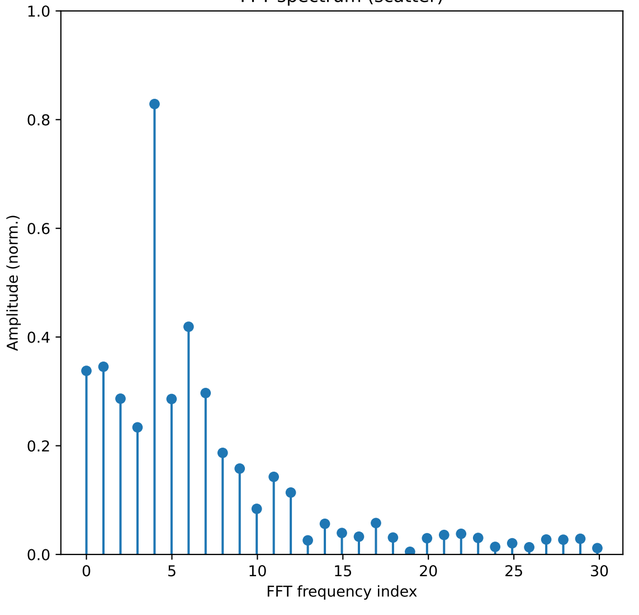

Topographical height
Radial height (native units)
Polar angle (°)

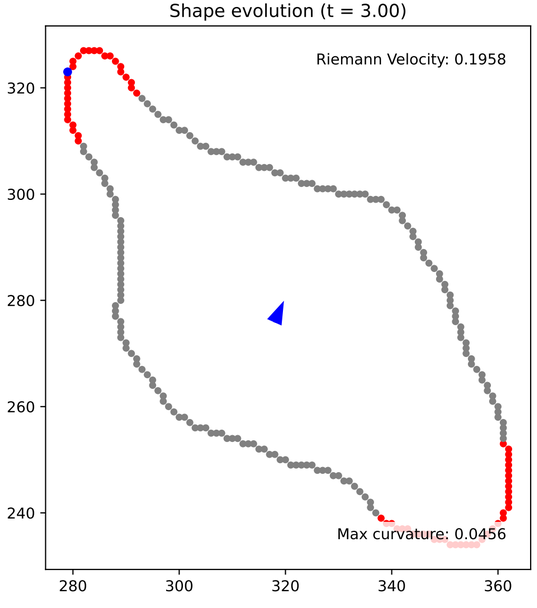

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

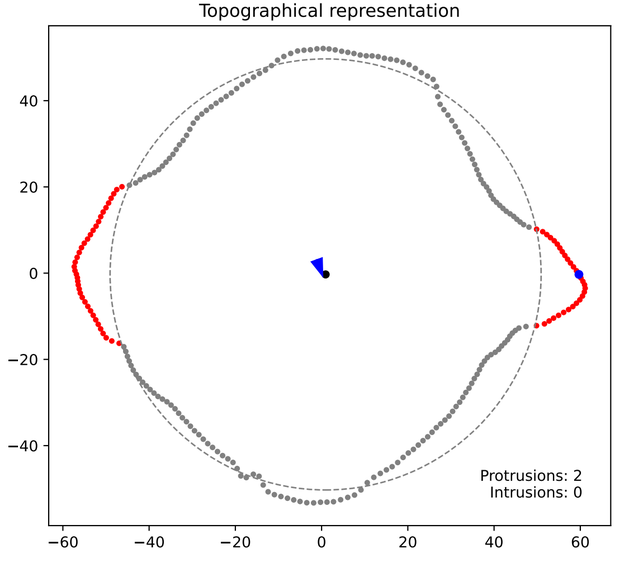

Shape evolution (t = 2.00)
Riemann Velocity: 0.1950
Max curvature: 0.1075
320
300
280
260
240
280
300
320
340
360

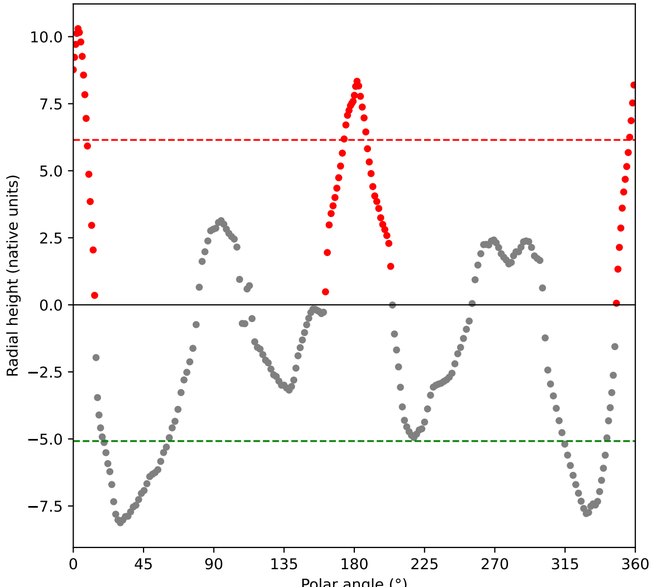

Topographical representation
Protrusions: 2
Intrusions: 2
40
20
0
−20
−40
−60
−40
−20
0
20
40
60

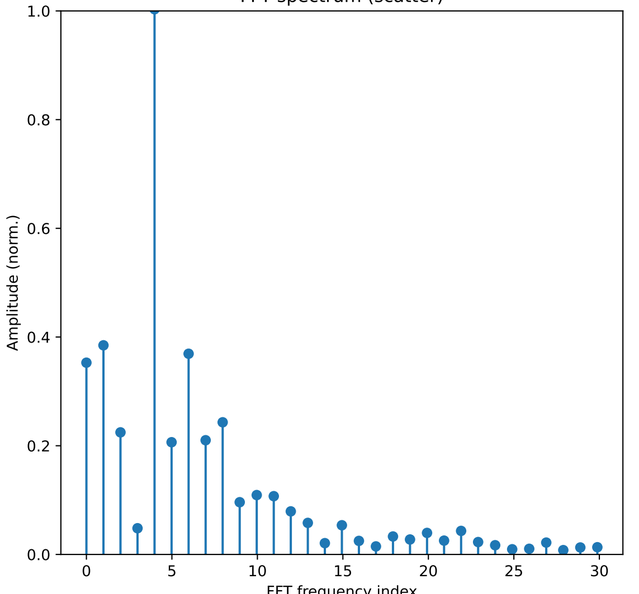

Topographical height
Radial height (native units)
Polar angle (°)
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
45
90
135
180
225
270
315
360

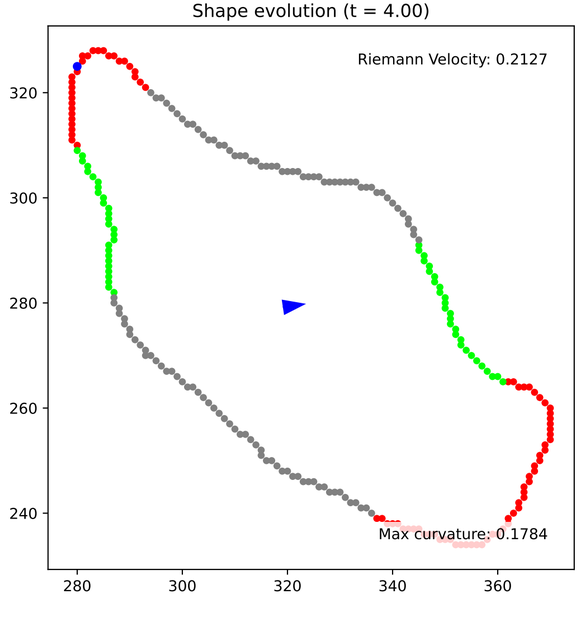

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

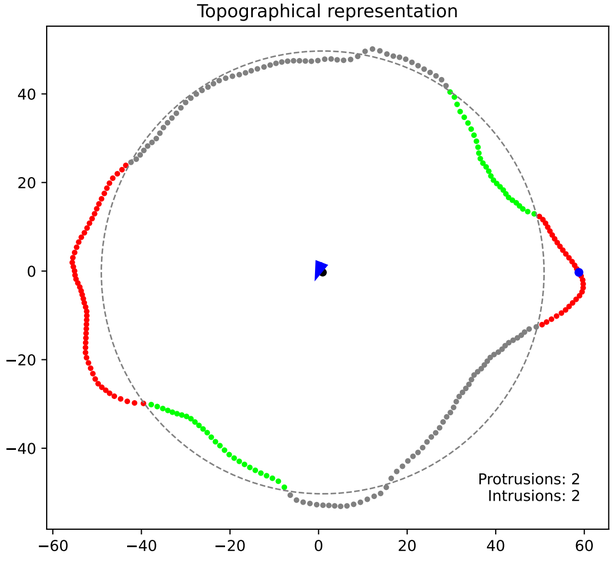

Shape evolution (t = 3.00)
Riemann Velocity: 0.1958
Max curvature: 0.0456
320
300
280
260
240
280
300
320
340
360

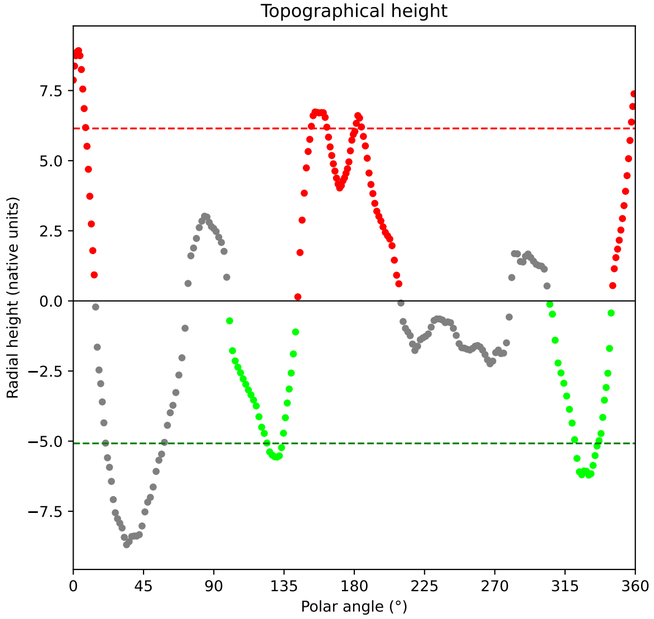

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−60
−40
−20
0
20
40
60

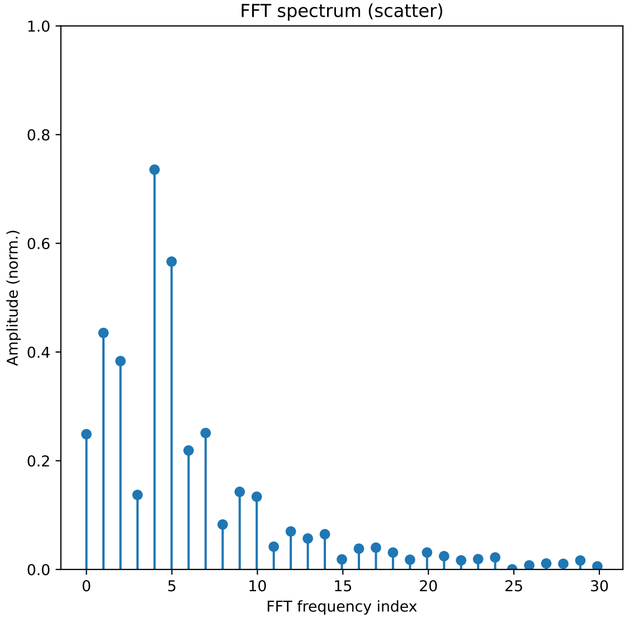

Topographical height
Radial height (native units)
Polar angle (°)
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
45
90
135
180
225
270
315
360

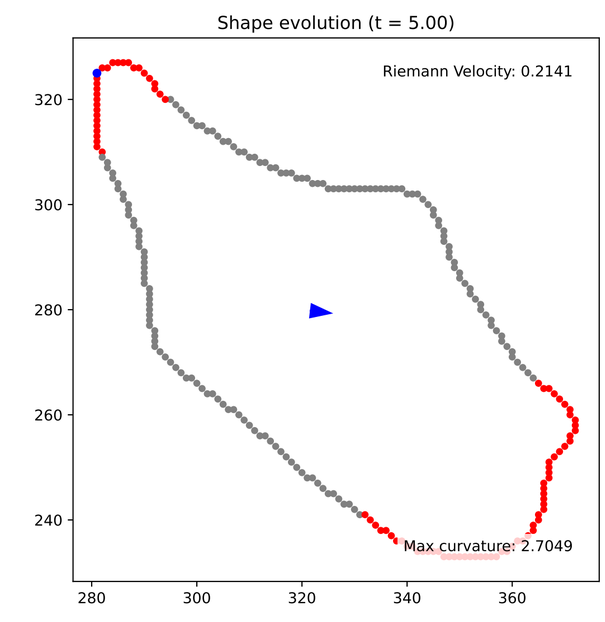

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

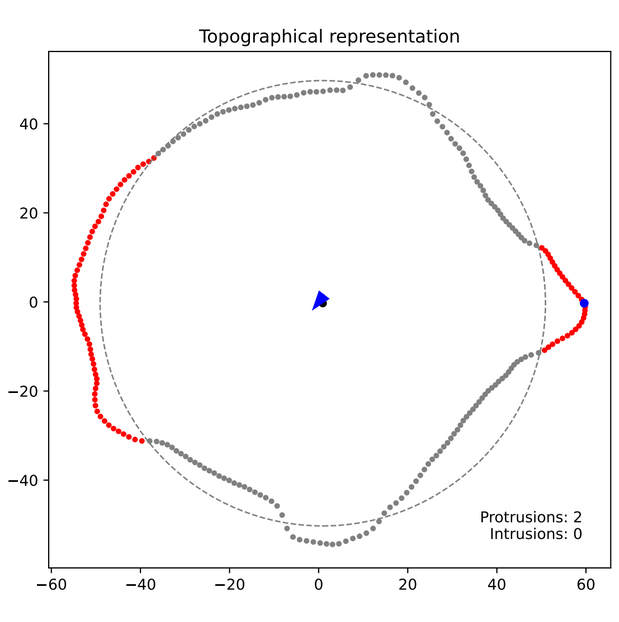

Shape evolution (t = 4.00)
Riemann Velocity: 0.2127
Max curvature: 0.1784

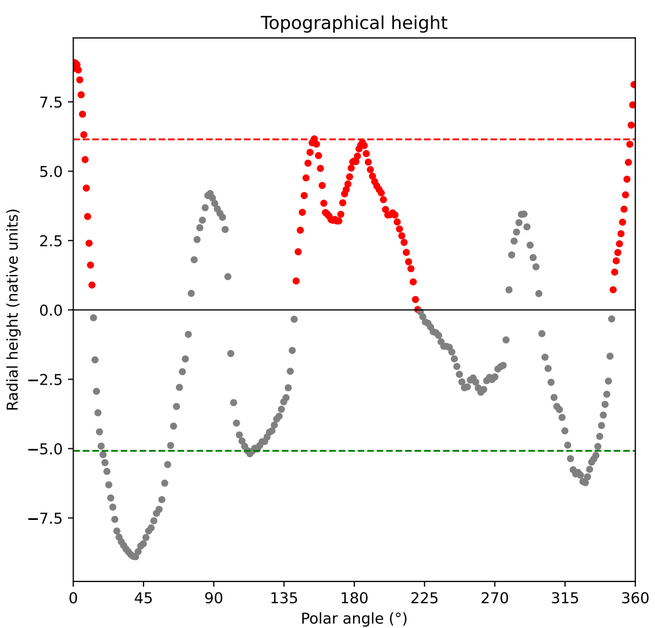

Topographical representation
Protrusions: 2
Intrusions: 2

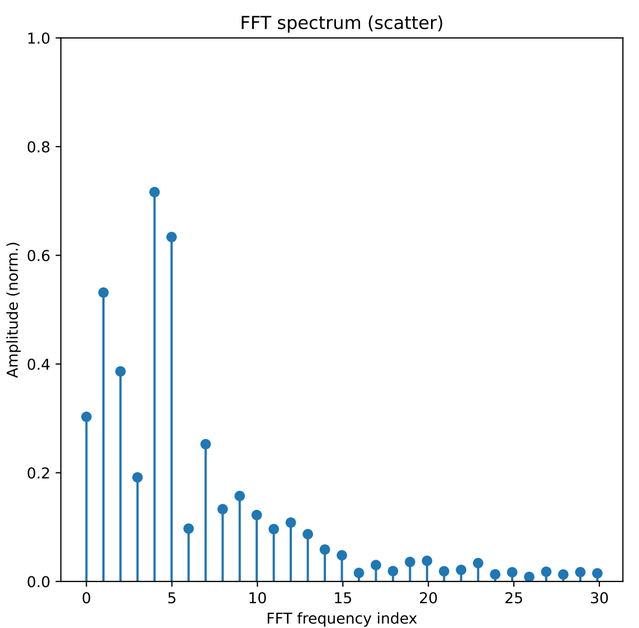

Topographical height
Radial height (native units)
Polar angle (°)

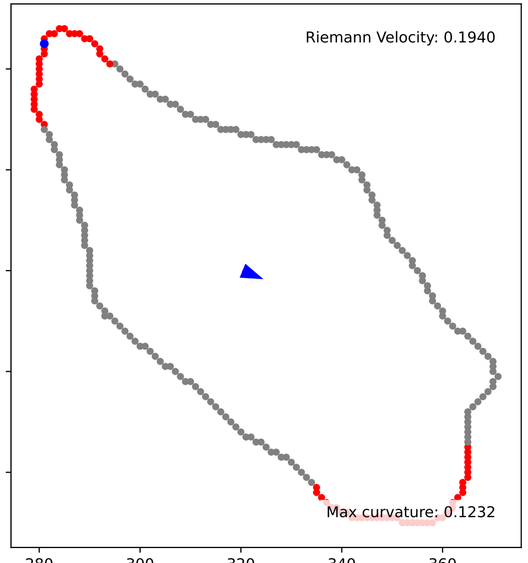

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

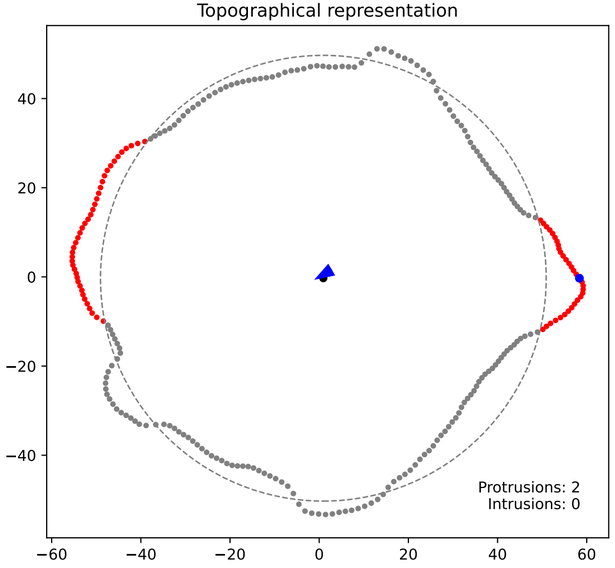

Shape evolution (t = 5.00)
Riemann Velocity: 0.2141
Max curvature: 2.7049

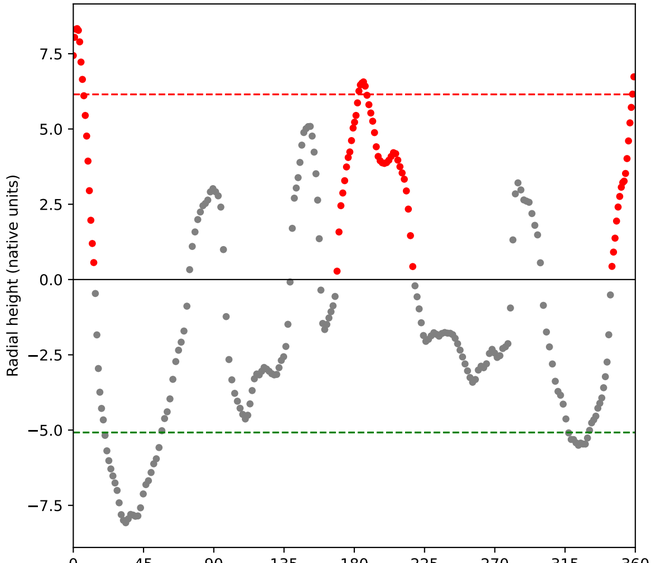

Topographical representation
Protrusions: 2
Intrusions: 0

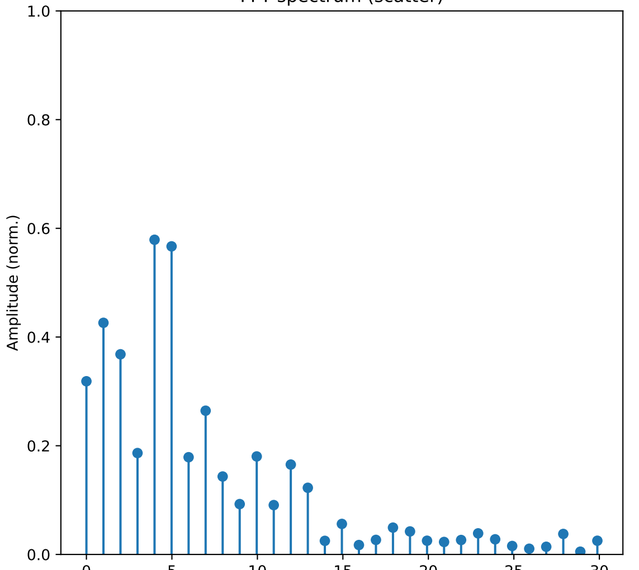

Topographical height
Radial height (native units)
Polar angle (°)

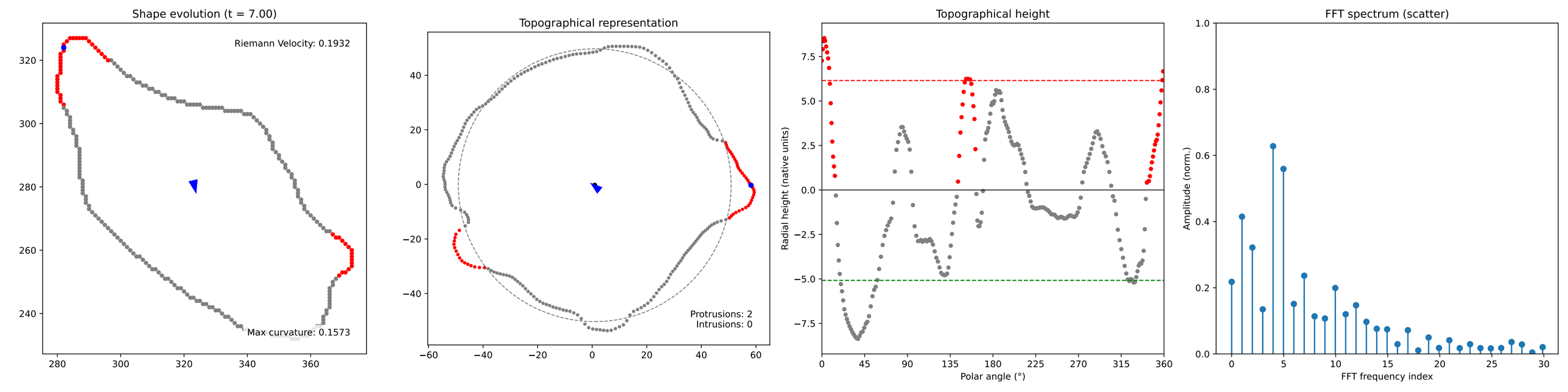

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

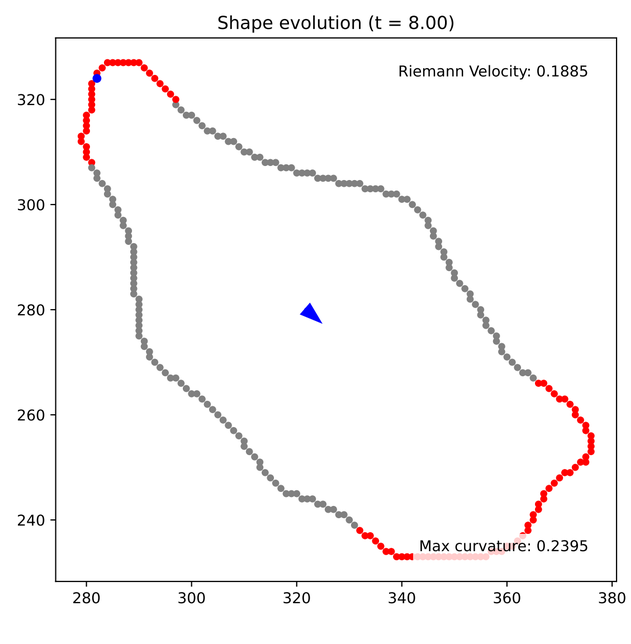

Shape evolution (t = 6.00)
Riemann Velocity: 0.1940
Max curvature: 0.1232
320
300
280
260
240
280
300
320
340
360

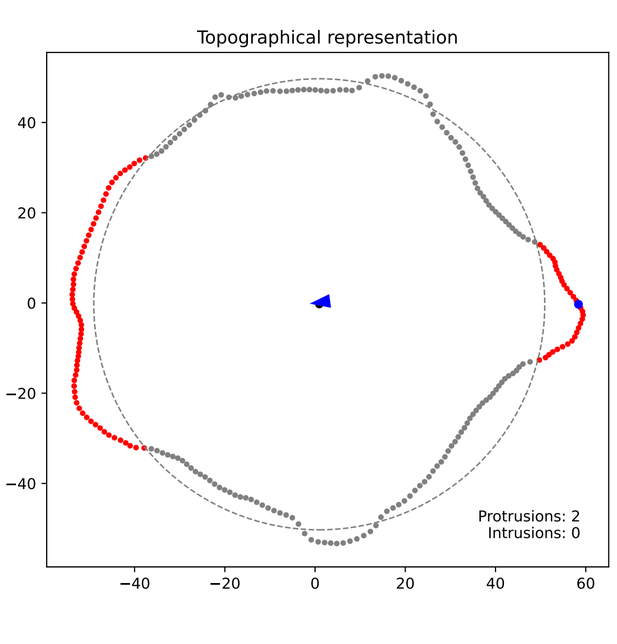

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−60
−40
−20
0
20
40
60

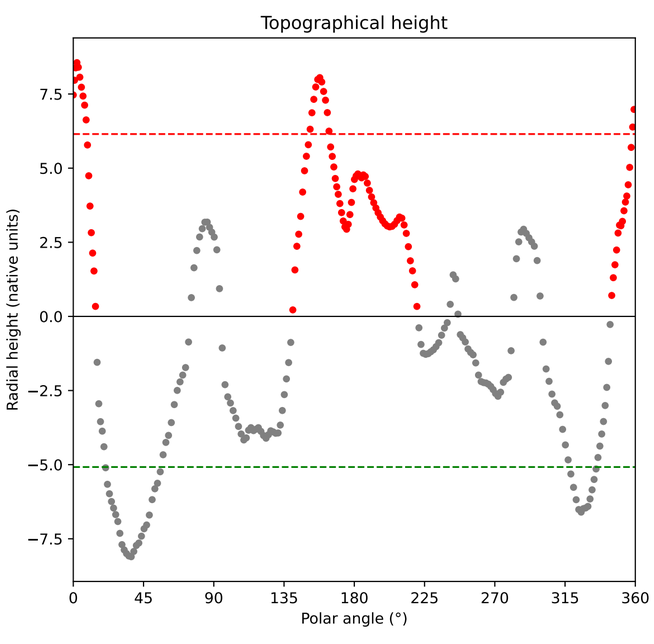

Topographical height
Radial height (native units)
Polar angle (°)
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
45
90
135
180
225
270
315
360

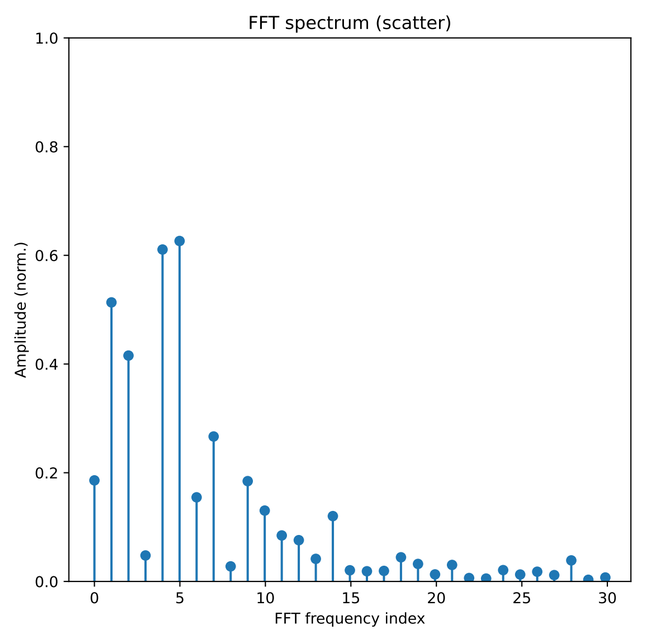

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

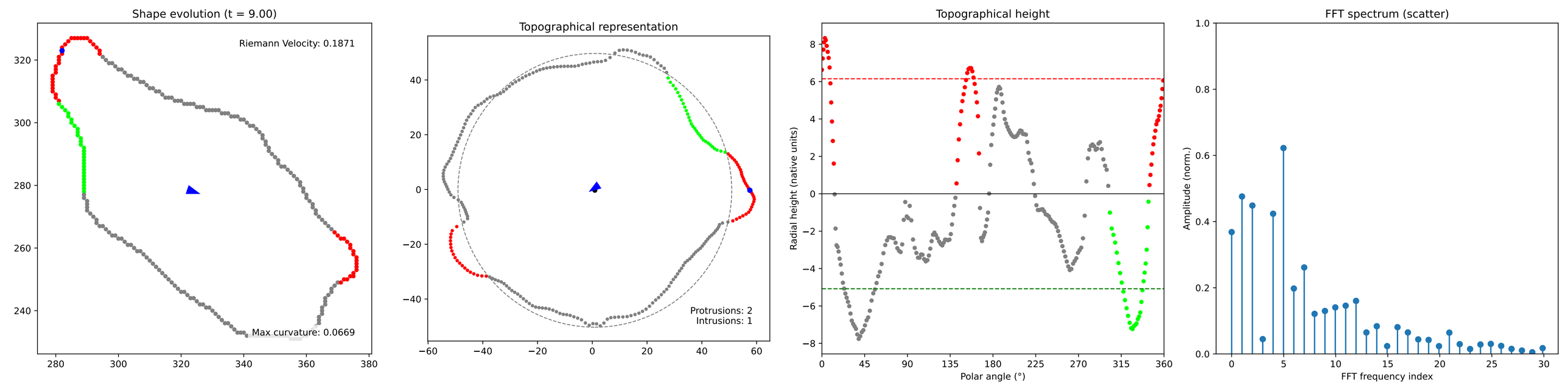

Shape evolution (t = 7.00)
Riemann Velocity: 0.1932
Max curvature: 0.1573
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

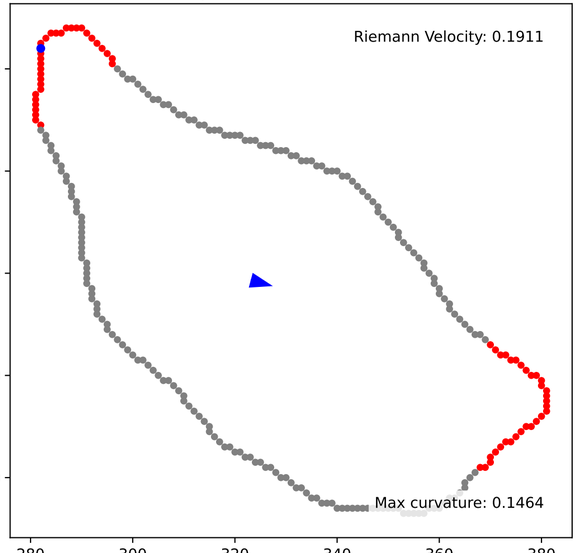

Shape evolution (t = 8.00)
Riemann Velocity: 0.1885
Max curvature: 0.2395
320
300
280
260
240
280
300
320
340
360
380

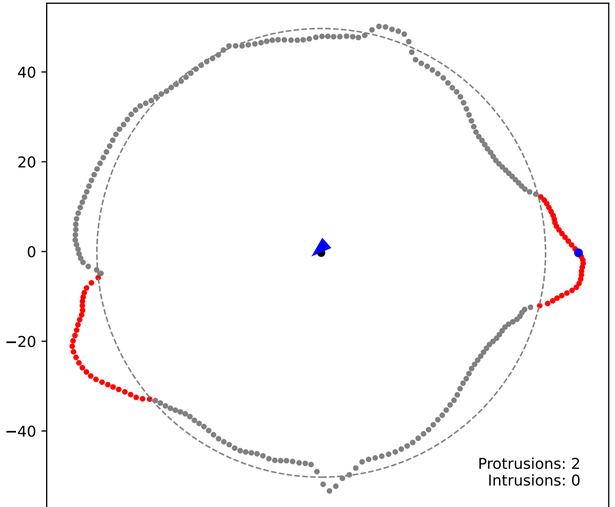

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

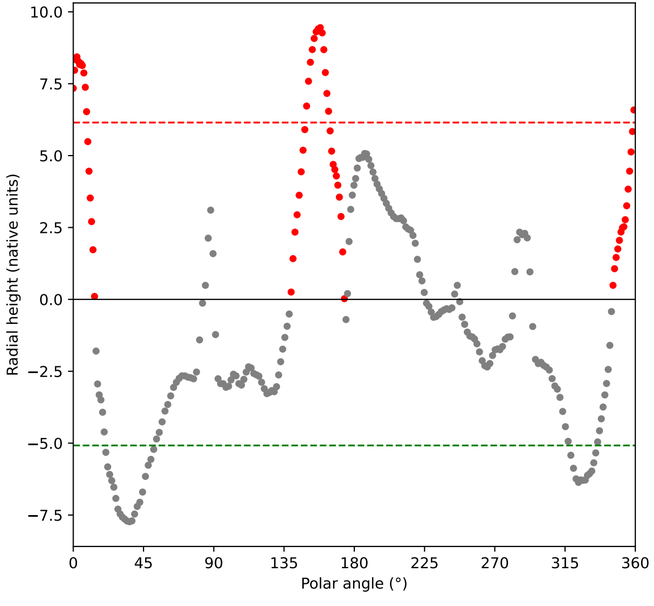

Topographical height
Radial height (native units)
Polar angle (°)
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
45
90
135
180
225
270
315
360

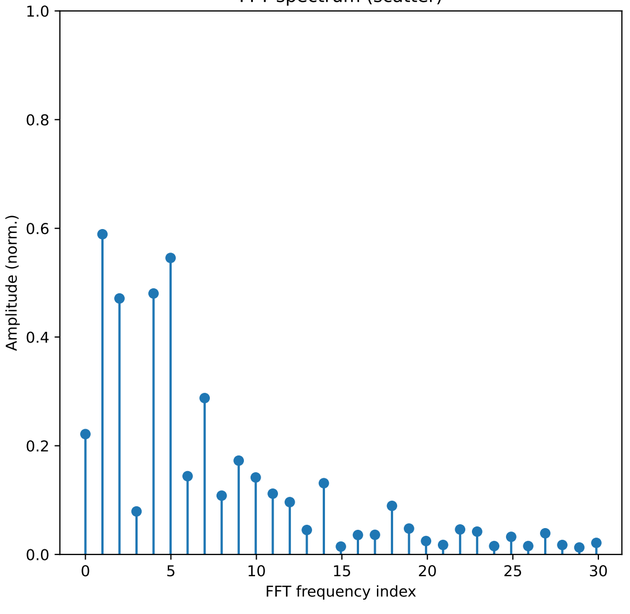

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

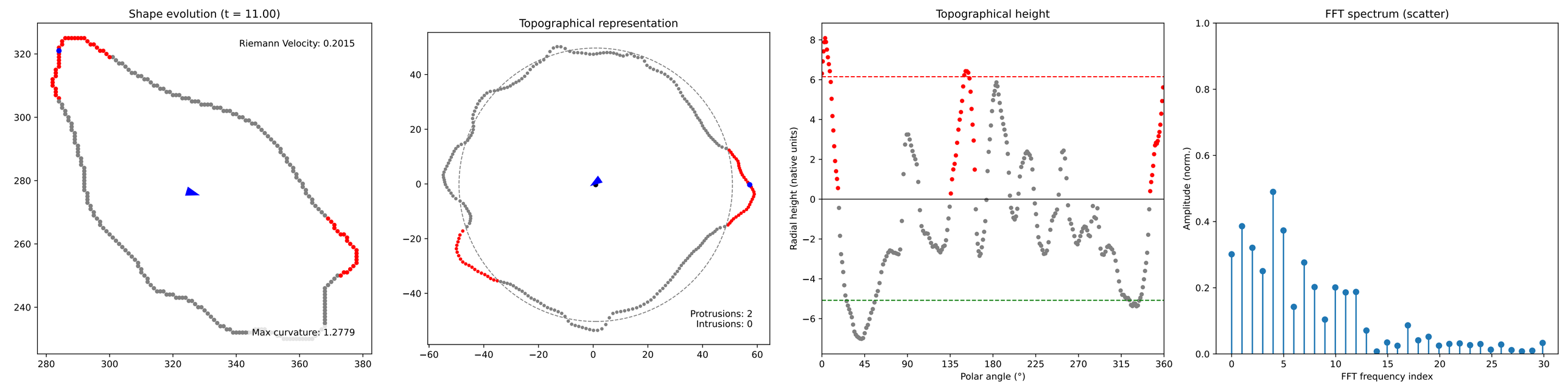

Shape evolution (t = 9.00)
Riemann Velocity: 0.1871
Max curvature: 0.0669
Topographical representation
Protrusions: 2
Intrusions: 1
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

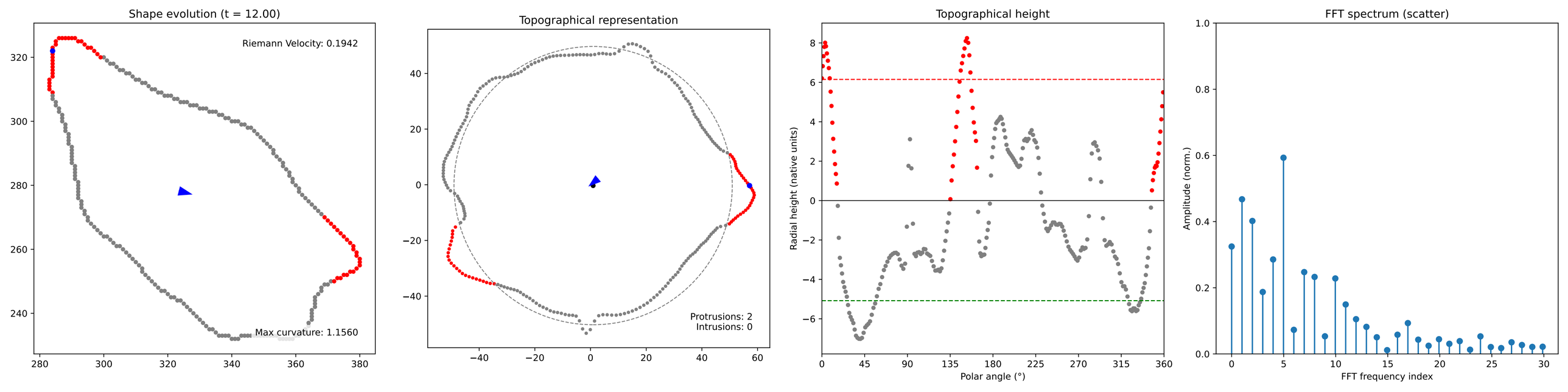

Shape evolution (t = 10.00)
Riemann Velocity: 0.1911
Max curvature: 0.1464
320
300
280
260
240
280
300
320
340
360
380

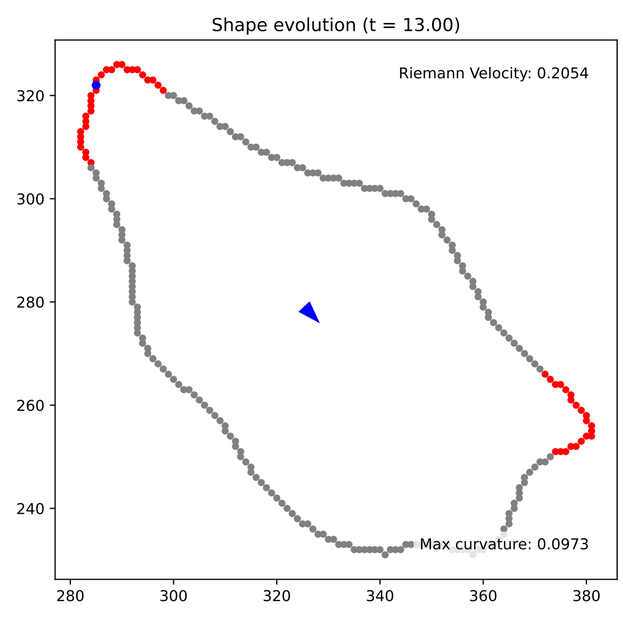

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−60
−40
−20
0
20
40
60

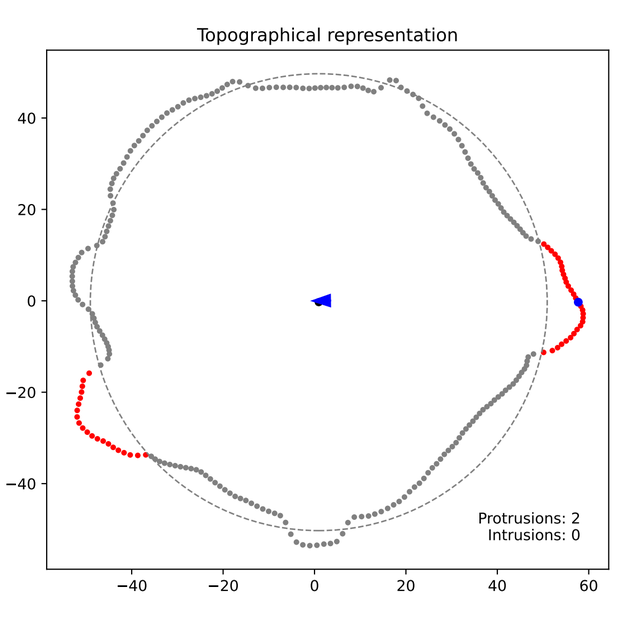

Topographical height
Radial height (native units)
Polar angle (°)
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
45
90
135
180
225
270
315
360

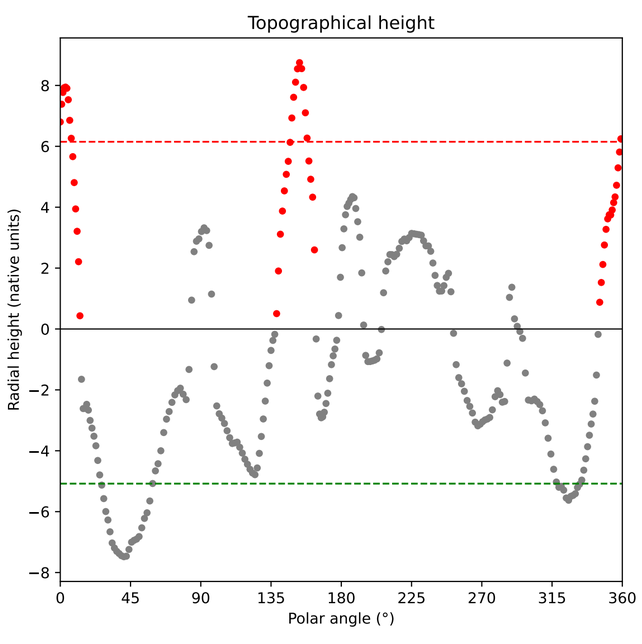

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

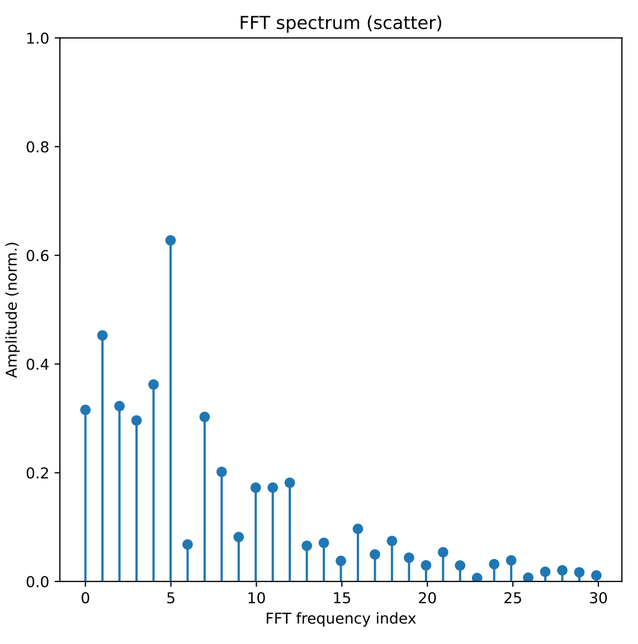

Shape evolution (t = 11.00)
Riemann Velocity: 0.2015
Max curvature: 1.2779
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

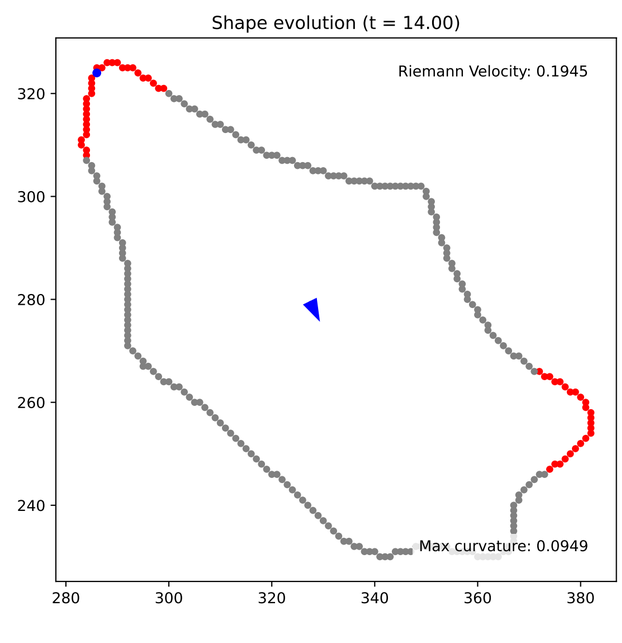

Shape evolution (t = 12.00)
Riemann Velocity: 0.1942
Max curvature: 1.1560
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

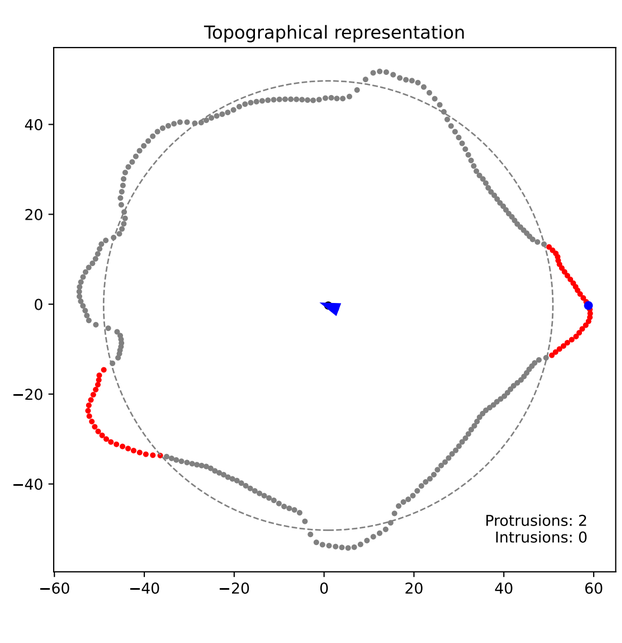

Shape evolution (t = 13.00)
Riemann Velocity: 0.2054
Max curvature: 0.0973

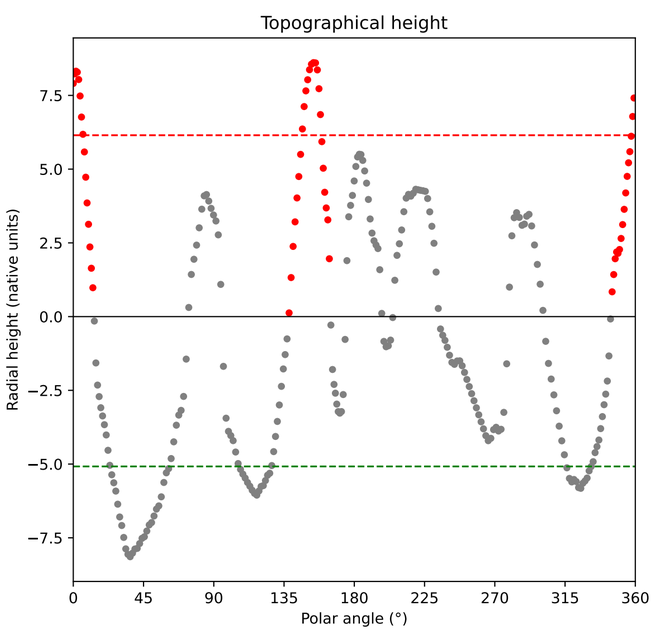

Topographical representation
Protrusions: 2
Intrusions: 0

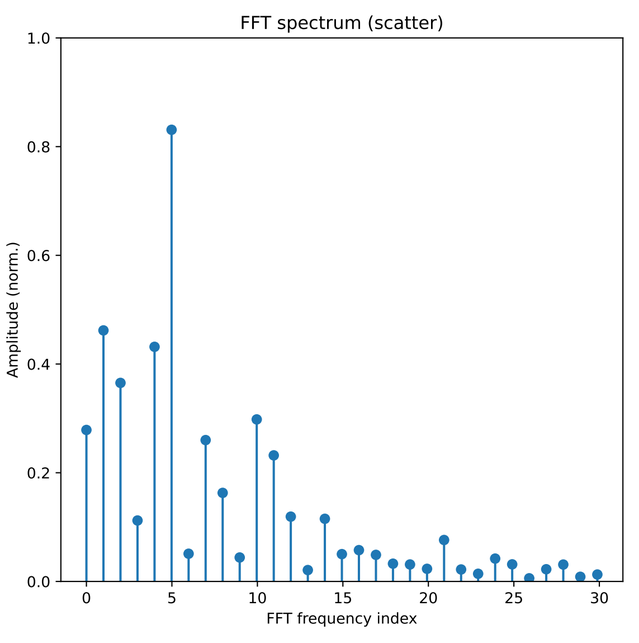

Topographical height
Radial height (native units)
Polar angle (°)

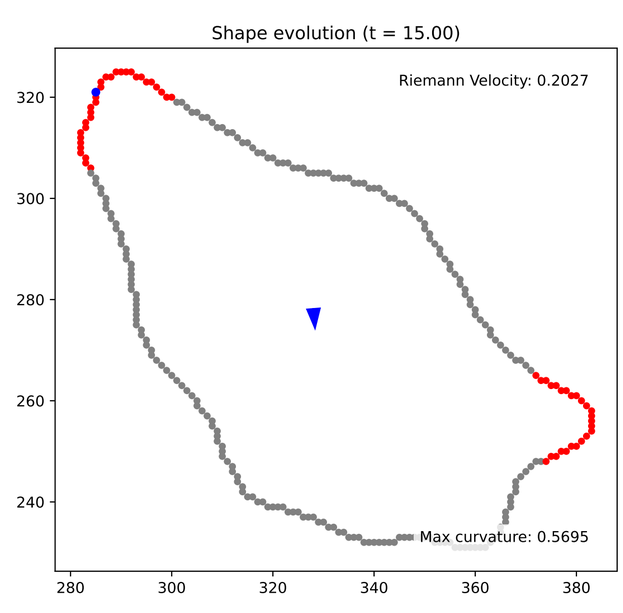

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

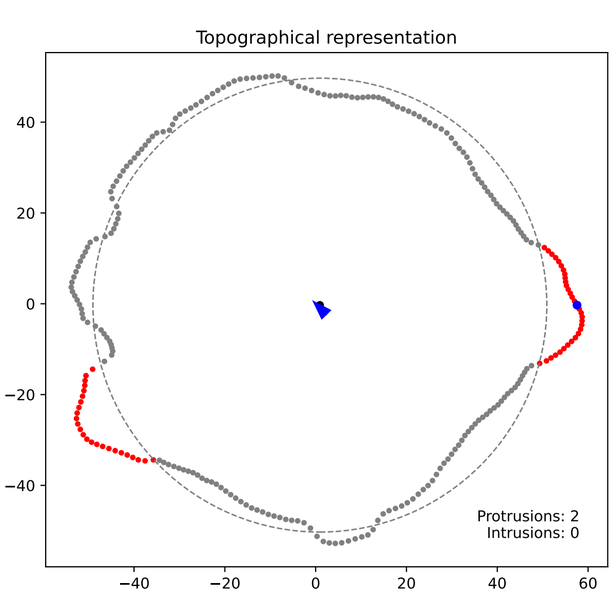

Shape evolution (t = 14.00)
Riemann Velocity: 0.1945
Max curvature: 0.0949
320
300
280
260
240
280
300
320
340
360
380

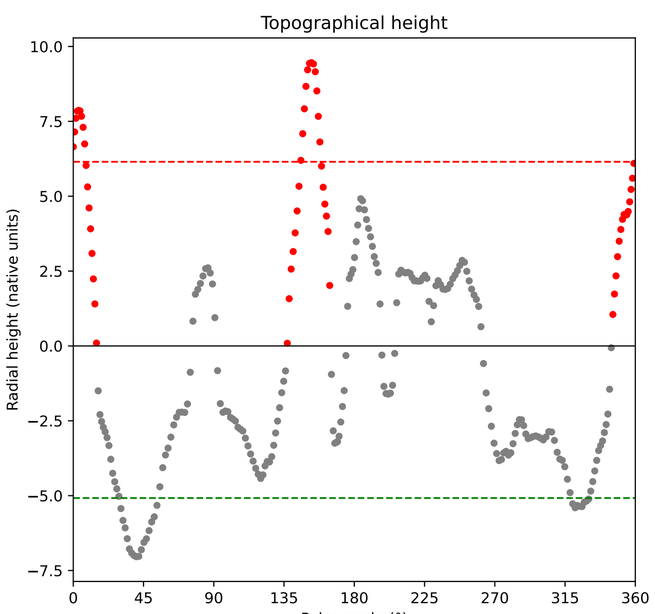

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−60
−40
−20
0
20
40
60

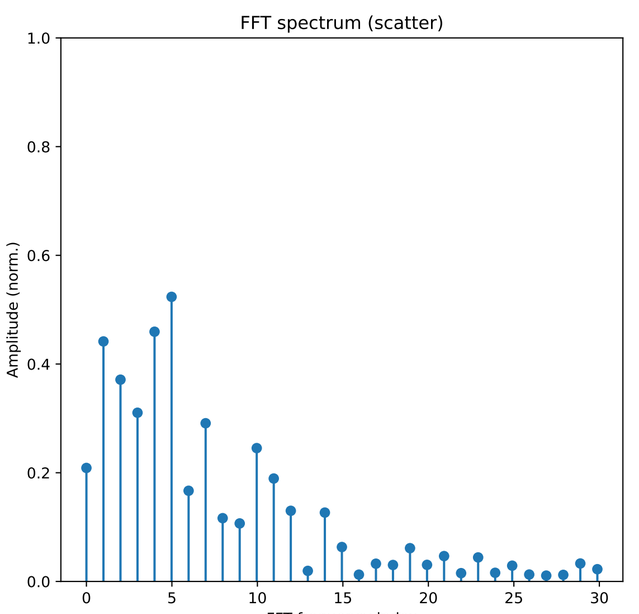

Topographical height
Radial height (native units)
Polar angle (°)
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
45
90
135
180
225
270
315
360

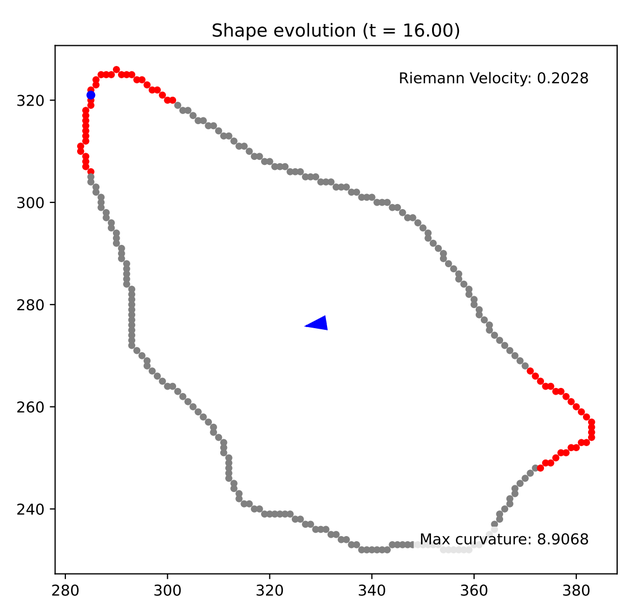

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

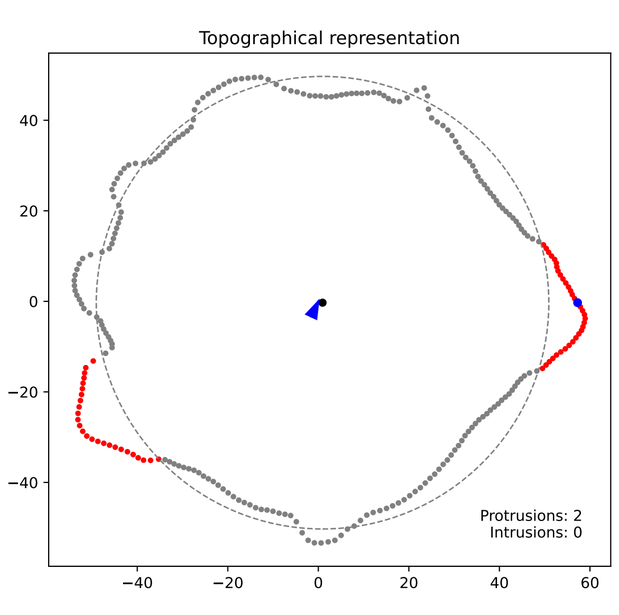

Shape evolution (t = 15.00)
Riemann Velocity: 0.2027
Max curvature: 0.5695

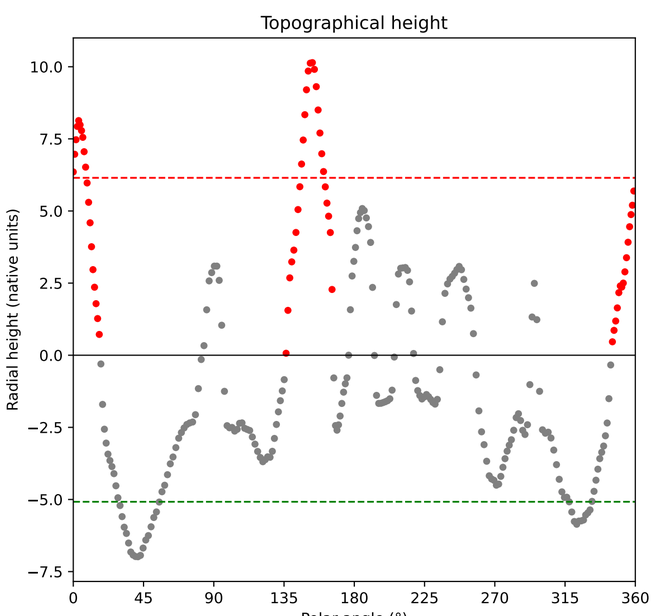

Topographical representation
Protrusions: 2
Intrusions: 0

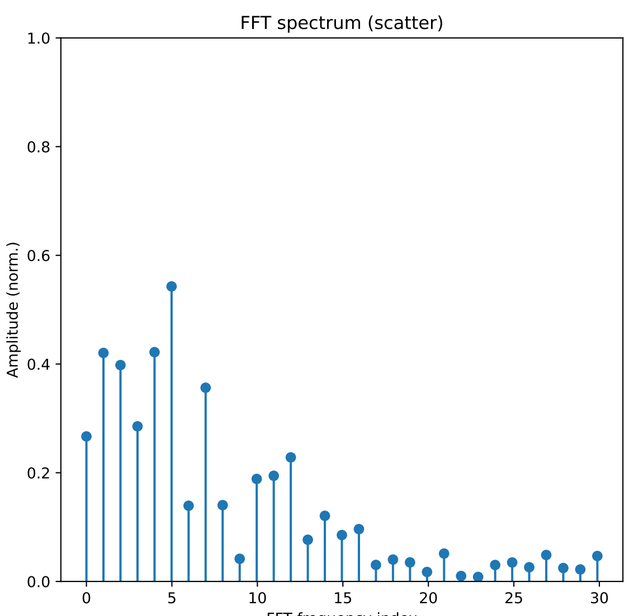

Topographical height
Radial height (native units)
Polar angle (°)

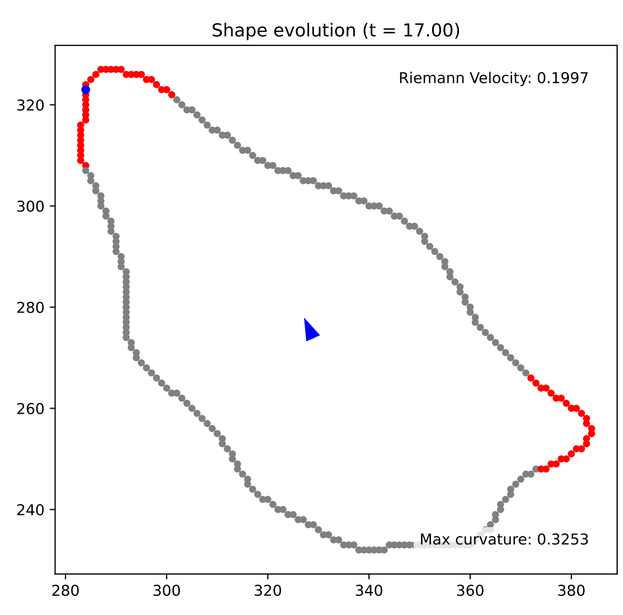

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

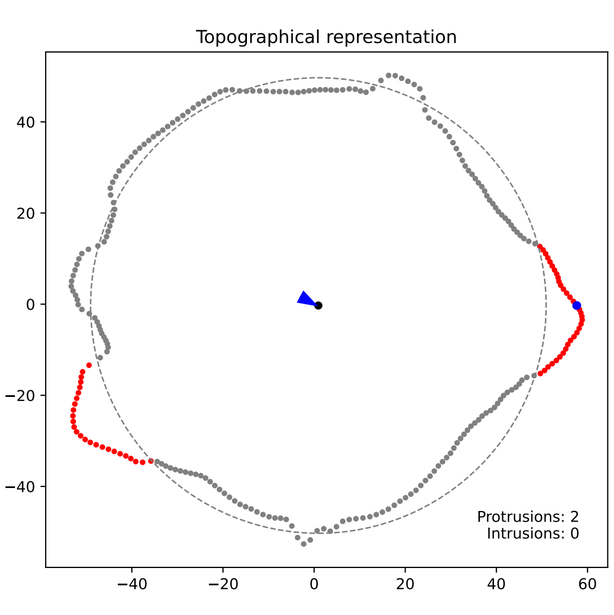

Shape evolution (t = 16.00)
Riemann Velocity: 0.2028
Max curvature: 8.9068

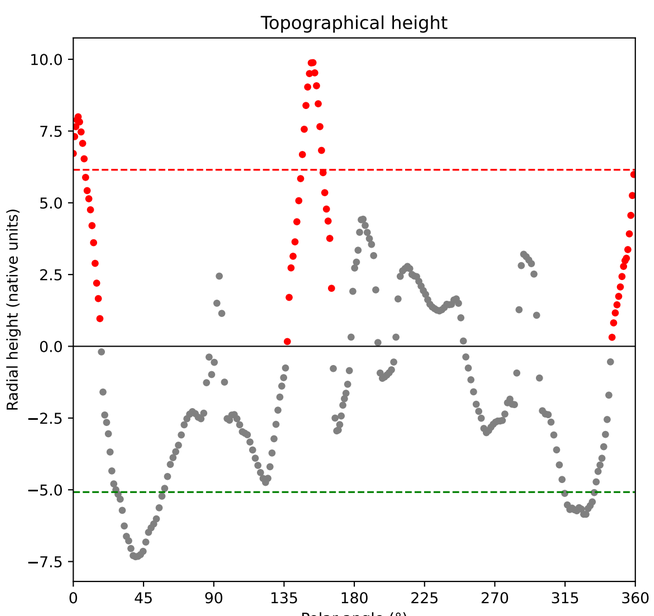

Topographical representation
Protrusions: 2
Intrusions: 0

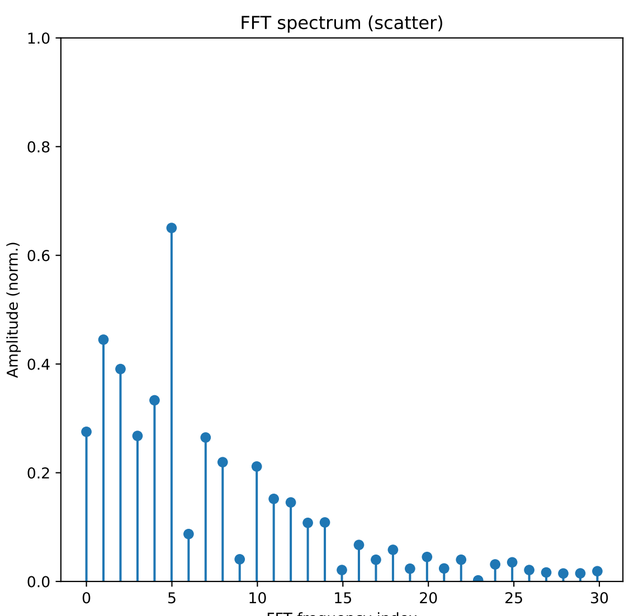

Topographical height
Radial height (native units)
Polar angle (°)

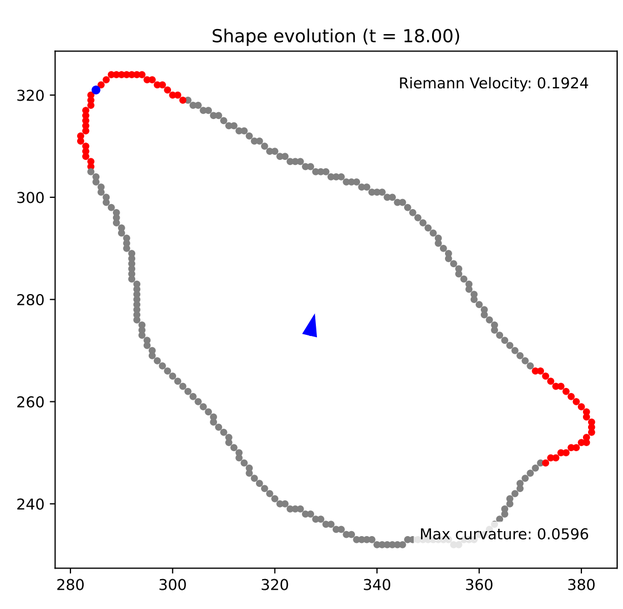

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

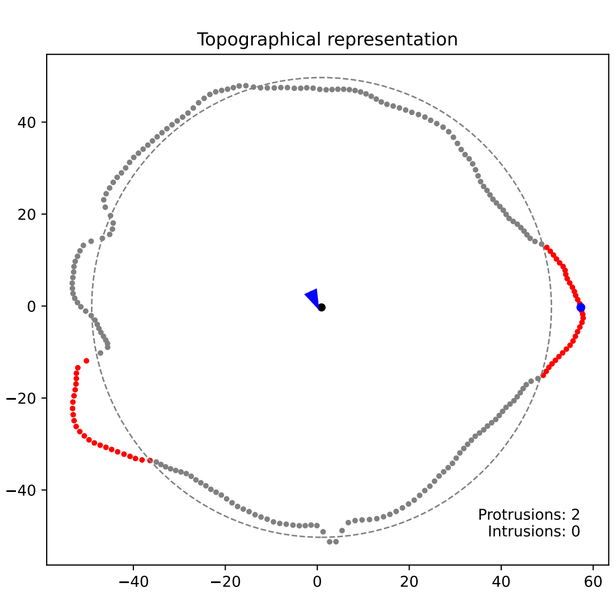

Shape evolution (t = 17.00)
Riemann Velocity: 0.1997
Max curvature: 0.3253
320
300
280
260
240
280
300
320
340
360
380

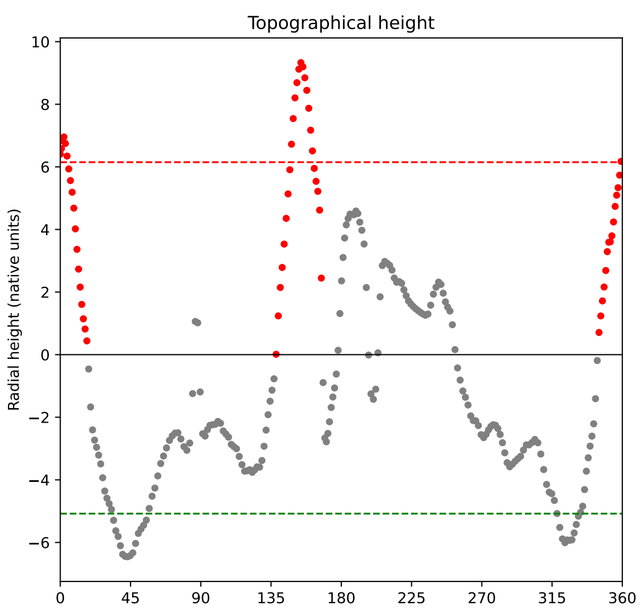

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

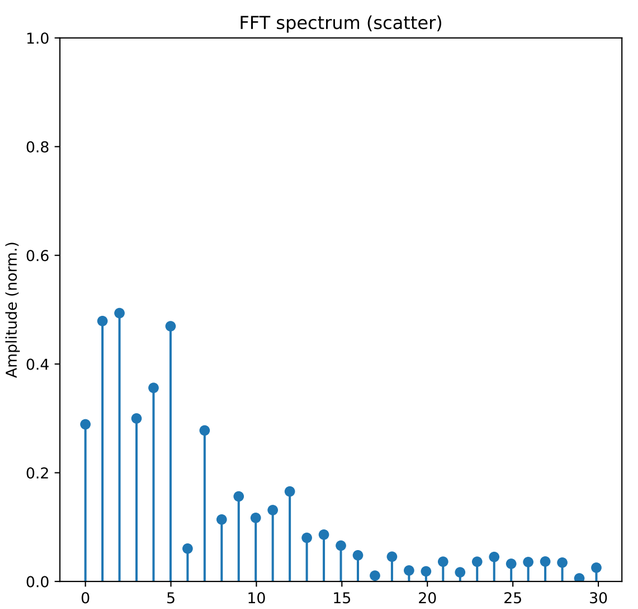

Topographical height
Radial height (native units)
Polar angle (°)
10.0
7.5
5.0
2.5
0.0
−2.5
−5.0
−7.5
0
45
90
135
180
225
270
315
360

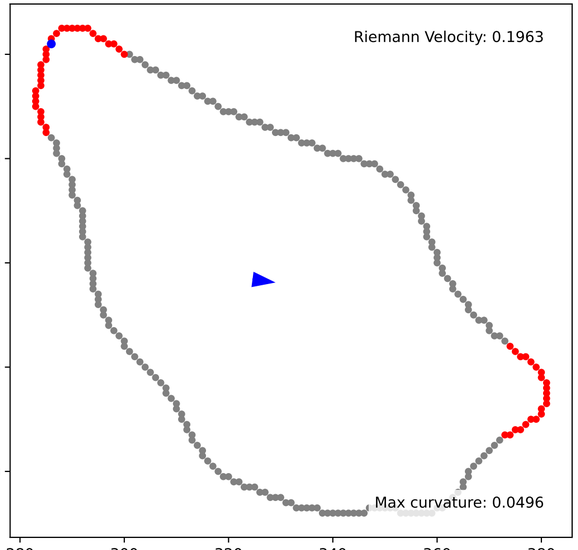

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

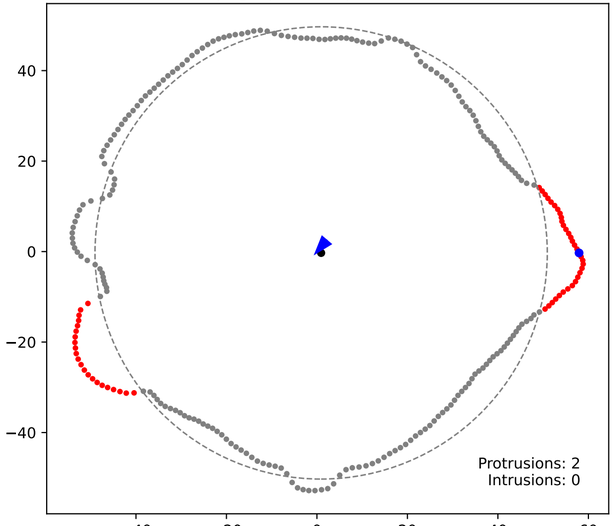

Shape evolution (t = 18.00)
Riemann Velocity: 0.1924
Max curvature: 0.0596

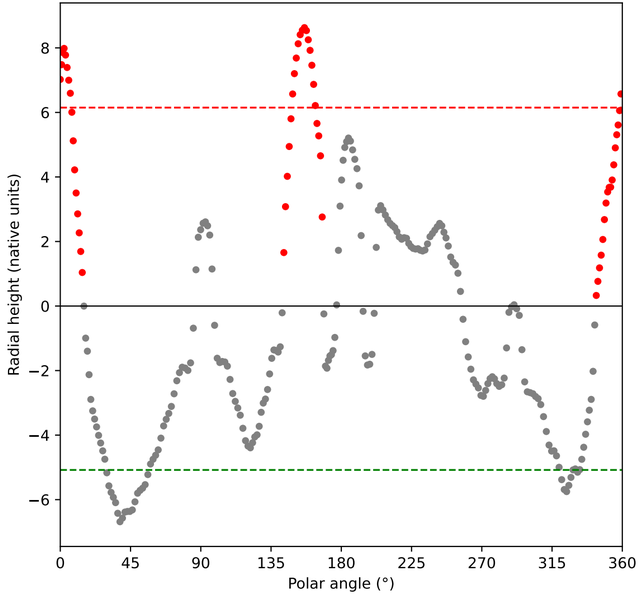

Topographical representation
Protrusions: 2
Intrusions: 0

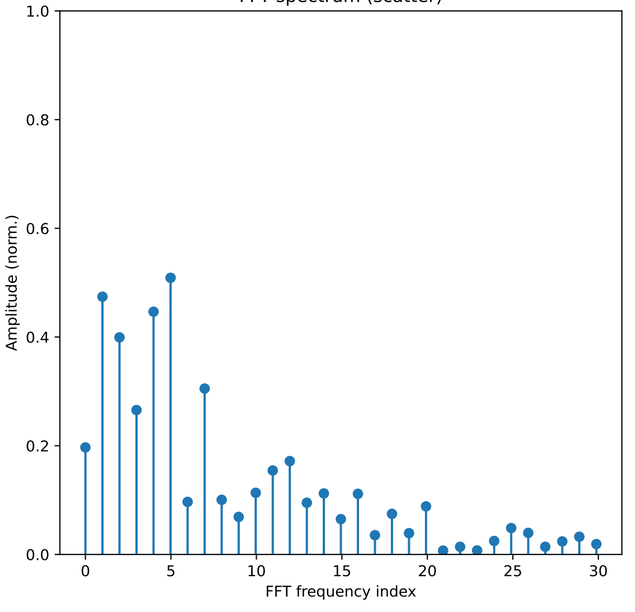

Topographical height
Radial height (native units)
Polar angle (°)

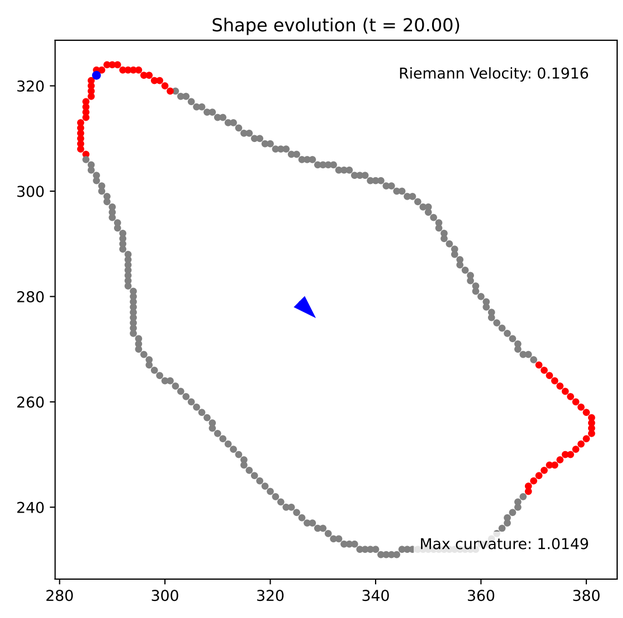

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

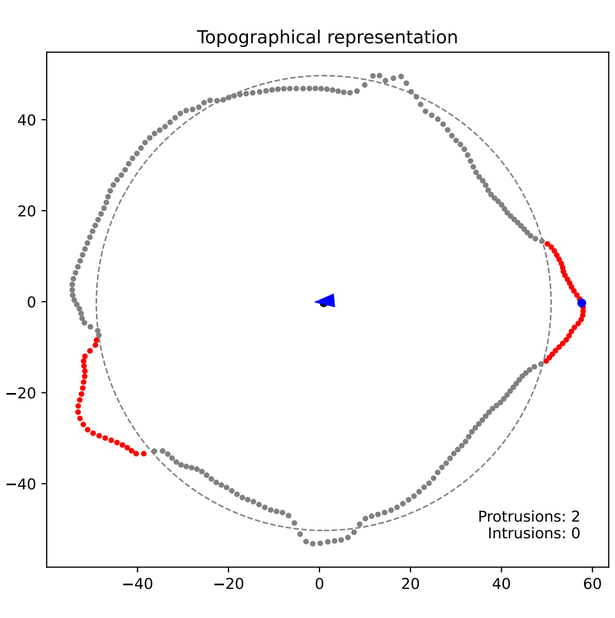

Shape evolution (t = 19.00)
Riemann Velocity: 0.1963
Max curvature: 0.0496

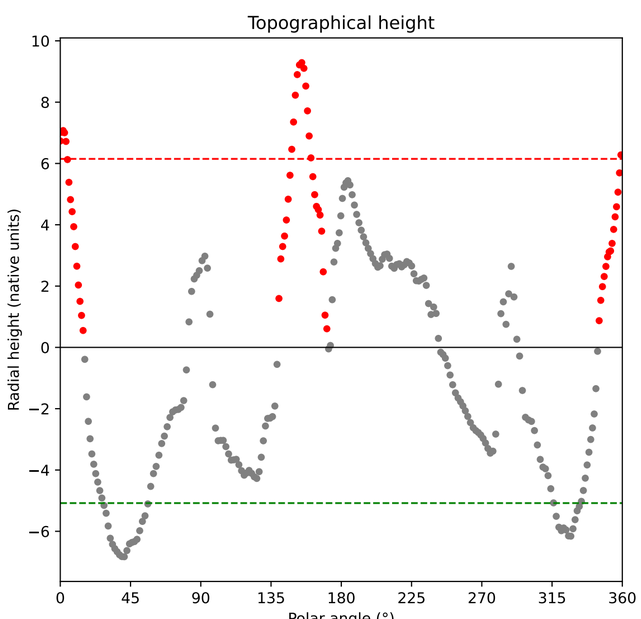

Topographical representation
Protrusions: 2
Intrusions: 0

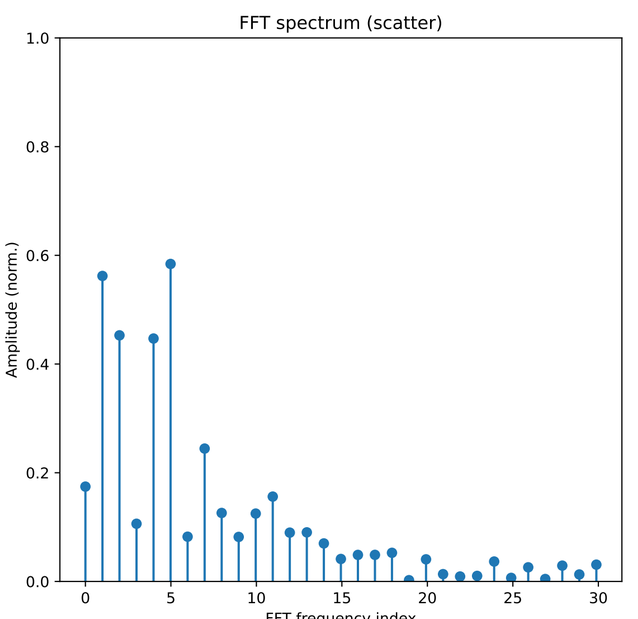

Topographical height
Radial height (native units)
Polar angle (°)

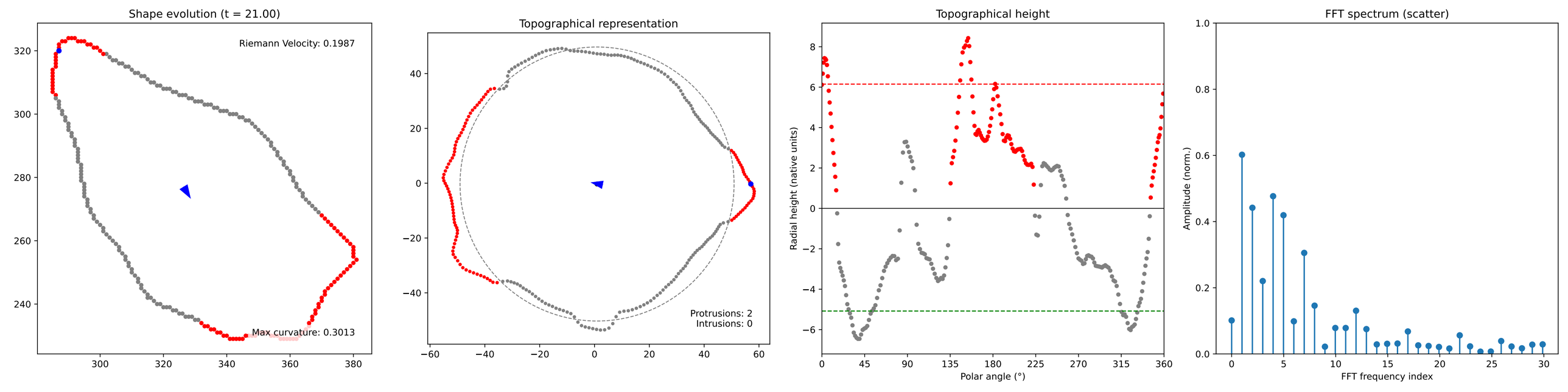

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

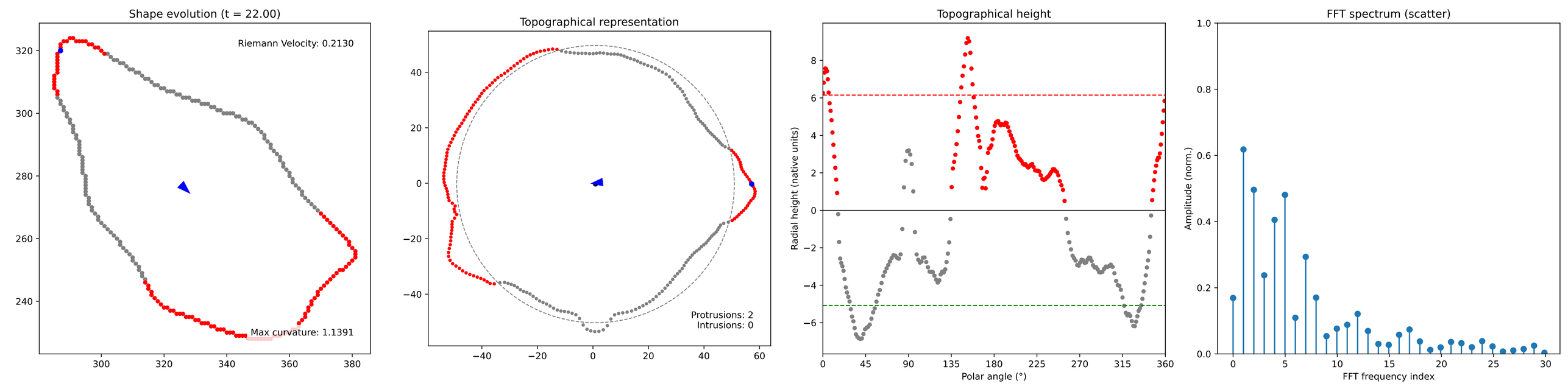

Shape evolution (t = 20.00)
Riemann Velocity: 0.1916
Max curvature: 1.0149

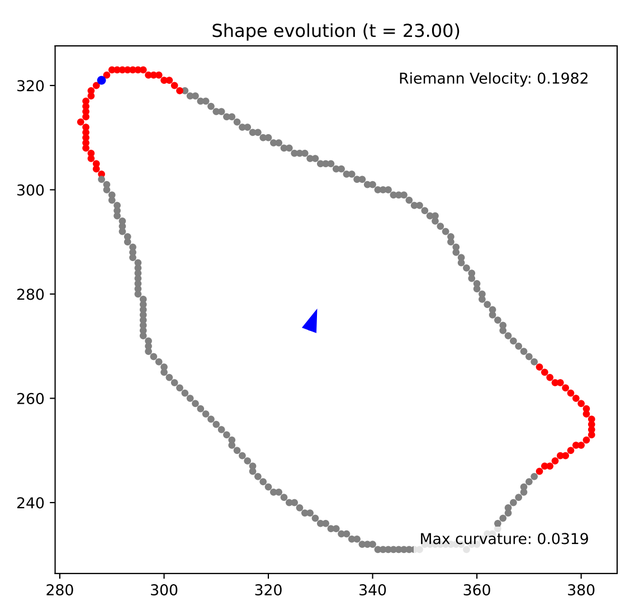

Topographical representation
Protrusions: 2
Intrusions: 0

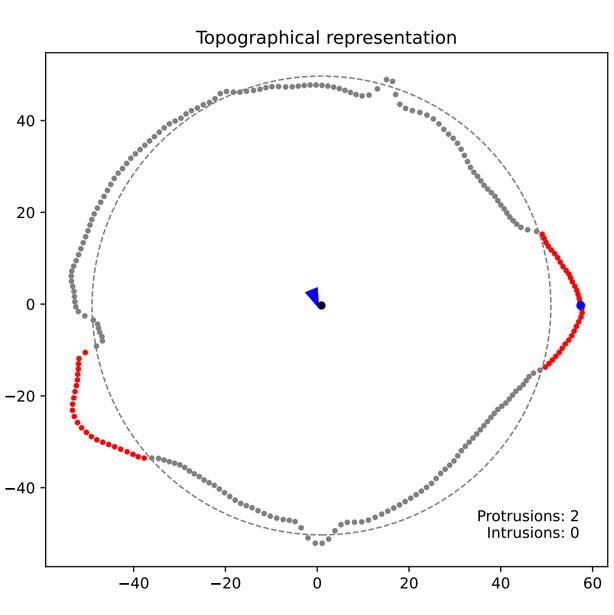

Topographical height
Radial height (native units)
Polar angle (°)

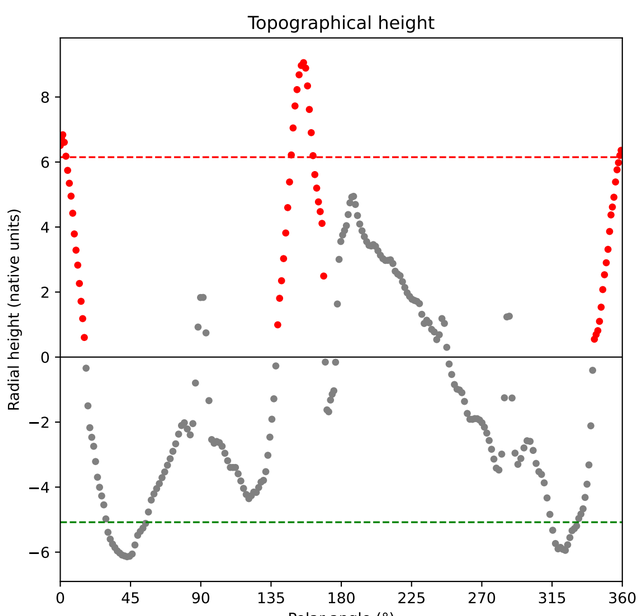

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

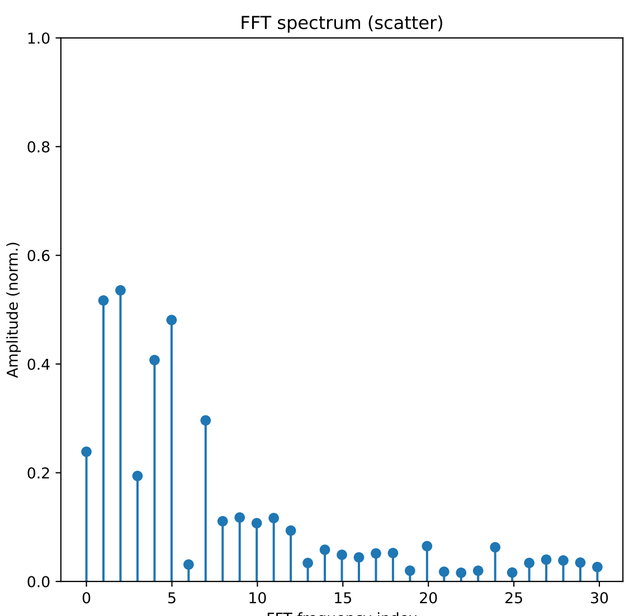

Shape evolution (t = 21.00)
Riemann Velocity: 0.1987
Max curvature: 0.3013
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

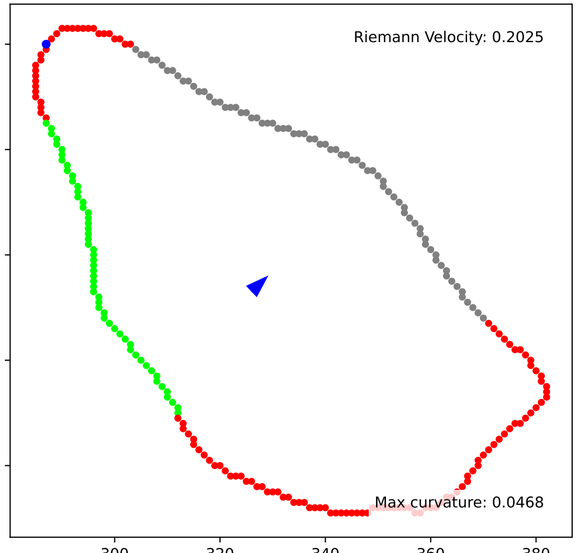

Shape evolution (t = 22.00)
Riemann Velocity: 0.2130
Max curvature: 1.1391
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

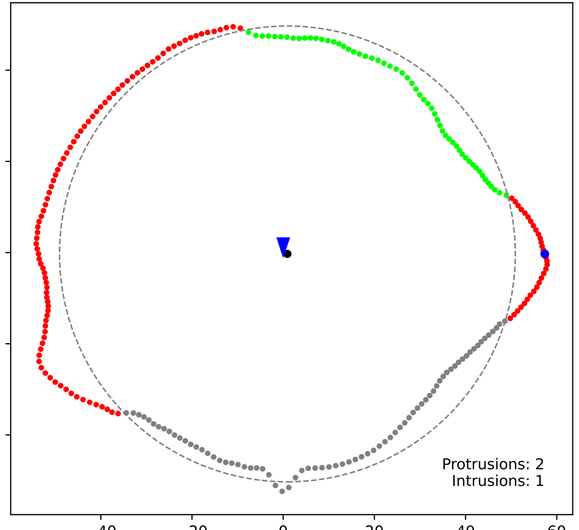

Shape evolution (t = 23.00)
Riemann Velocity: 0.1982
Max curvature: 0.0319

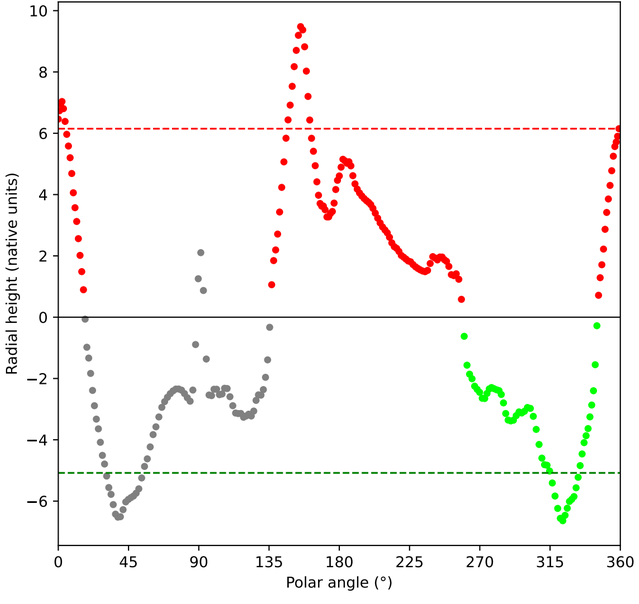

Topographical representation
Protrusions: 2
Intrusions: 0

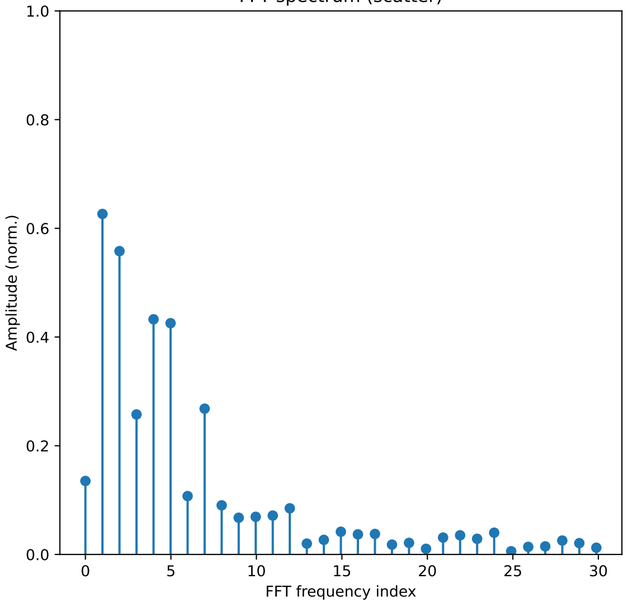

Topographical height
Radial height (native units)
Polar angle (°)

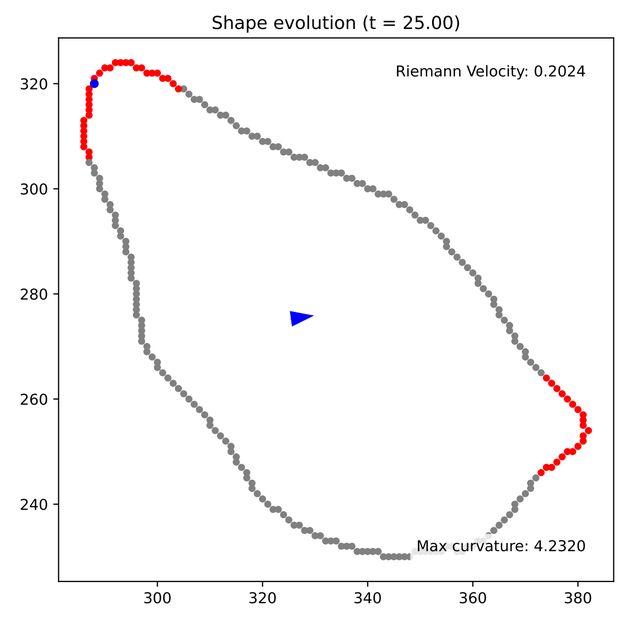

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

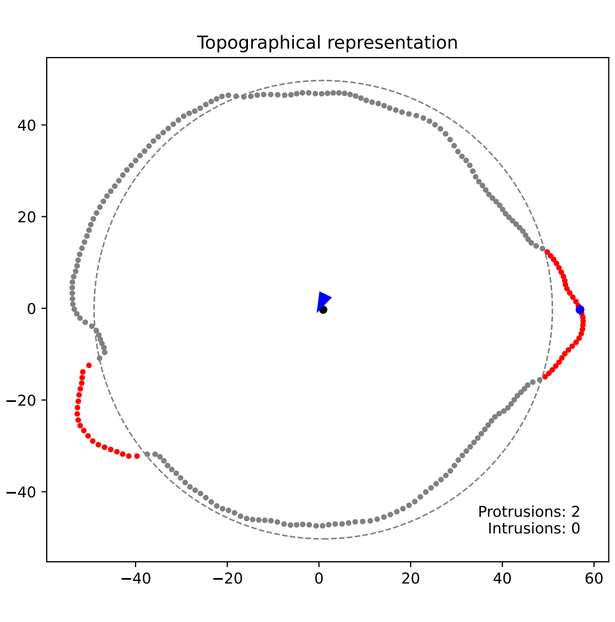

Shape evolution (t = 24.00)
Riemann Velocity: 0.2025
Max curvature: 0.0468
320
300
280
260
240
300
320
340
360
380

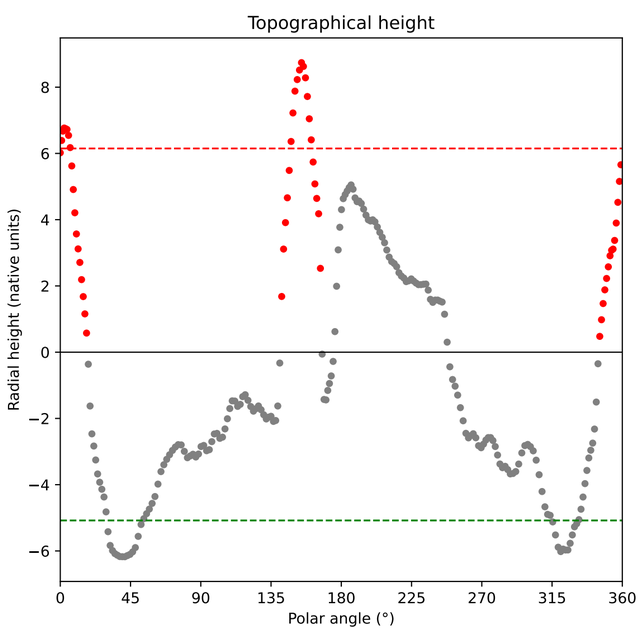

Topographical representation
Protrusions: 2
Intrusions: 1
40
20
0
−20
−40
−40
−20
0
20
40
60

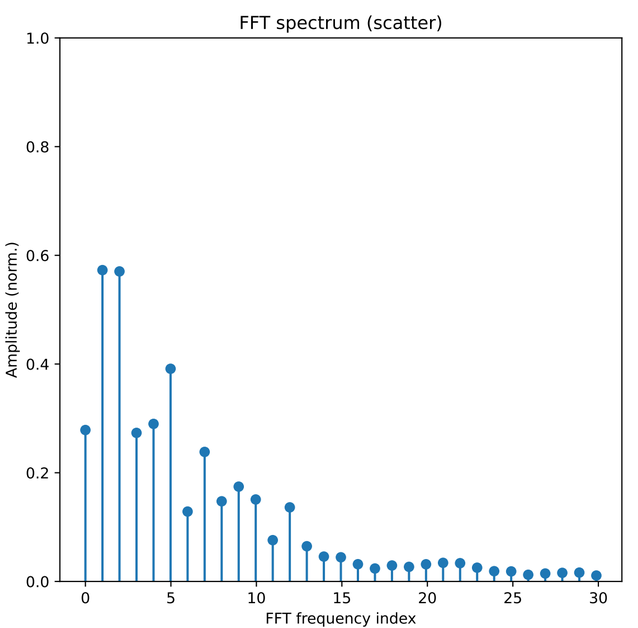

Topographical height
Radial height (native units)
Polar angle (°)
10
8
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

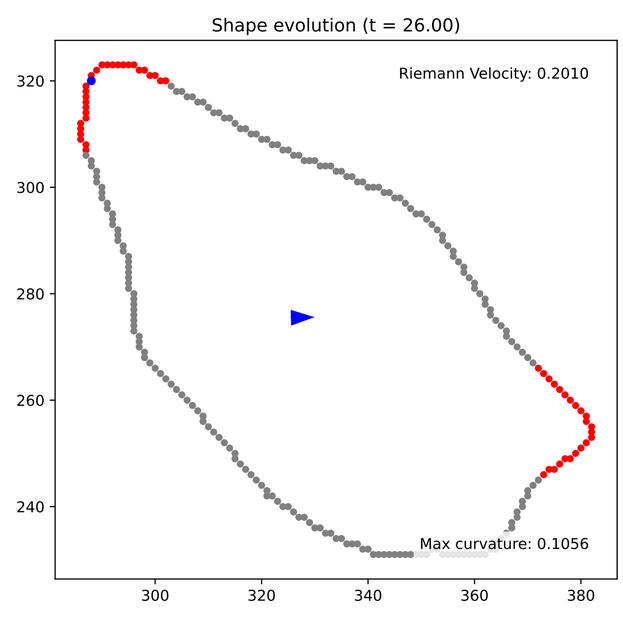

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

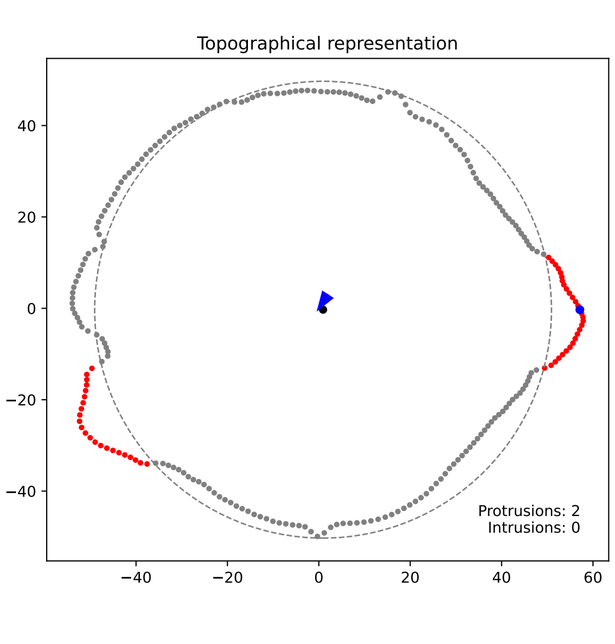

Shape evolution (t = 25.00)
Riemann Velocity: 0.2024
Max curvature: 4.2320

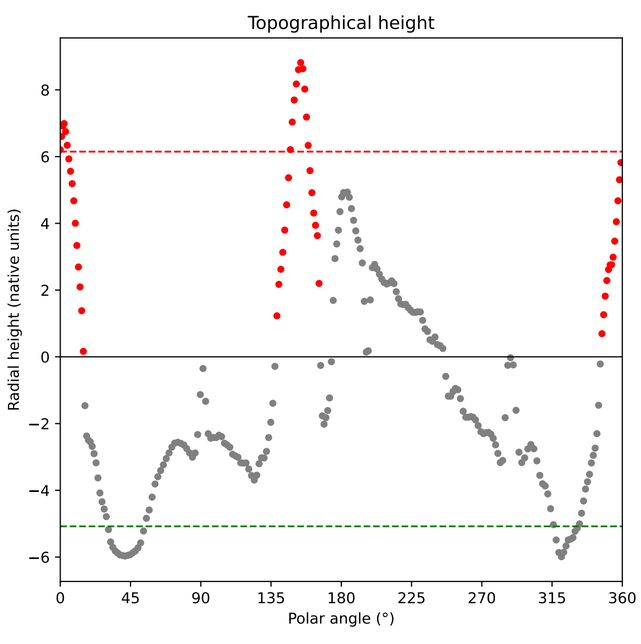

Topographical representation
Protrusions: 2
Intrusions: 0

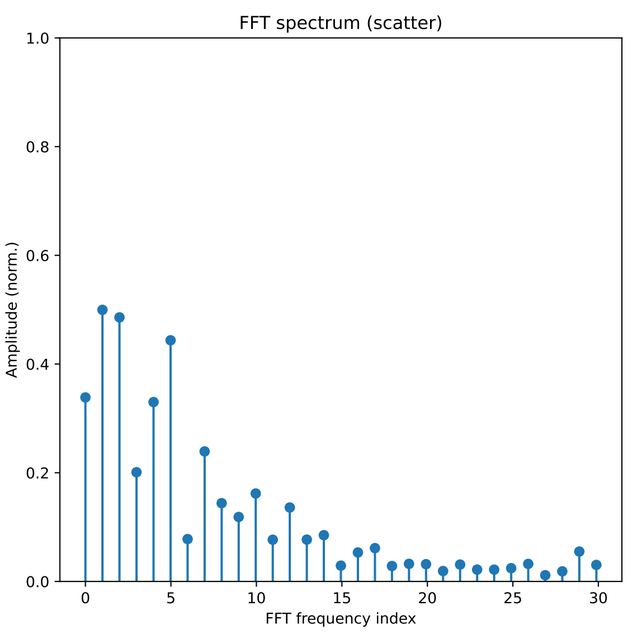

Topographical height
Radial height (native units)
Polar angle (°)

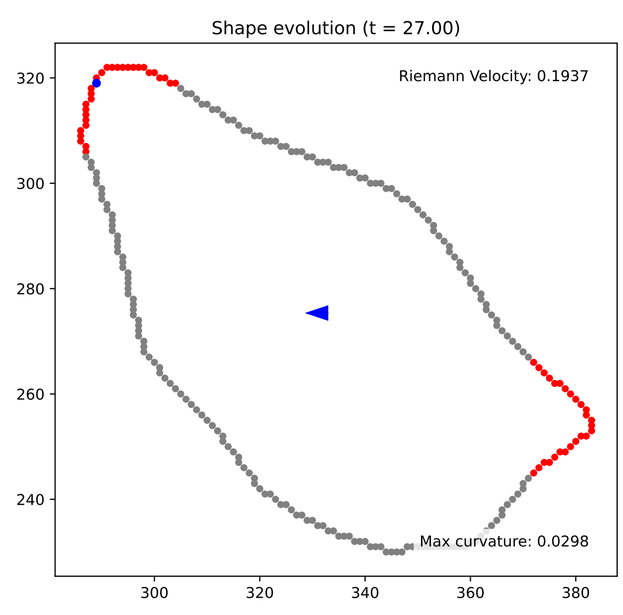

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

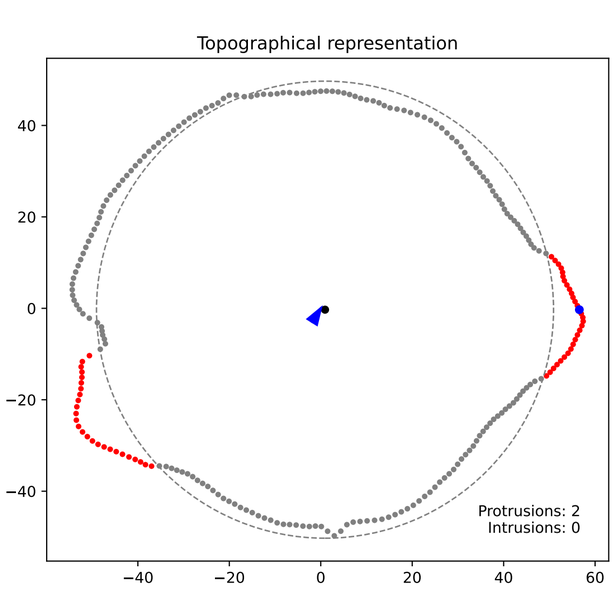

Shape evolution (t = 26.00)
Riemann Velocity: 0.2010
Max curvature: 0.1056

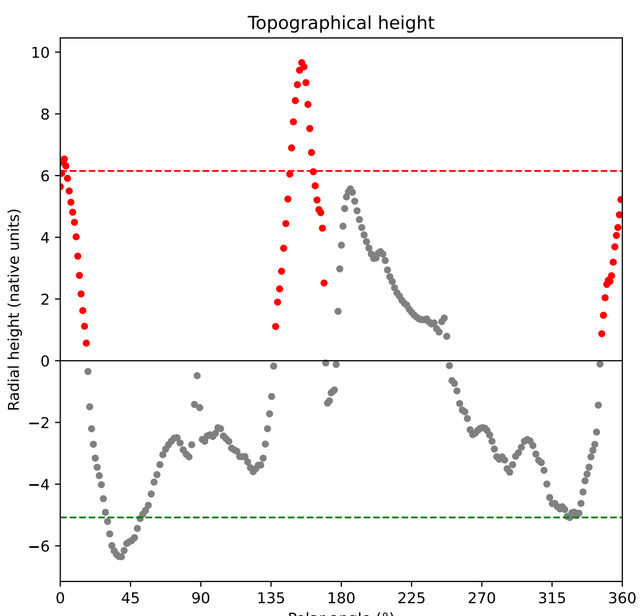

Topographical representation
Protrusions: 2
Intrusions: 0

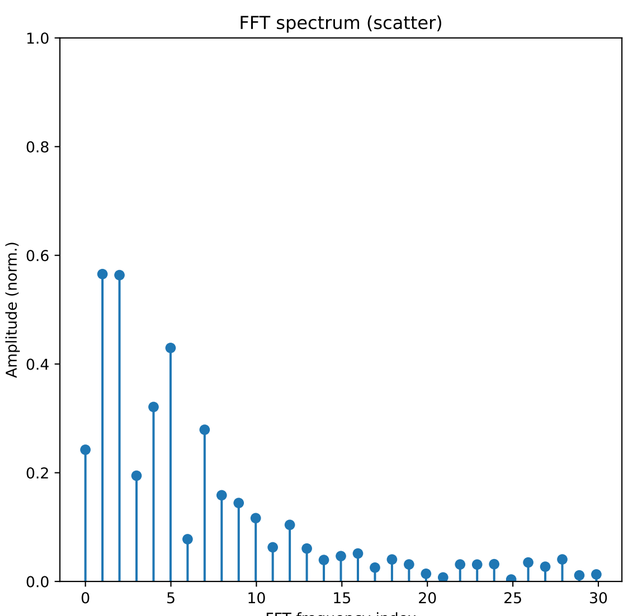

Topographical height
Radial height (native units)
Polar angle (°)

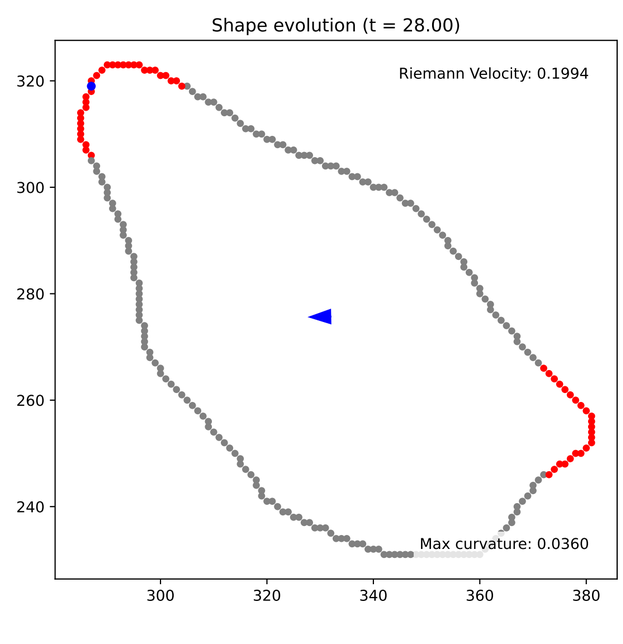

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

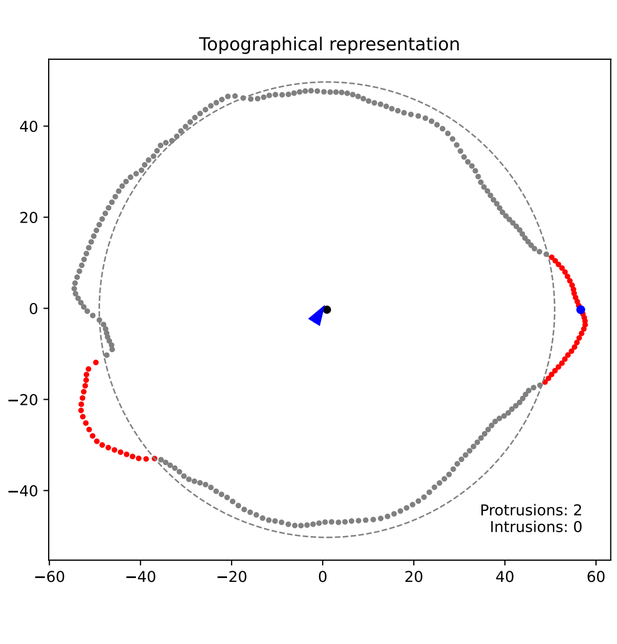

Shape evolution (t = 27.00)
Riemann Velocity: 0.1937
Max curvature: 0.0298

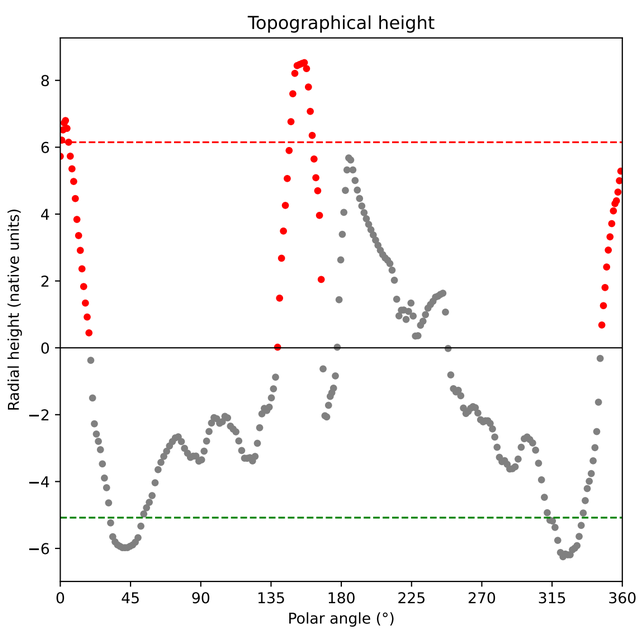

Topographical representation
Protrusions: 2
Intrusions: 0

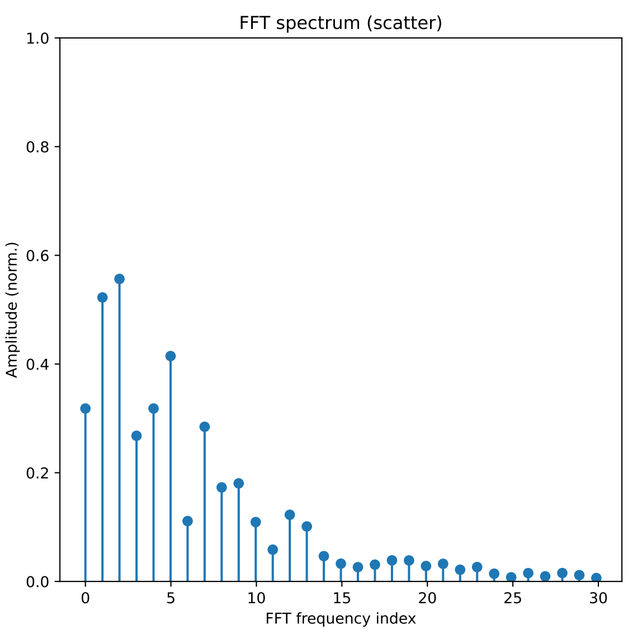

Topographical height
Radial height (native units)
Polar angle (°)

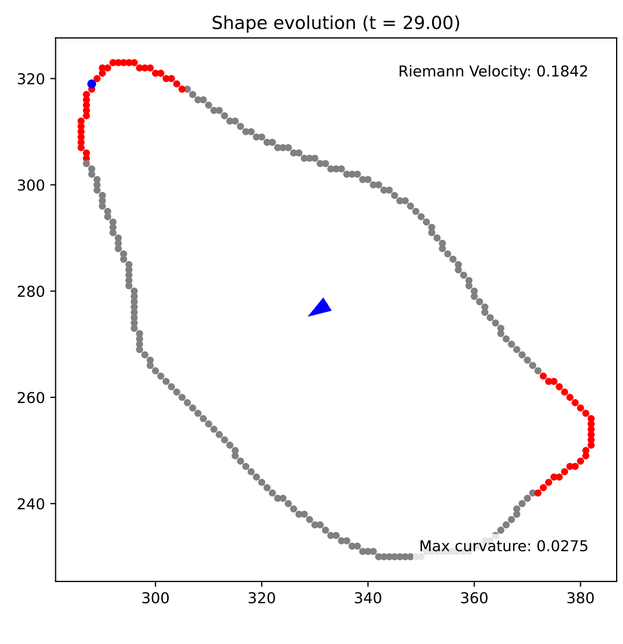

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

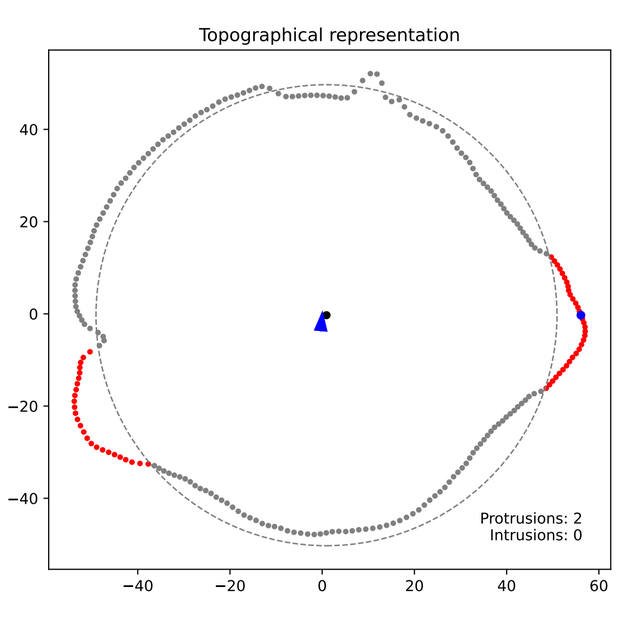

Shape evolution (t = 28.00)
Riemann Velocity: 0.1994
Max curvature: 0.0360

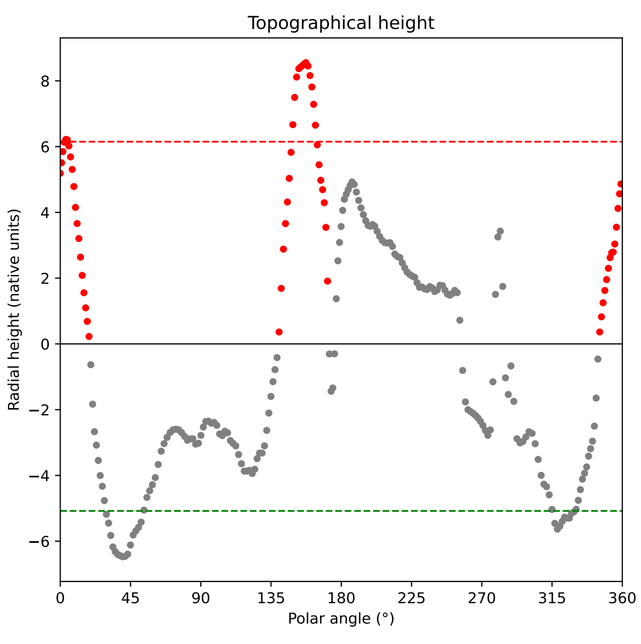

Topographical representation
Protrusions: 2
Intrusions: 0

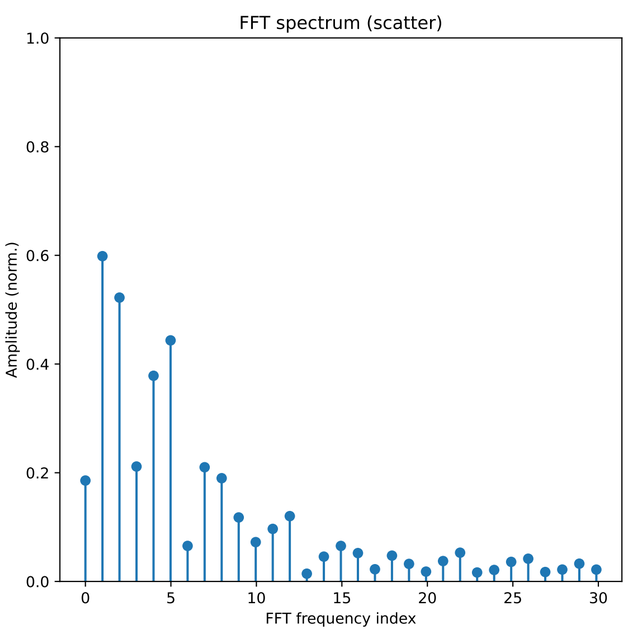

Topographical height
Radial height (native units)
Polar angle (°)

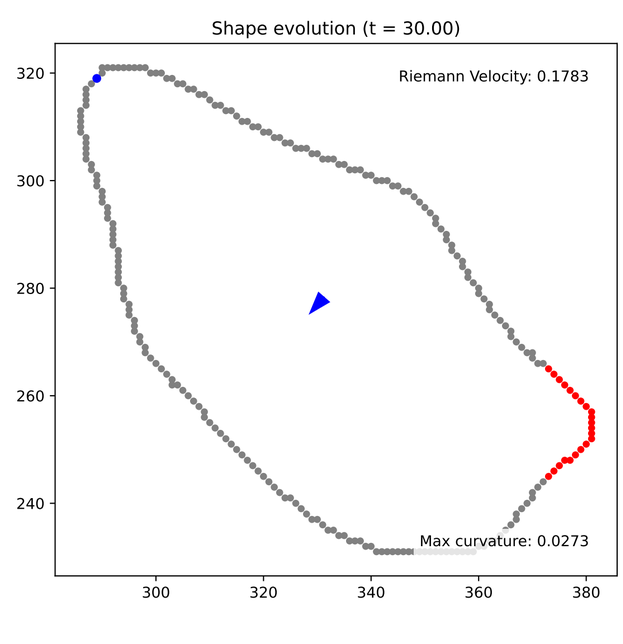

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

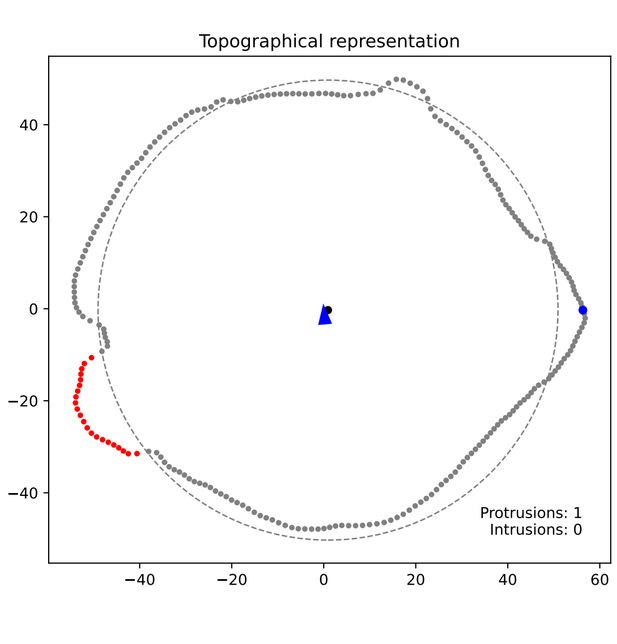

Shape evolution (t = 29.00)
Riemann Velocity: 0.1842
Max curvature: 0.0275

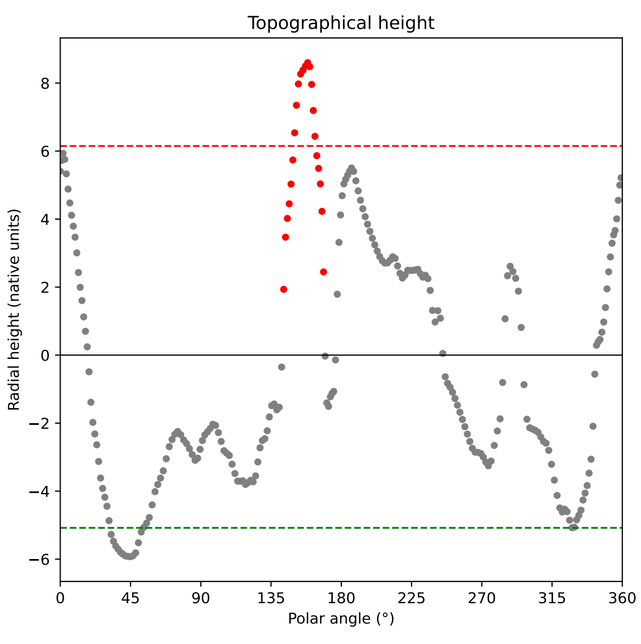

Topographical representation
Protrusions: 2
Intrusions: 0

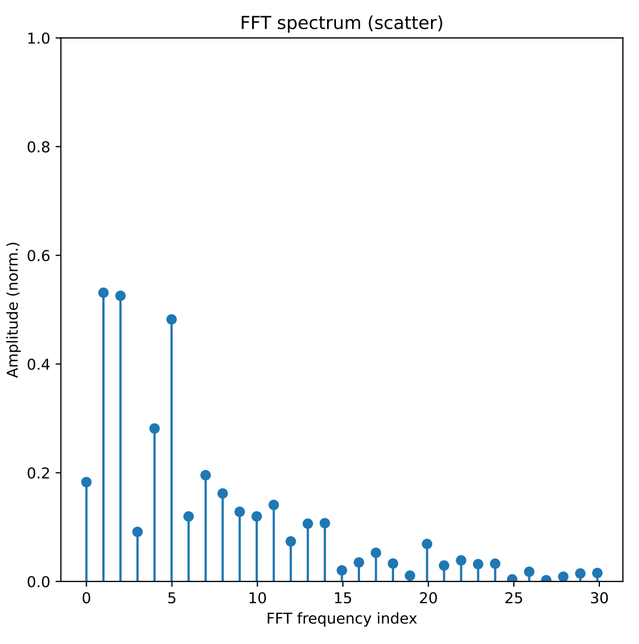

Topographical height
Radial height (native units)
Polar angle (°)

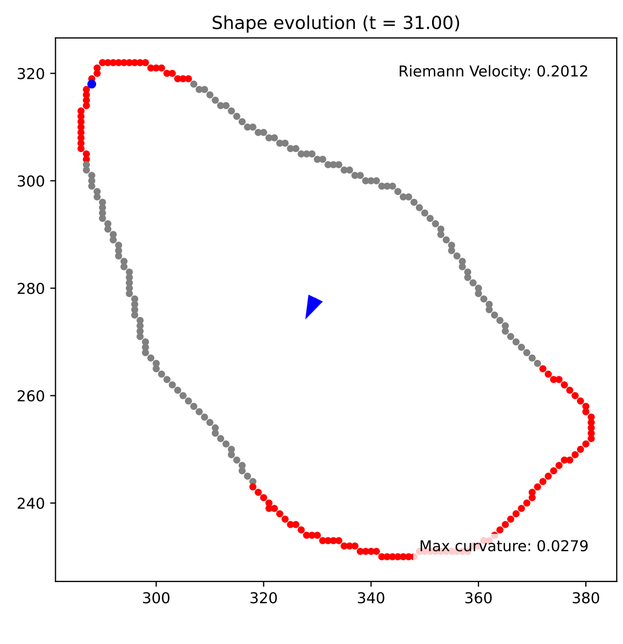

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

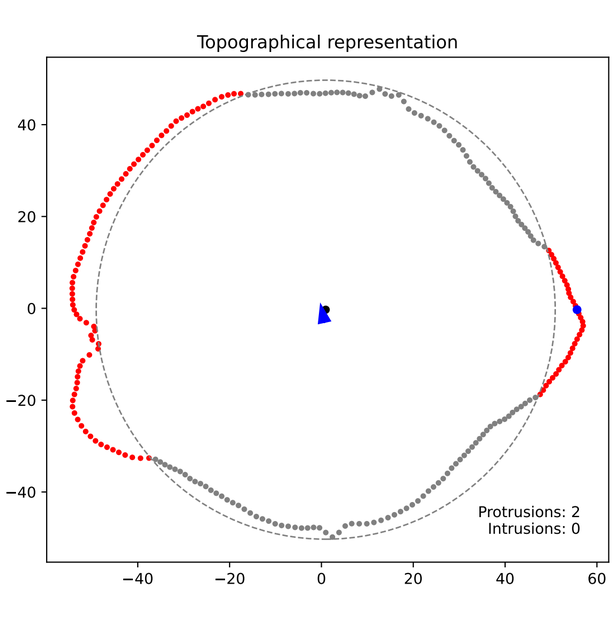

Shape evolution (t = 30.00)
Riemann Velocity: 0.1783
Max curvature: 0.0273
320
300
280
260
240
300
320
340
360
380

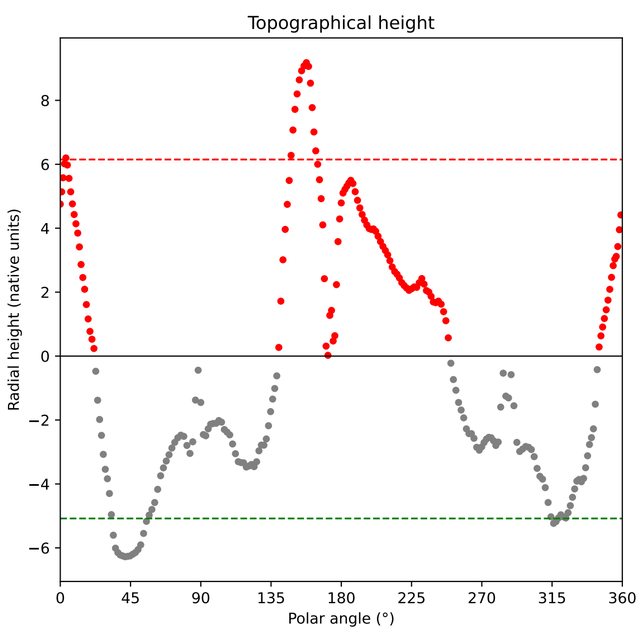

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

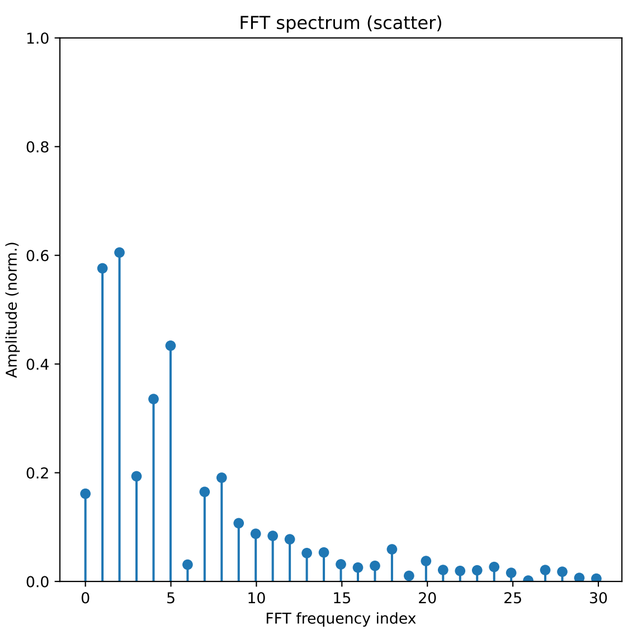

Topographical height
Radial height (native units)
Polar angle (°)
8
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

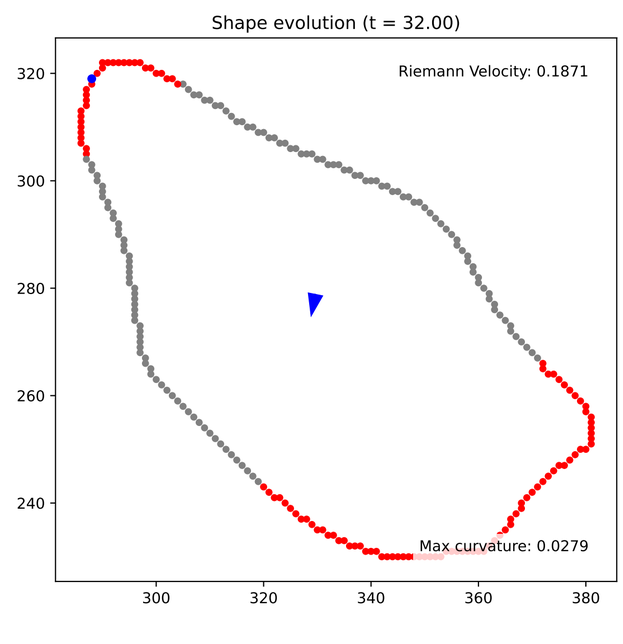

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

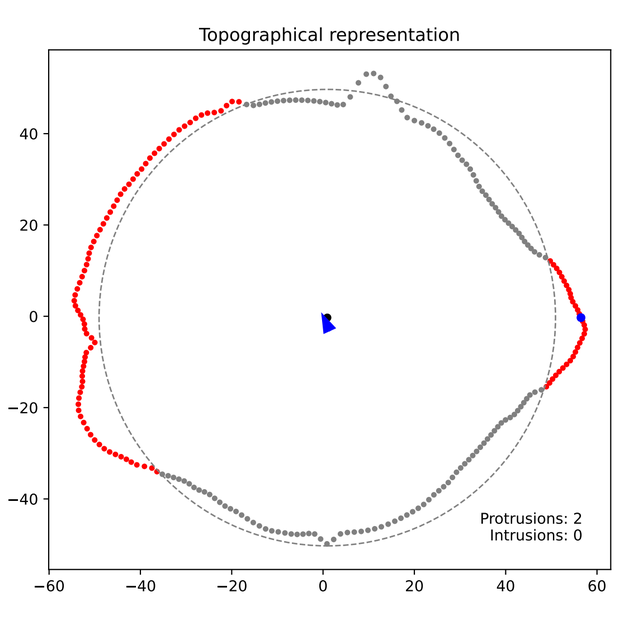

Shape evolution (t = 31.00)
Riemann Velocity: 0.2012
Max curvature: 0.0279

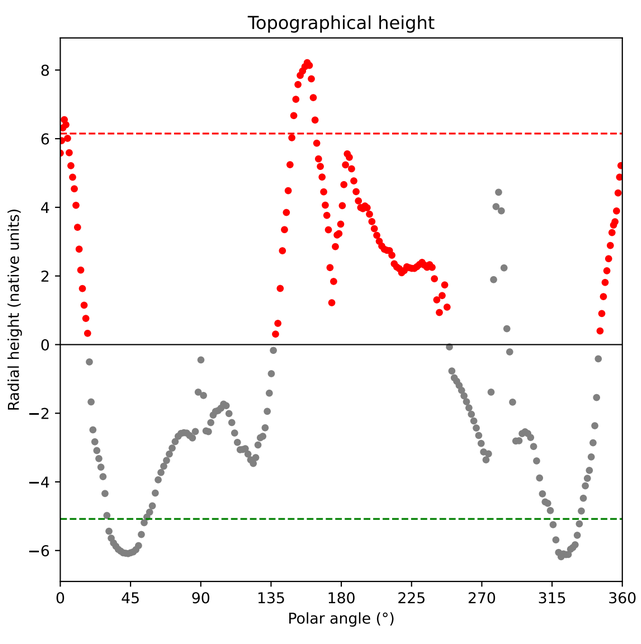

Topographical representation
Protrusions: 2
Intrusions: 0

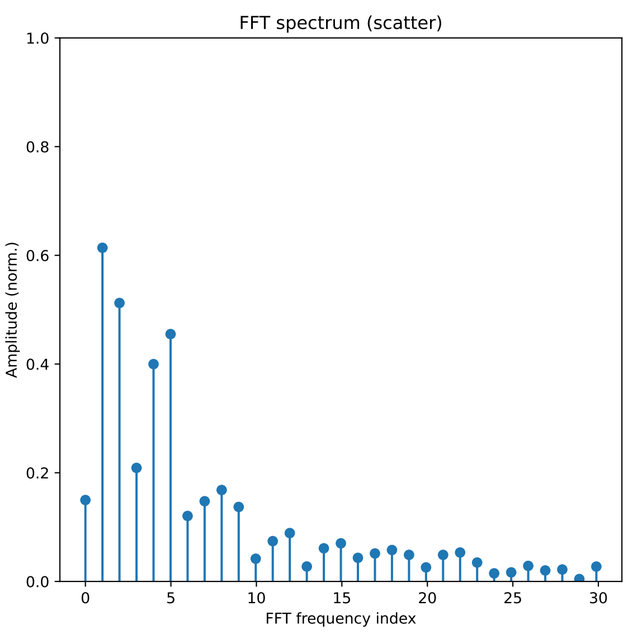

Topographical height
Radial height (native units)
Polar angle (°)

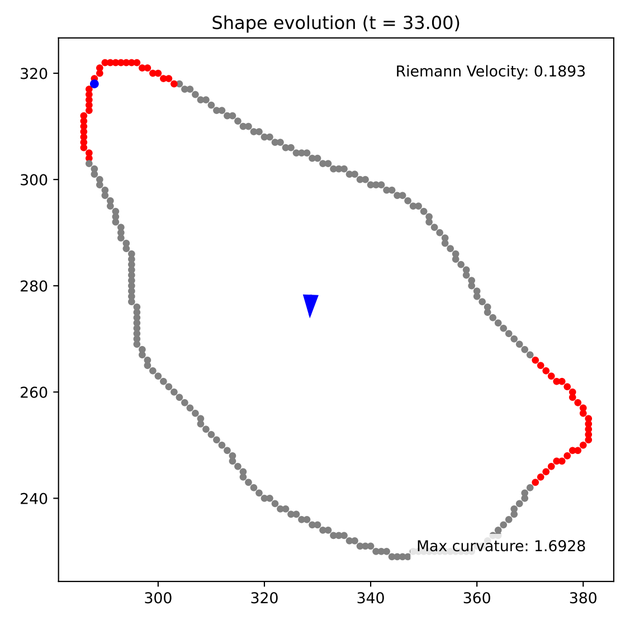

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

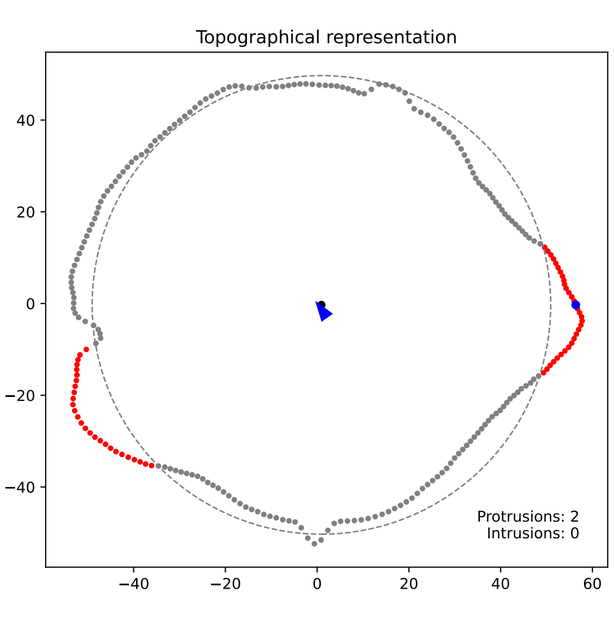

Shape evolution (t = 32.00)
Riemann Velocity: 0.1871
Max curvature: 0.0279

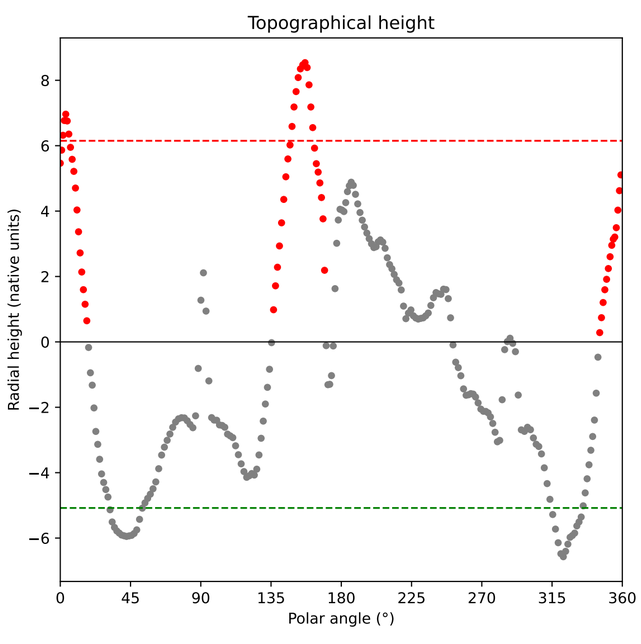

Topographical representation
Protrusions: 2
Intrusions: 0

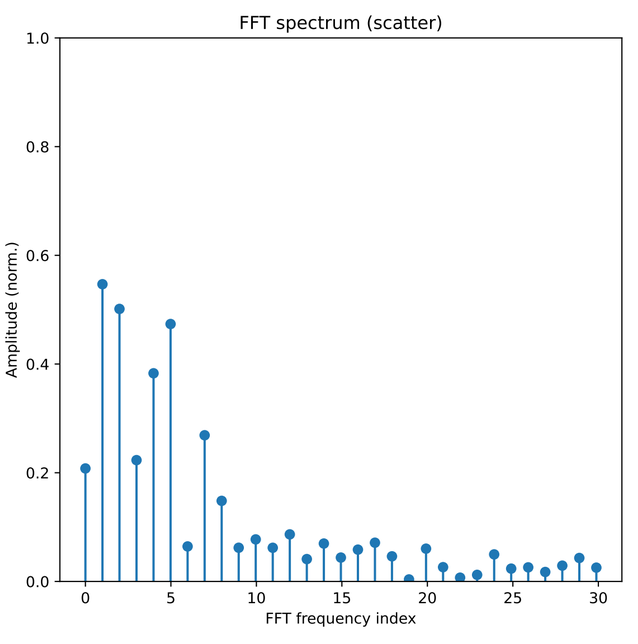

Topographical height
Radial height (native units)
Polar angle (°)

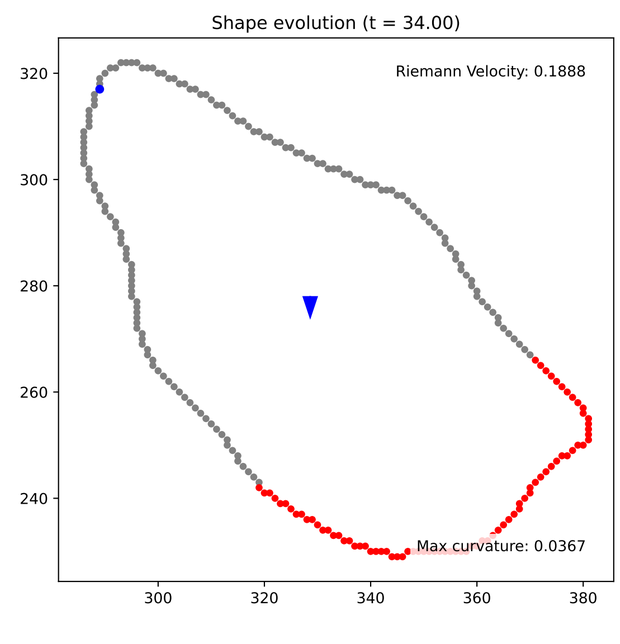

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

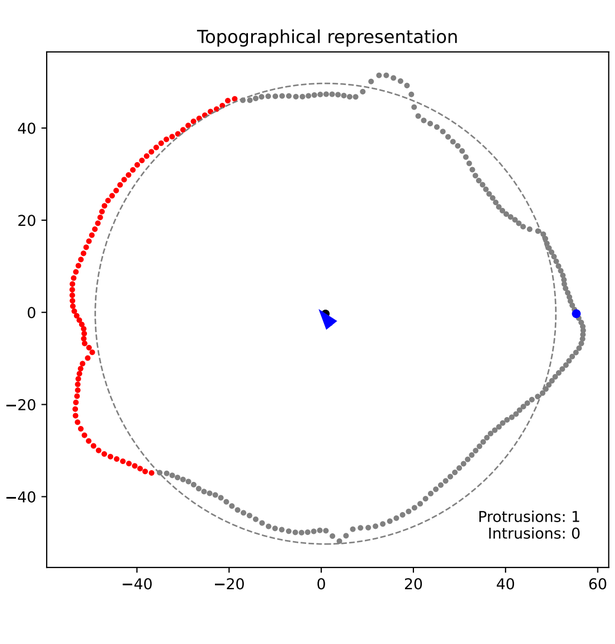

Shape evolution (t = 33.00)
Riemann Velocity: 0.1893
Max curvature: 1.6928

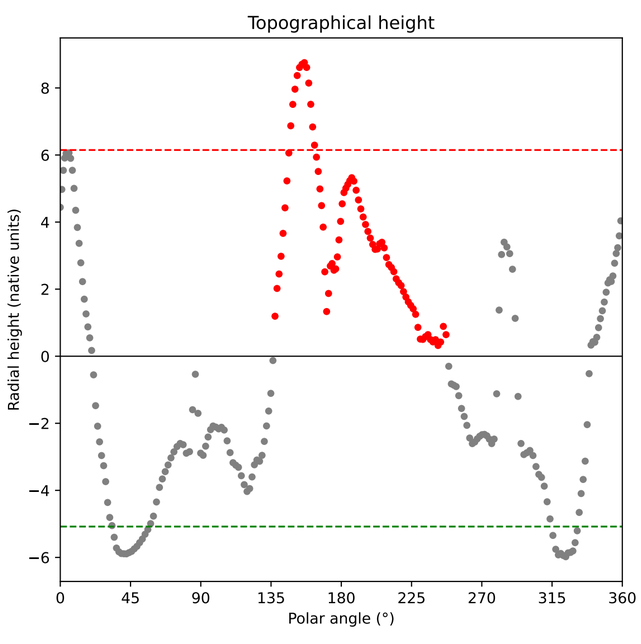

Topographical representation
Protrusions: 2
Intrusions: 0

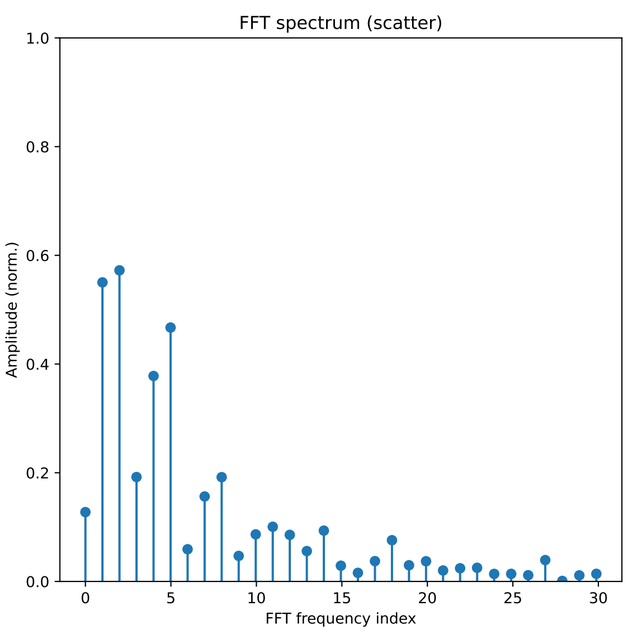

Topographical height
Radial height (native units)
Polar angle (°)

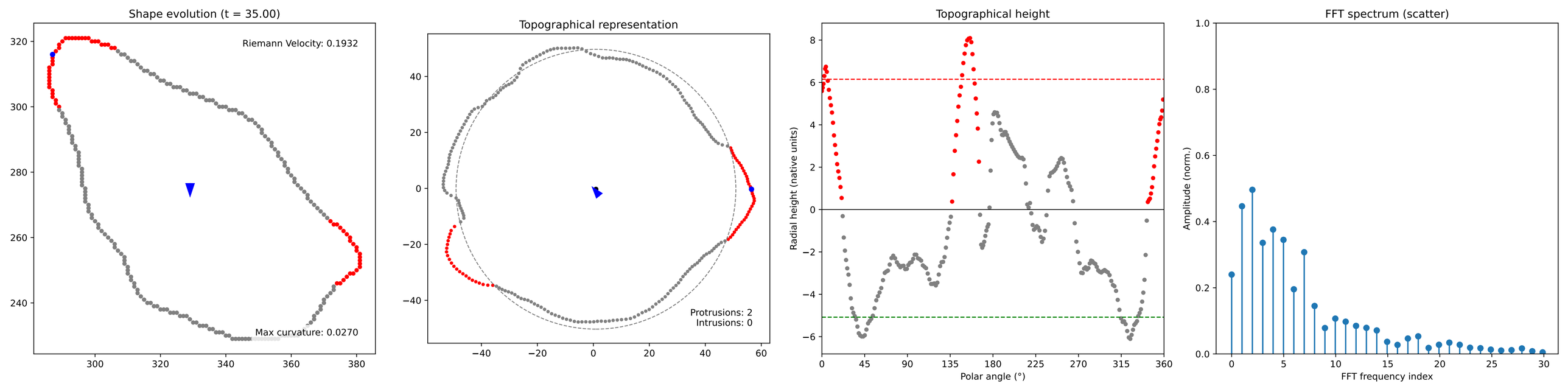

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

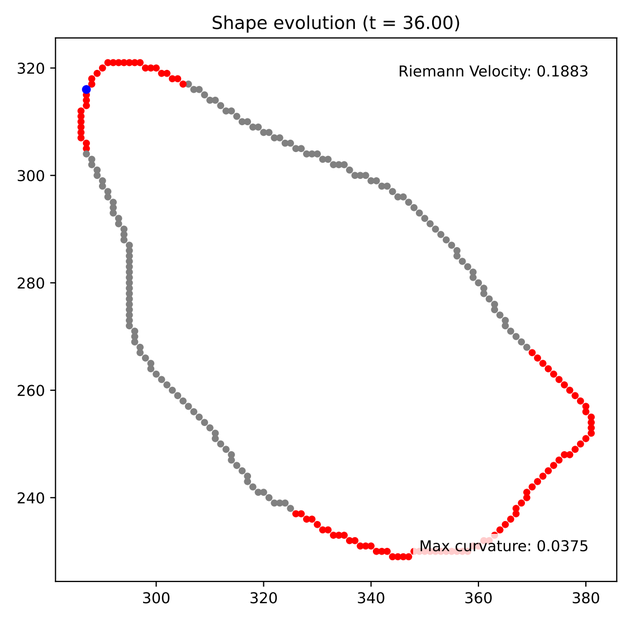

Shape evolution (t = 34.00)
Riemann Velocity: 0.1888
Max curvature: 0.0367

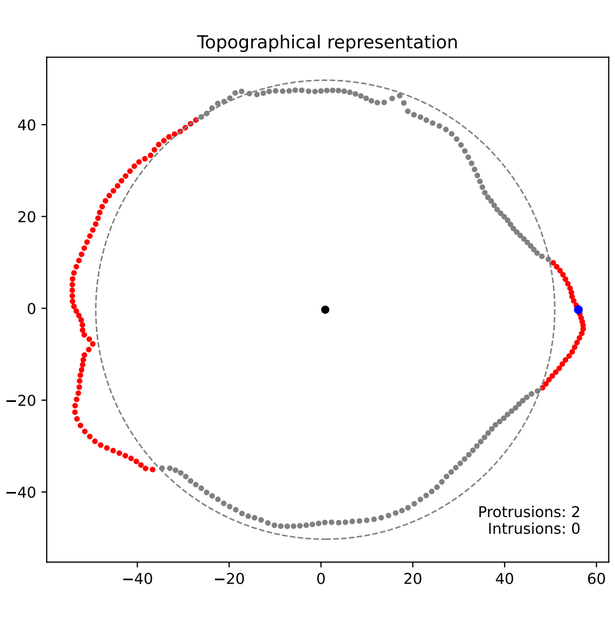

Topographical representation
Protrusions: 1
Intrusions: 0

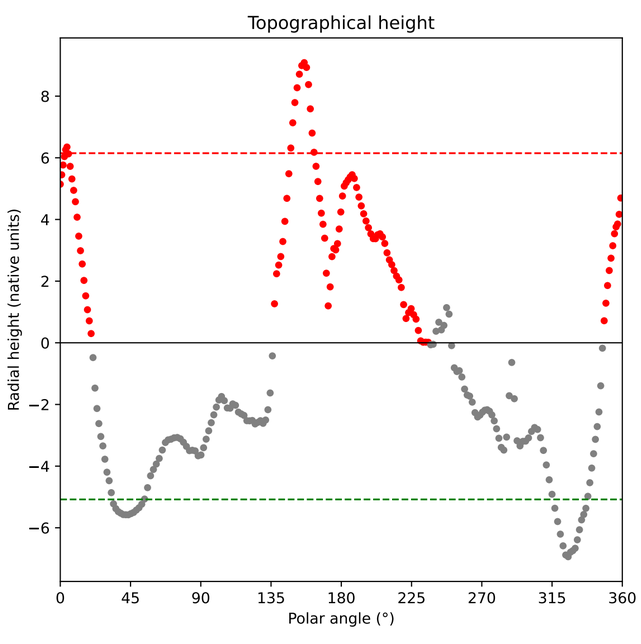

Topographical height
Radial height (native units)
Polar angle (°)

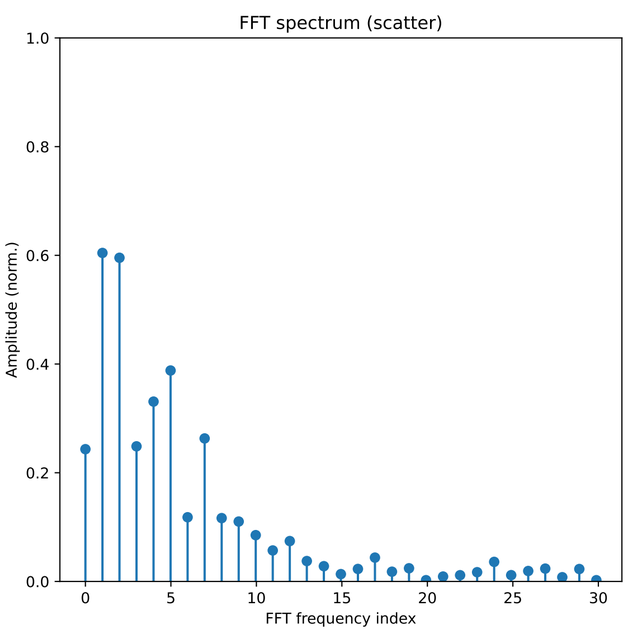

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

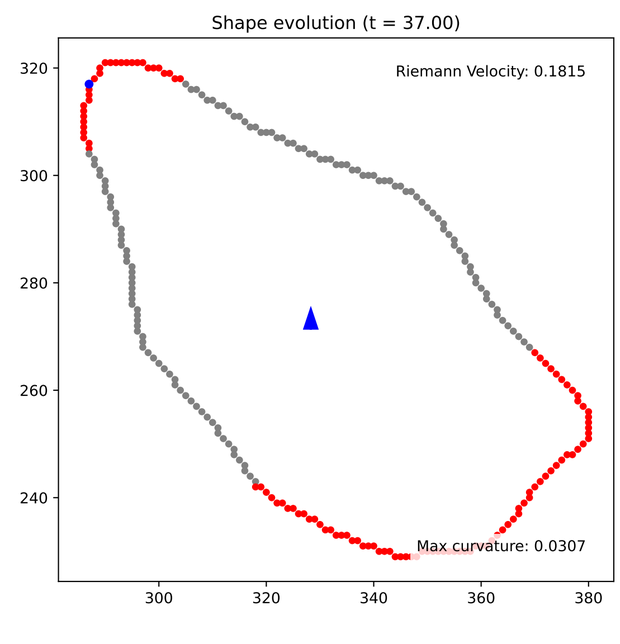

Shape evolution (t = 35.00)
Riemann Velocity: 0.1932
Max curvature: 0.0270
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

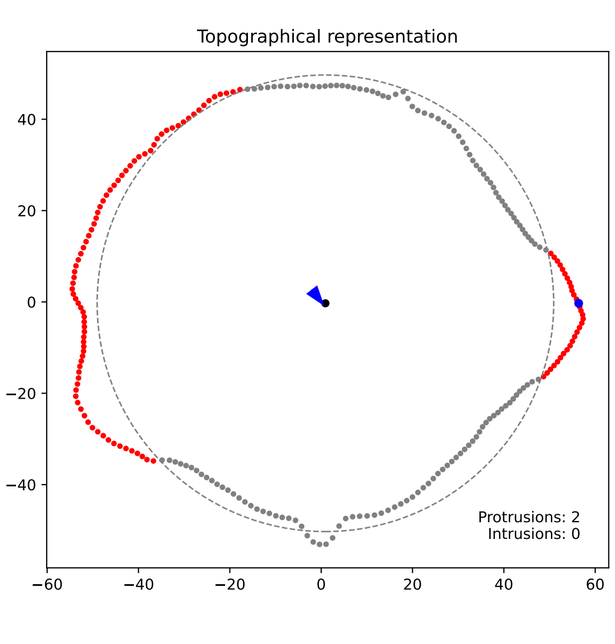

Shape evolution (t = 36.00)
Riemann Velocity: 0.1883
Max curvature: 0.0375

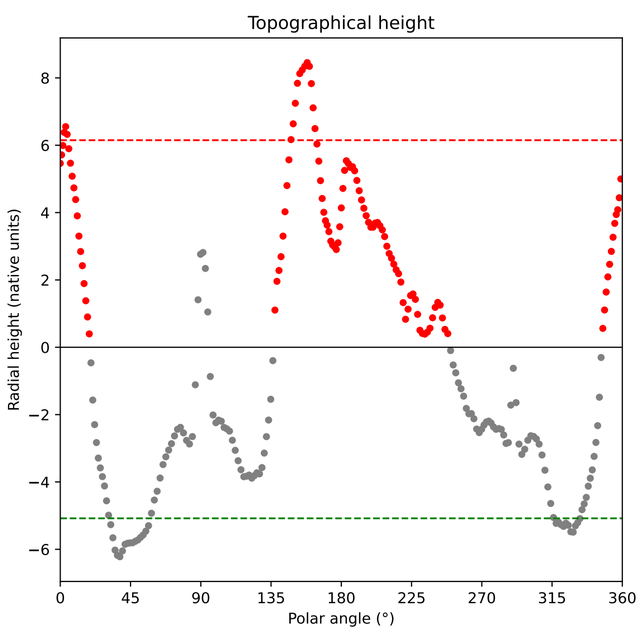

Topographical representation
Protrusions: 2
Intrusions: 0

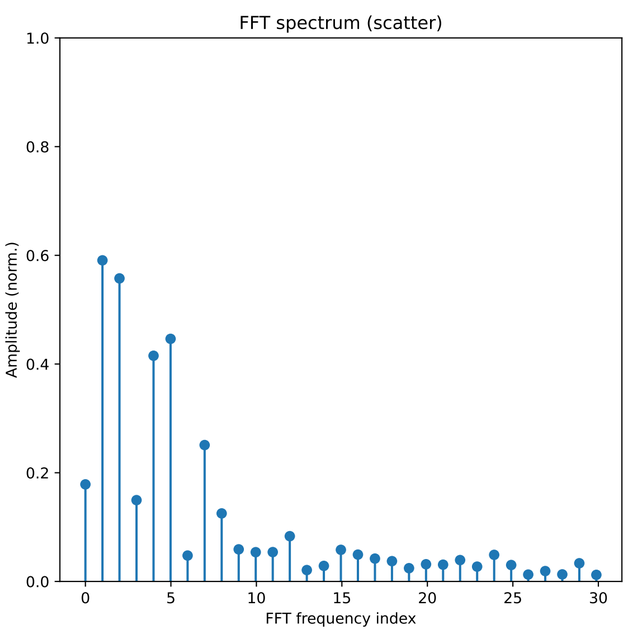

Topographical height
Radial height (native units)
Polar angle (°)

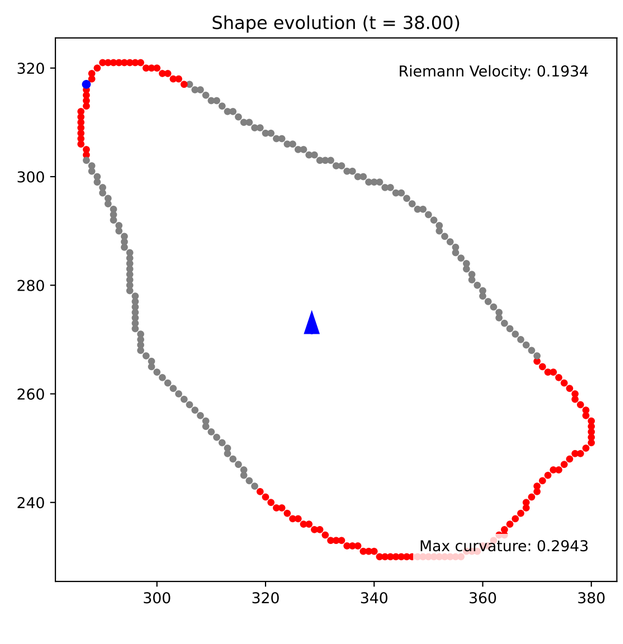

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

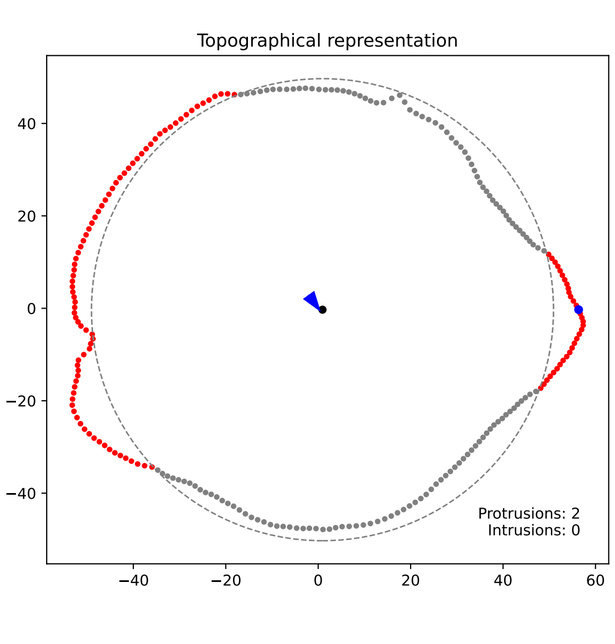

Shape evolution (t = 37.00)
Riemann Velocity: 0.1815
Max curvature: 0.0307

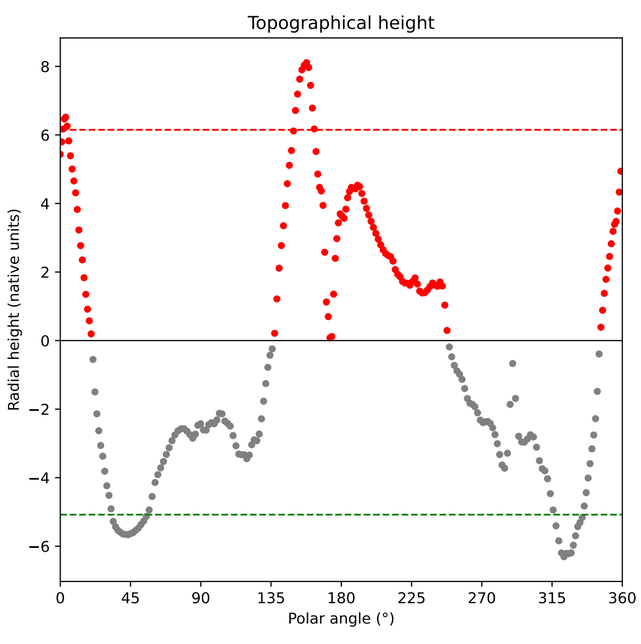

Topographical representation
Protrusions: 2
Intrusions: 0

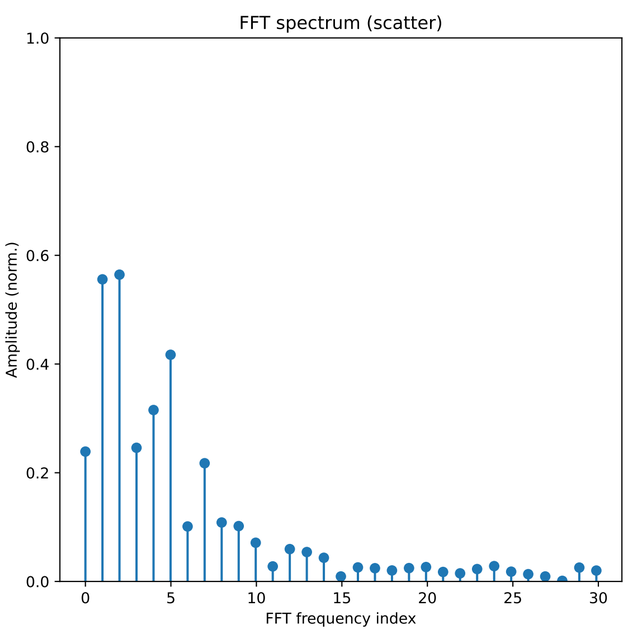

Topographical height
Radial height (native units)
Polar angle (°)

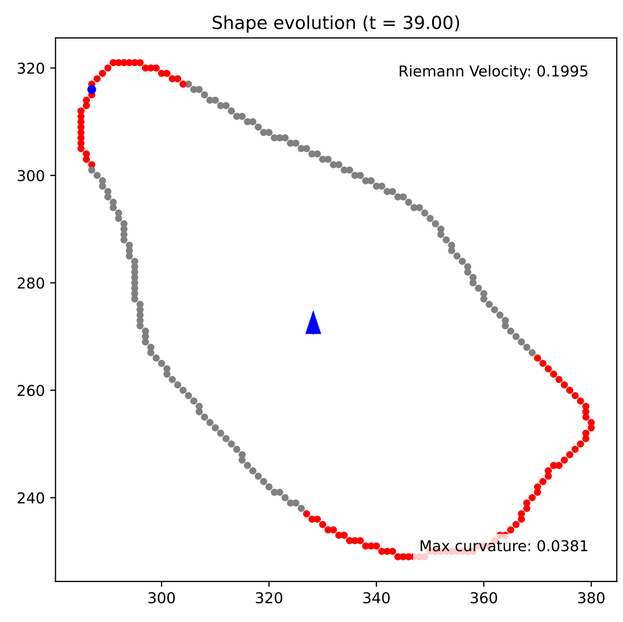

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

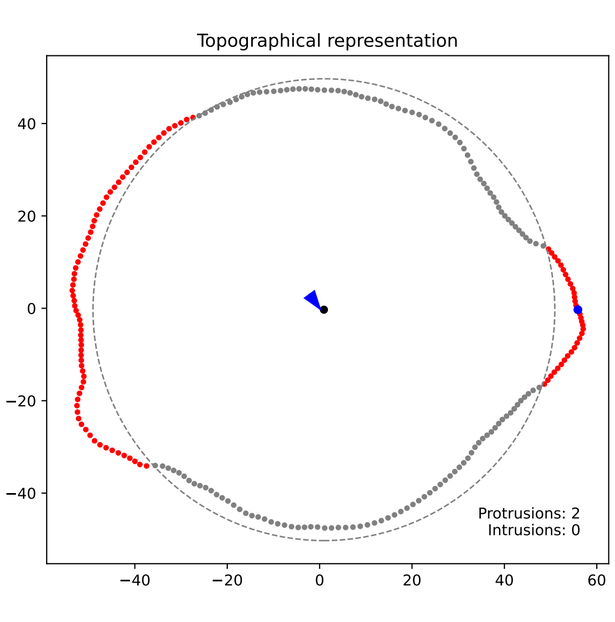

Shape evolution (t = 38.00)
Riemann Velocity: 0.1934
Max curvature: 0.2943

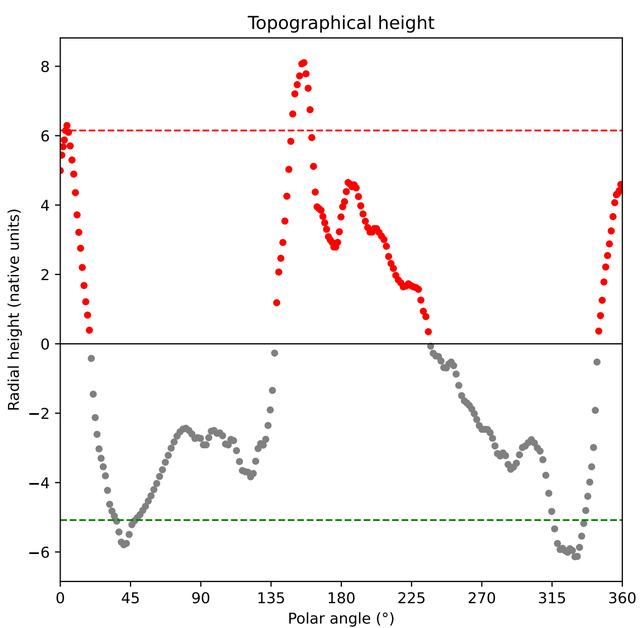

Topographical representation
Protrusions: 2
Intrusions: 0

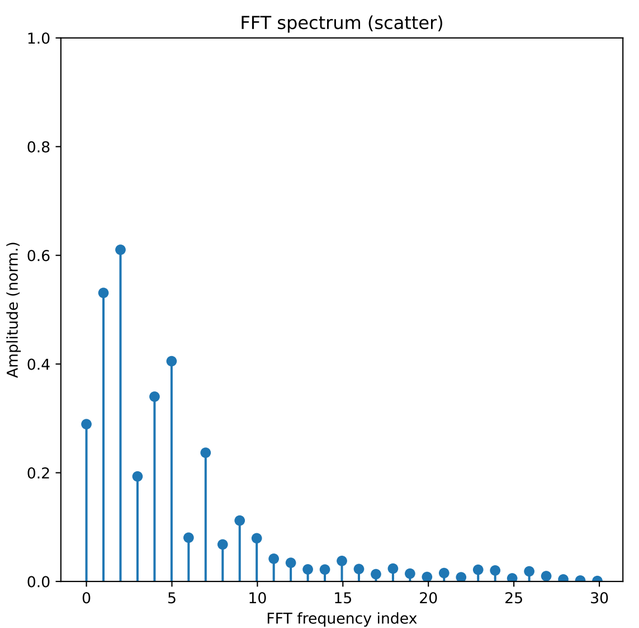

Topographical height
Radial height (native units)
Polar angle (°)

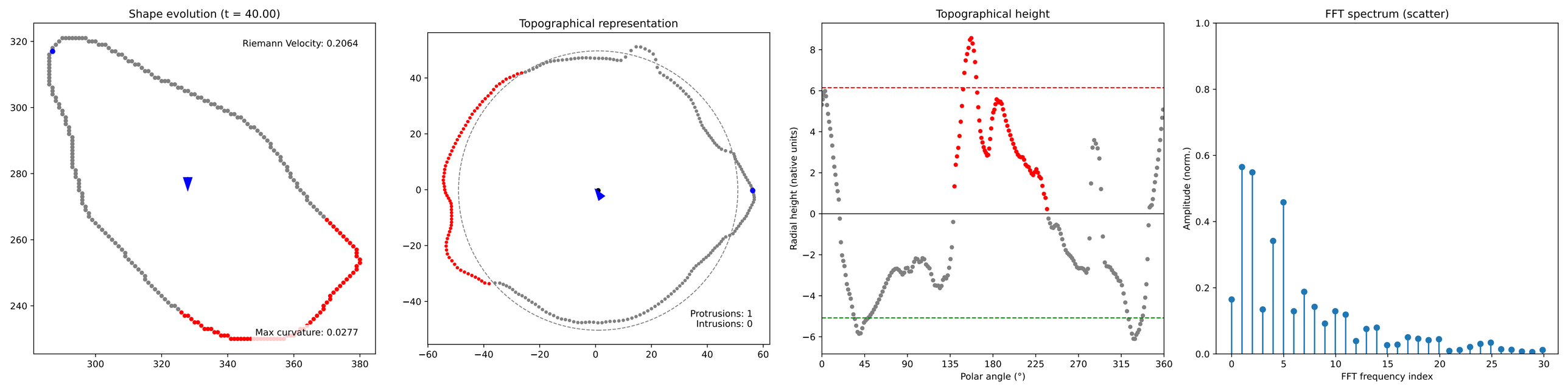

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

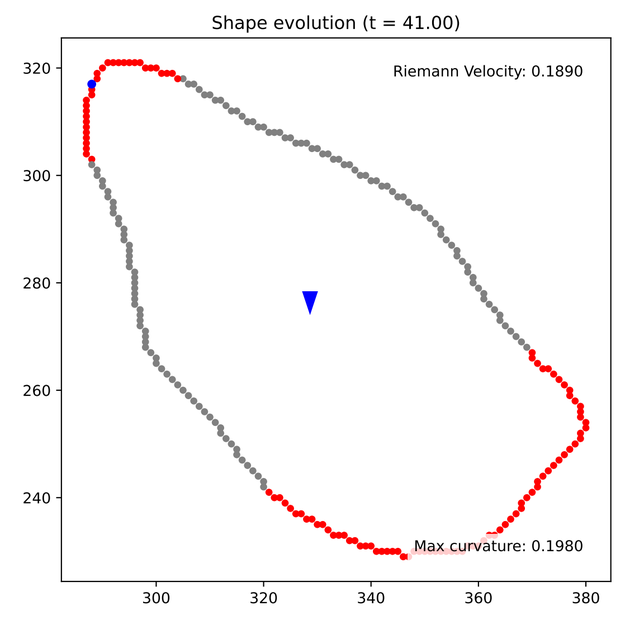

Shape evolution (t = 39.00)
Riemann Velocity: 0.1995
Max curvature: 0.0381

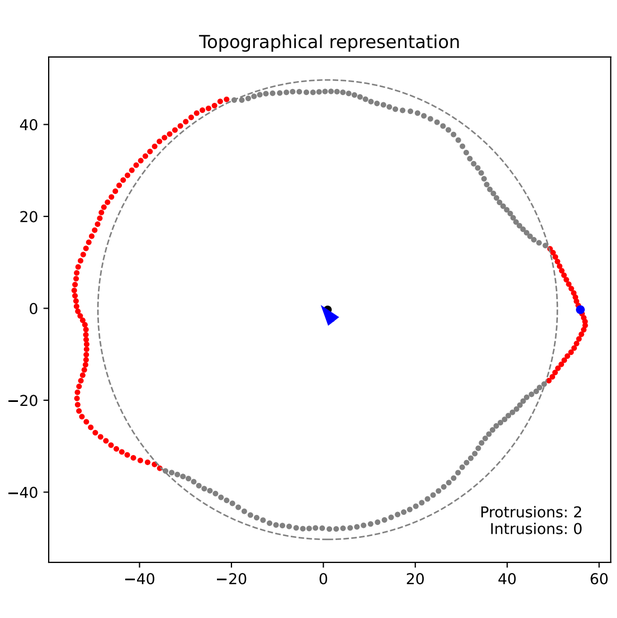

Topographical representation
Protrusions: 2
Intrusions: 0

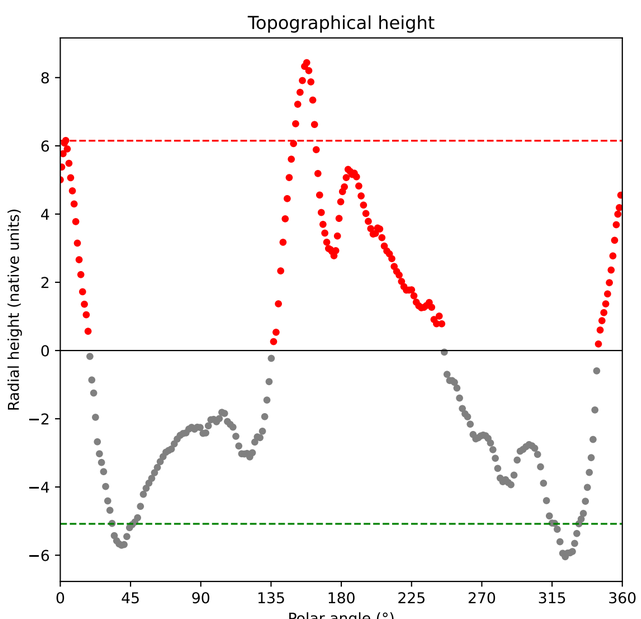

Topographical height
Radial height (native units)
Polar angle (°)

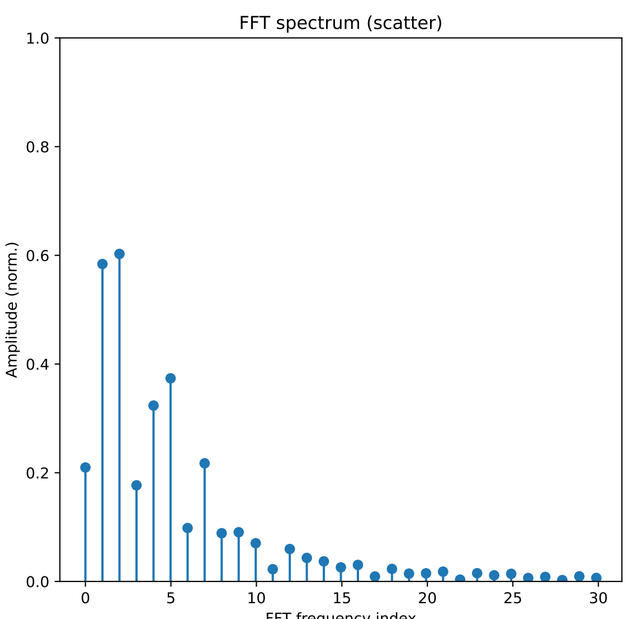

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

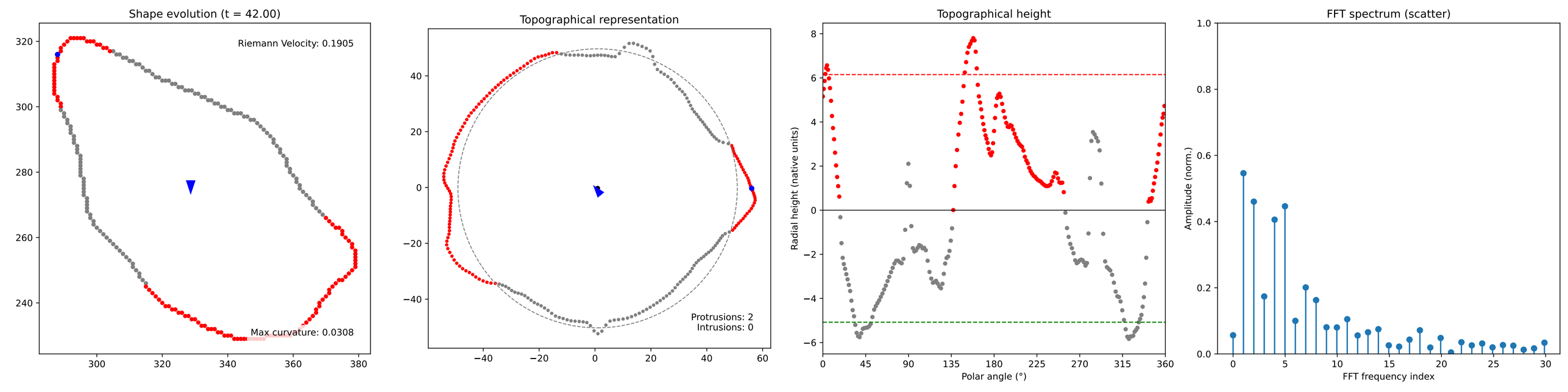

Shape evolution (t = 40.00)
Riemann Velocity: 0.2064
Max curvature: 0.0277
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

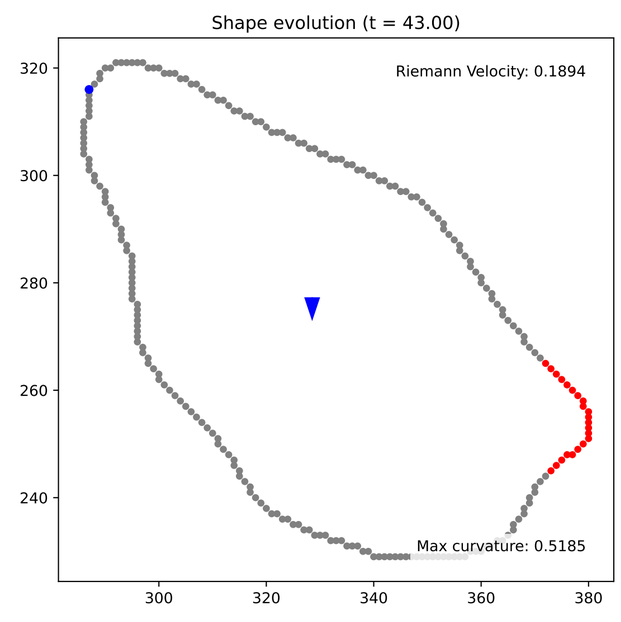

Shape evolution (t = 41.00)
Riemann Velocity: 0.1890
Max curvature: 0.1980
320
300
280
260
240
300
320
340
360
380

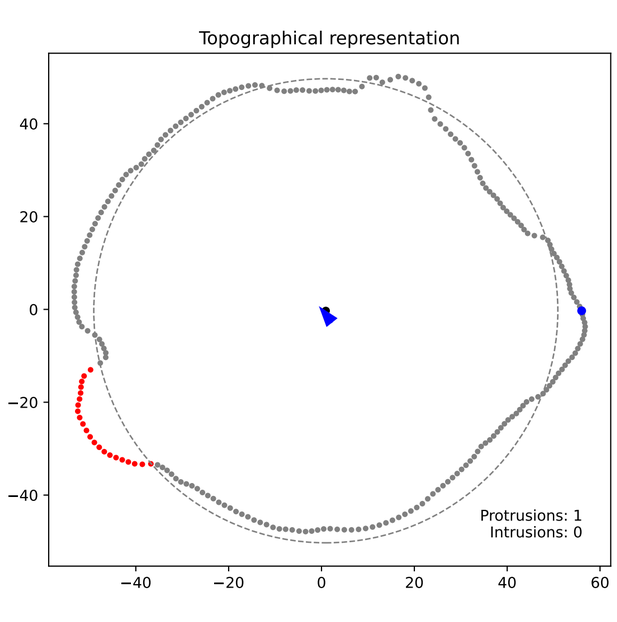

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

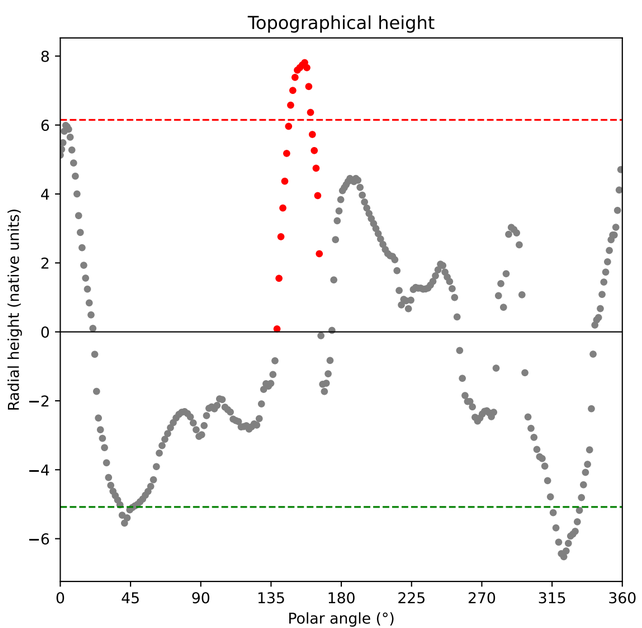

Topographical height
Radial height (native units)
Polar angle (°)
8
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

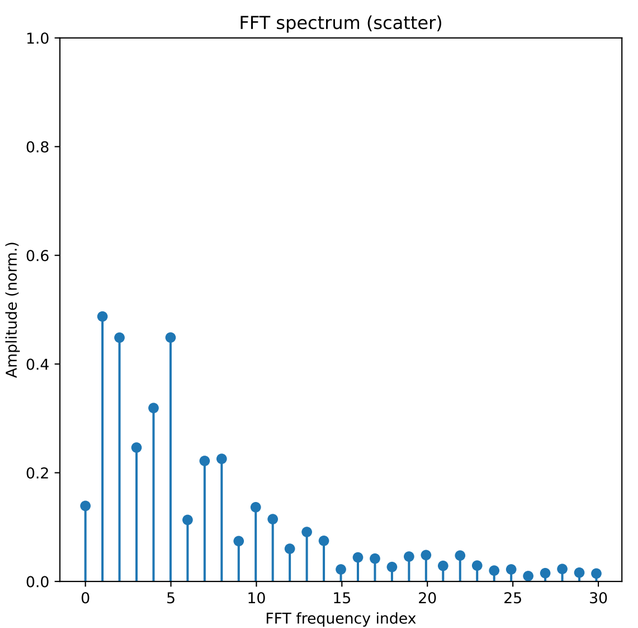

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

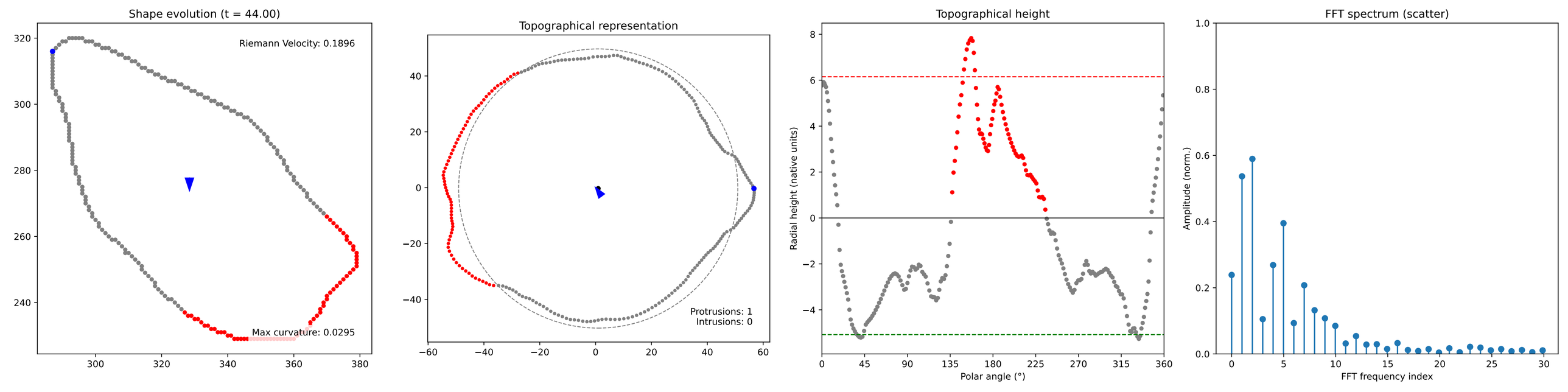

Shape evolution (t = 42.00)
Riemann Velocity: 0.1905
Max curvature: 0.0308
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

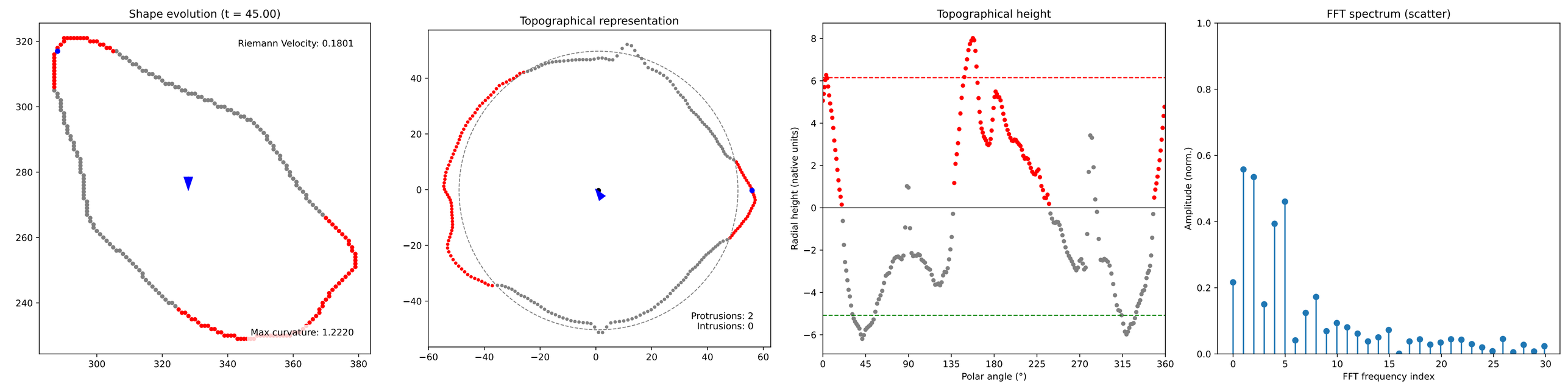

Shape evolution (t = 43.00)
Riemann Velocity: 0.1894
Max curvature: 0.5185

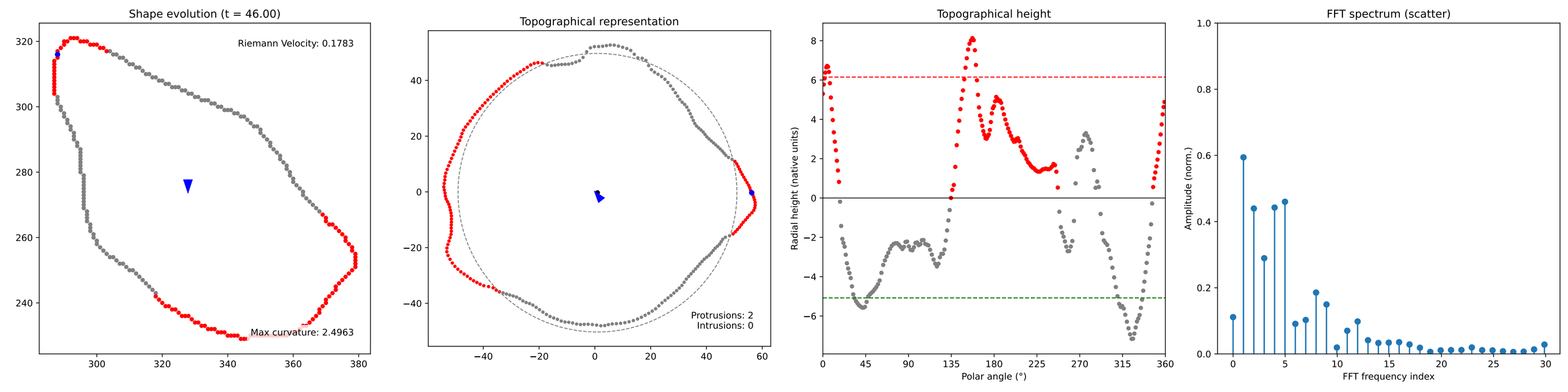

Topographical representation
Protrusions: 1
Intrusions: 0

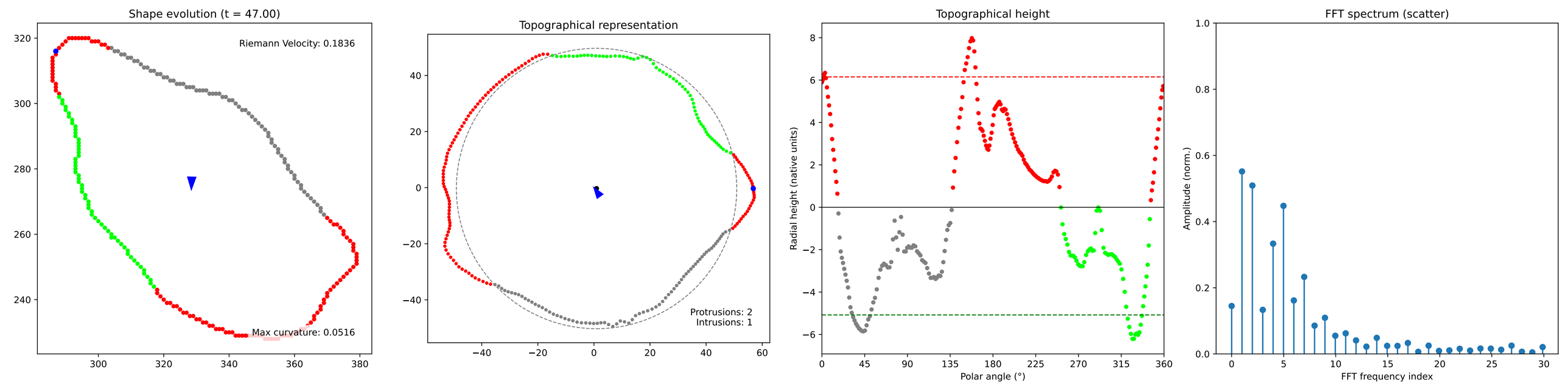

Topographical height
Radial height (native units)
Polar angle (°)

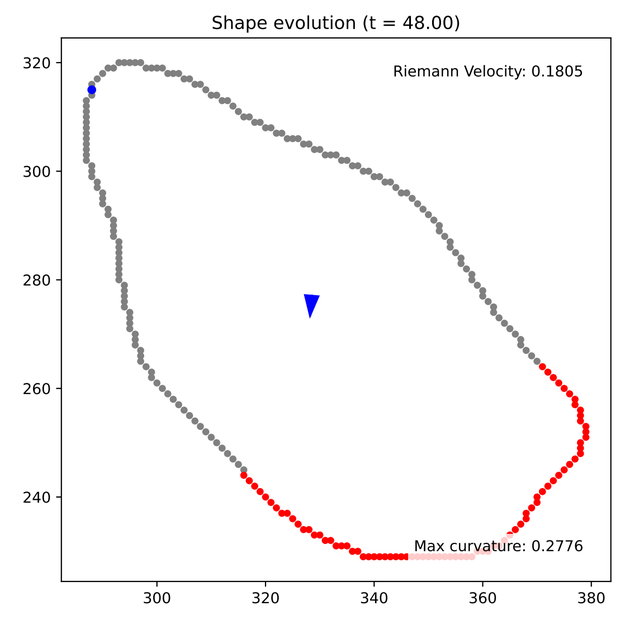

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

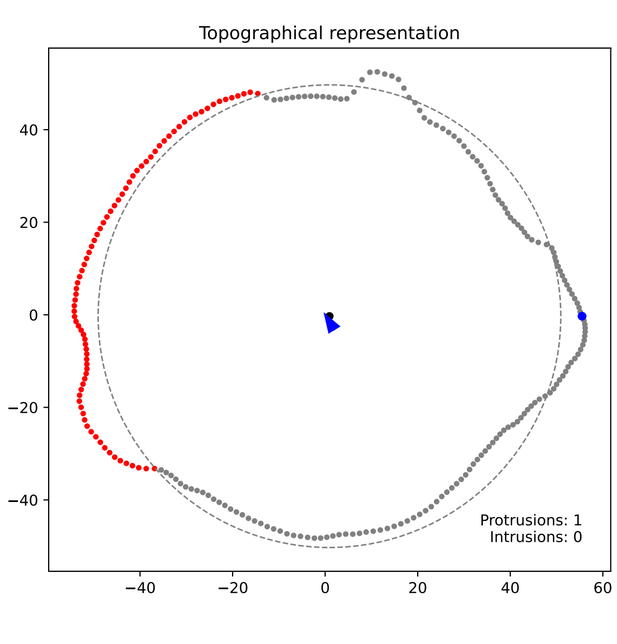

Shape evolution (t = 44.00)
Riemann Velocity: 0.1896
Max curvature: 0.0295
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

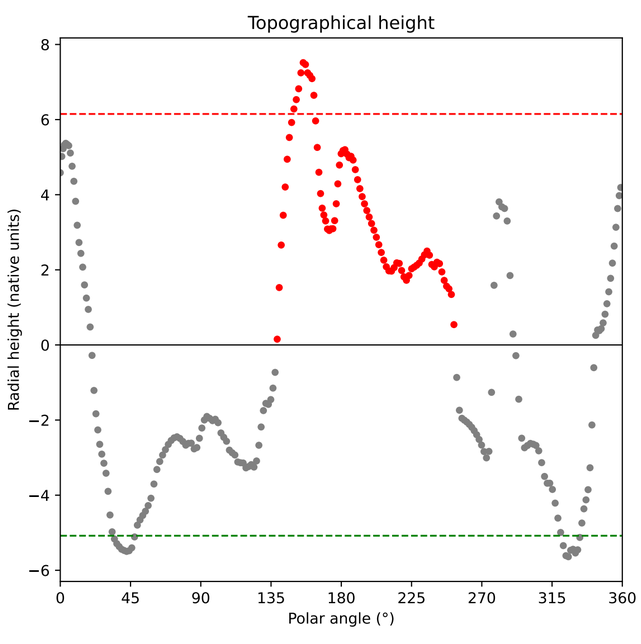

Shape evolution (t = 45.00)
Riemann Velocity: 0.1801
Max curvature: 1.2220
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

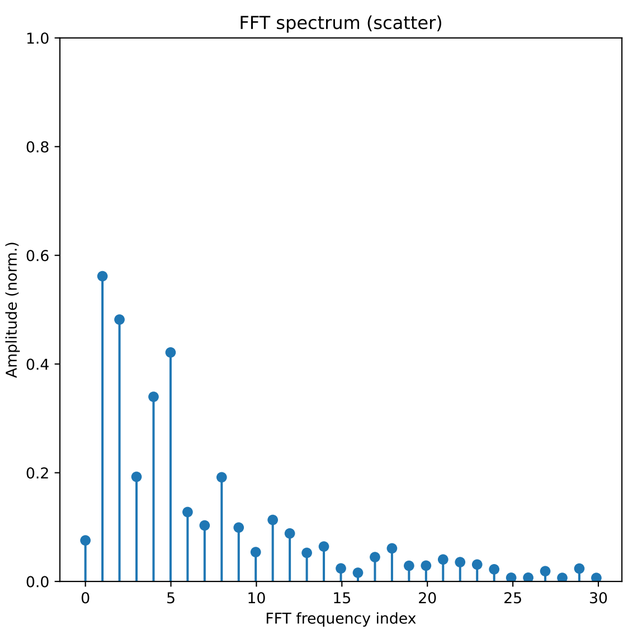

Shape evolution (t = 46.00)
Riemann Velocity: 0.1783
Max curvature: 2.4963
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

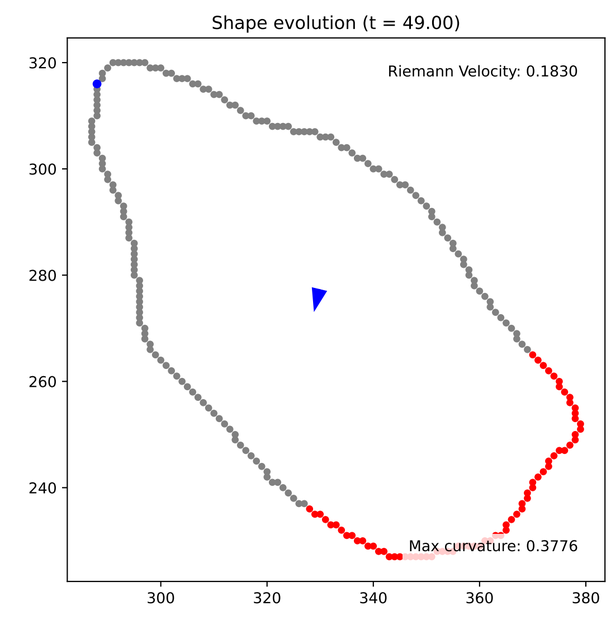

Shape evolution (t = 47.00)
Riemann Velocity: 0.1836
Max curvature: 0.0516
Topographical representation
Protrusions: 2
Intrusions: 1
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

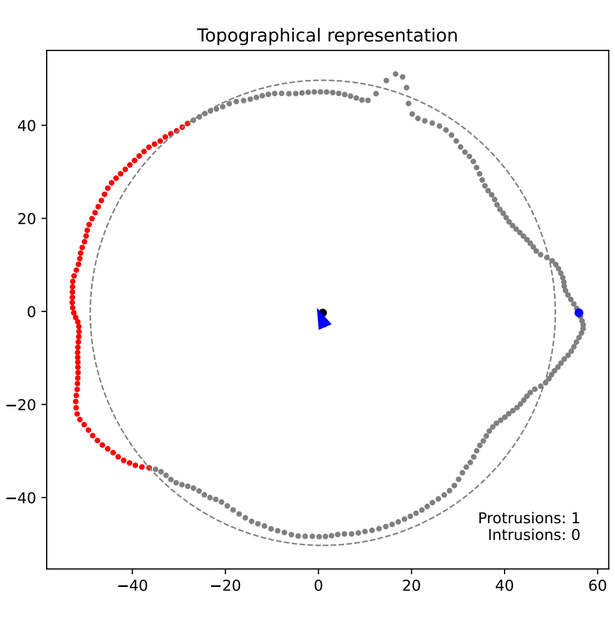

Shape evolution (t = 48.00)
Riemann Velocity: 0.1805
Max curvature: 0.2776
320
300
280
260
240
300
320
340
360
380

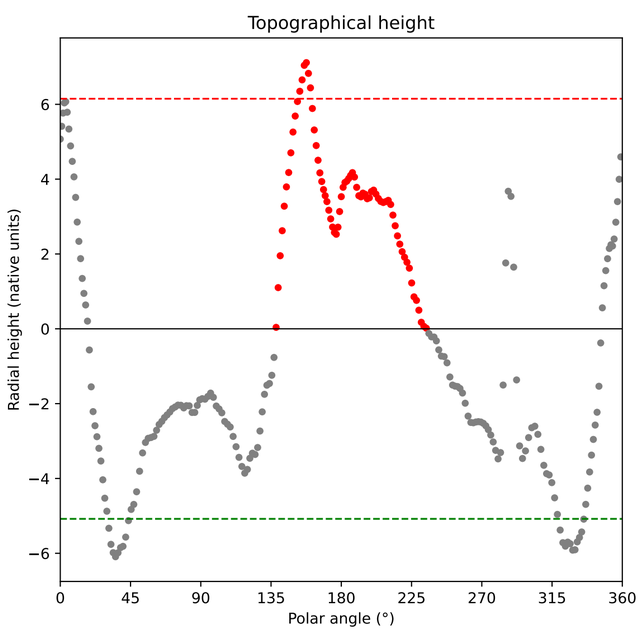

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

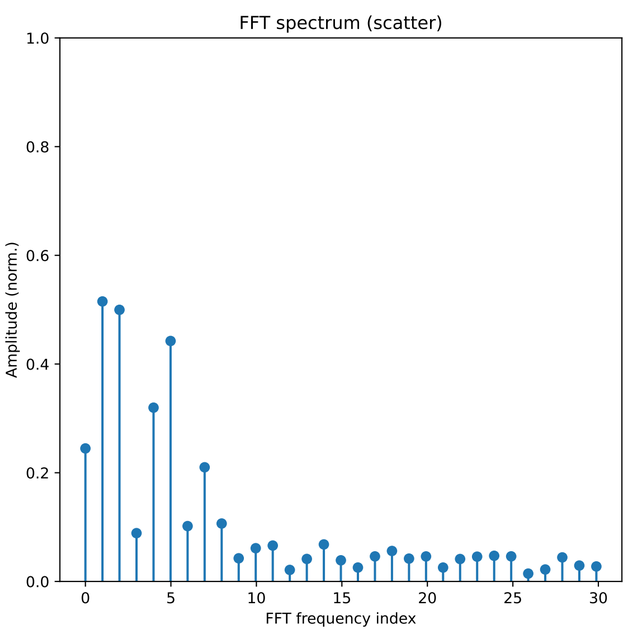

Topographical height
Radial height (native units)
Polar angle (°)
8
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

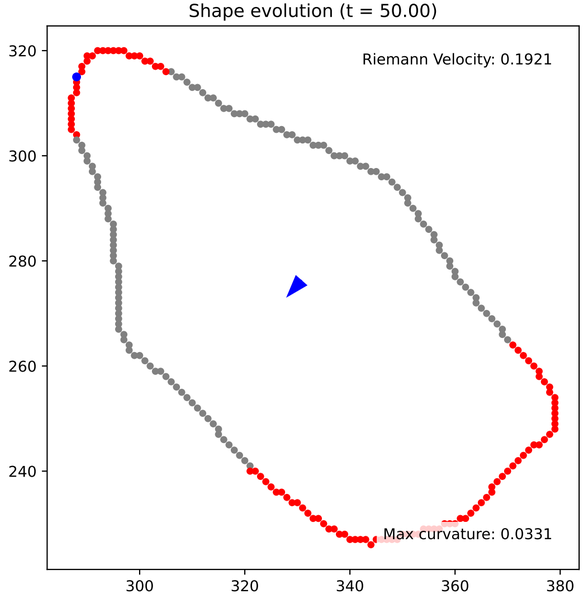

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

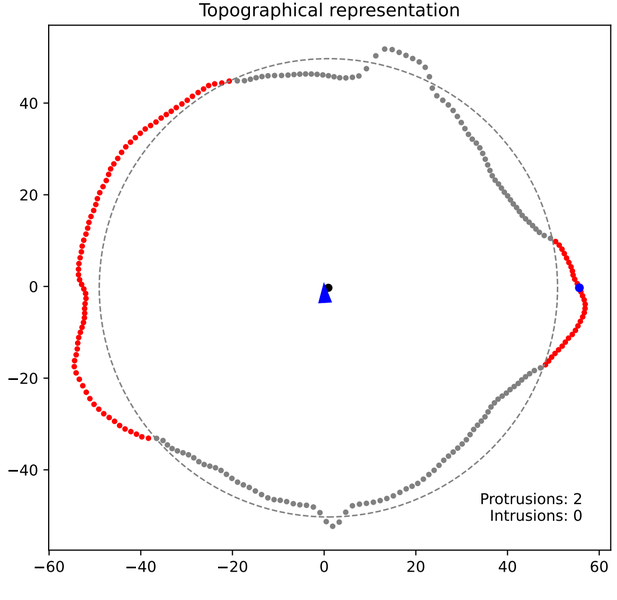

Shape evolution (t = 49.00)
Riemann Velocity: 0.1830
Max curvature: 0.3776

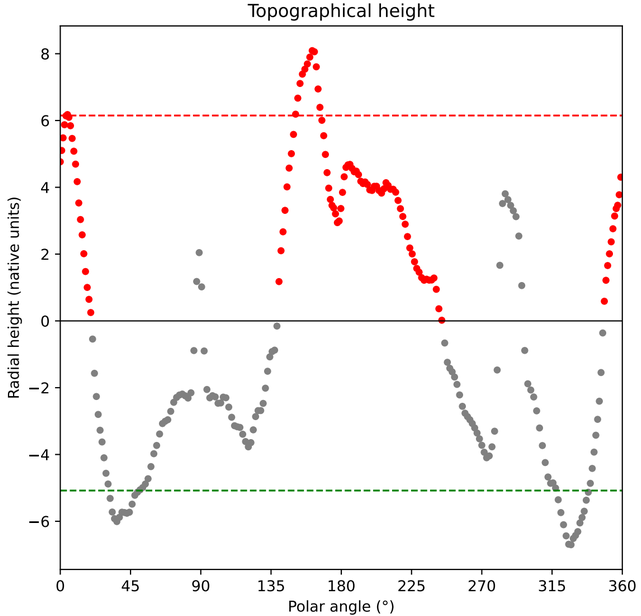

Topographical representation
Protrusions: 1
Intrusions: 0

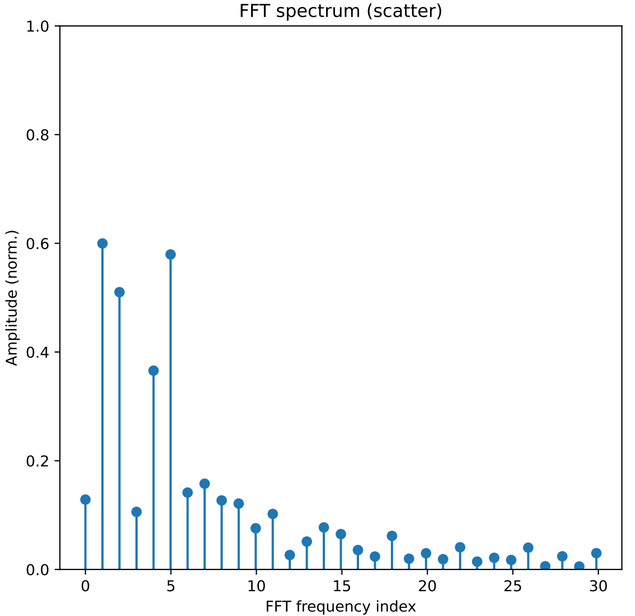

Topographical height
Radial height (native units)
Polar angle (°)

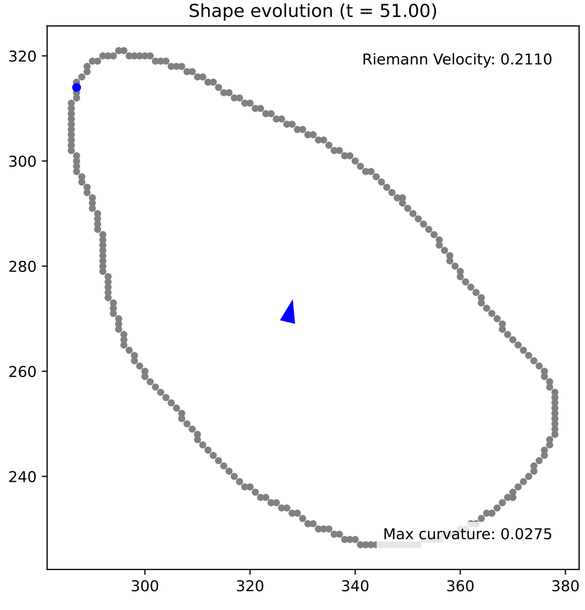

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

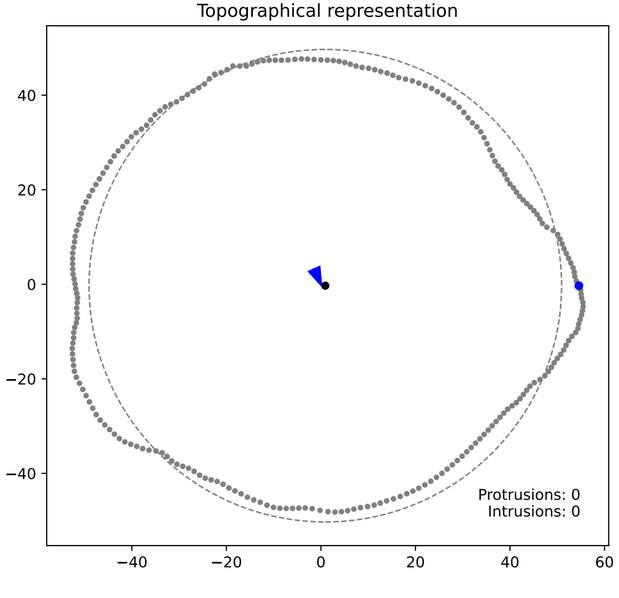

Shape evolution (t = 50.00)
Riemann Velocity: 0.1921
Max curvature: 0.0331
320
300
280
260
240
300
320
340
360
380

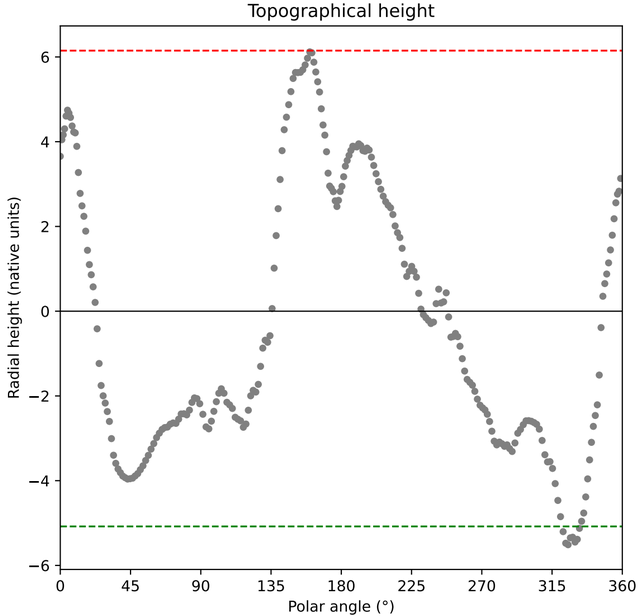

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−60
−40
−20
0
20
40
60

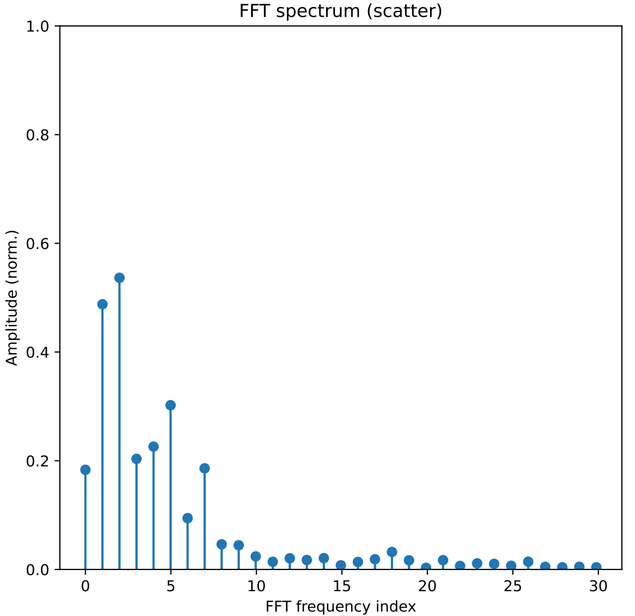

Topographical height
Radial height (native units)
Polar angle (°)
8
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

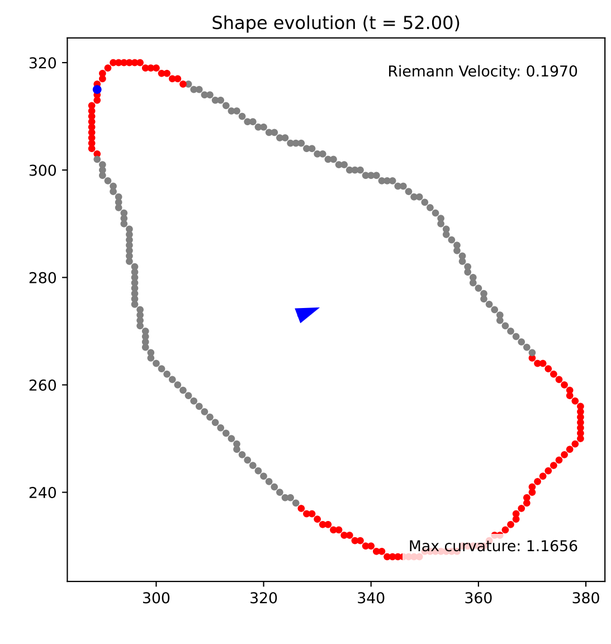

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

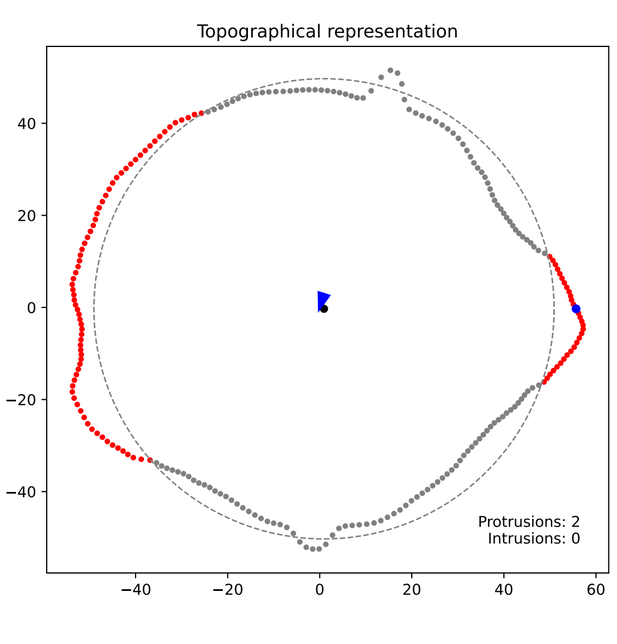

Shape evolution (t = 51.00)
Riemann Velocity: 0.2110
Max curvature: 0.0275
320
300
280
260
240
300
320
340
360
380

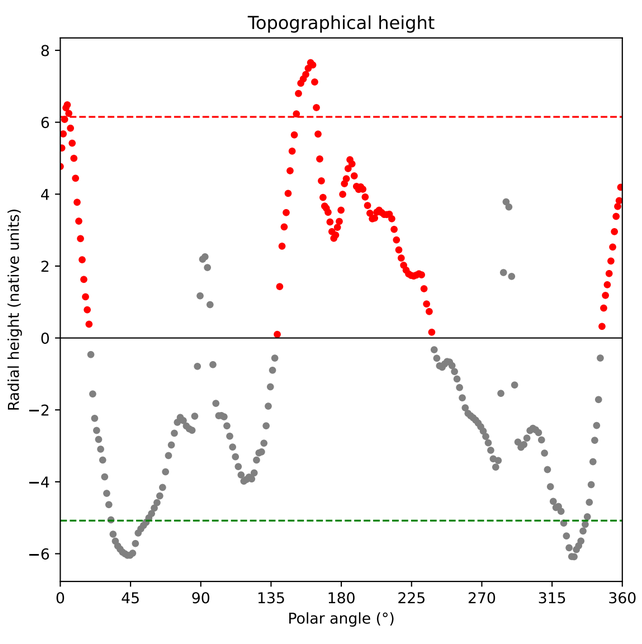

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

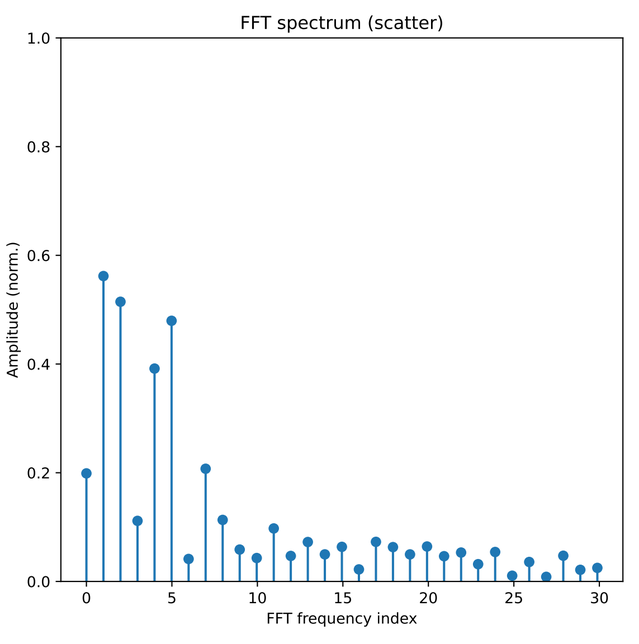

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

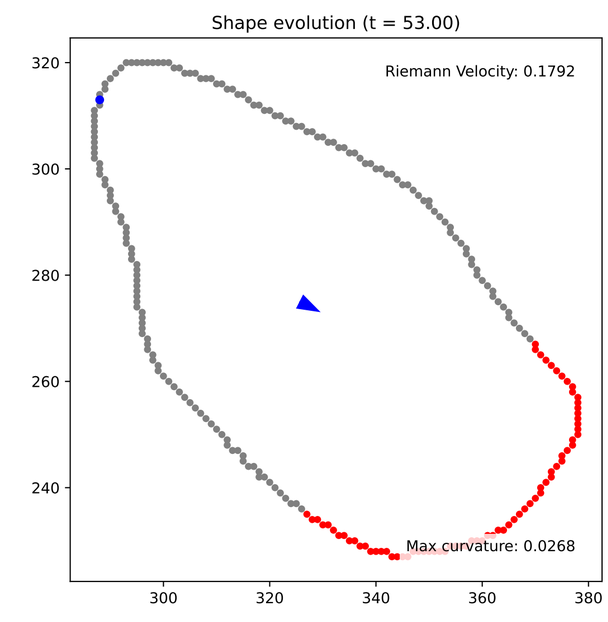

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

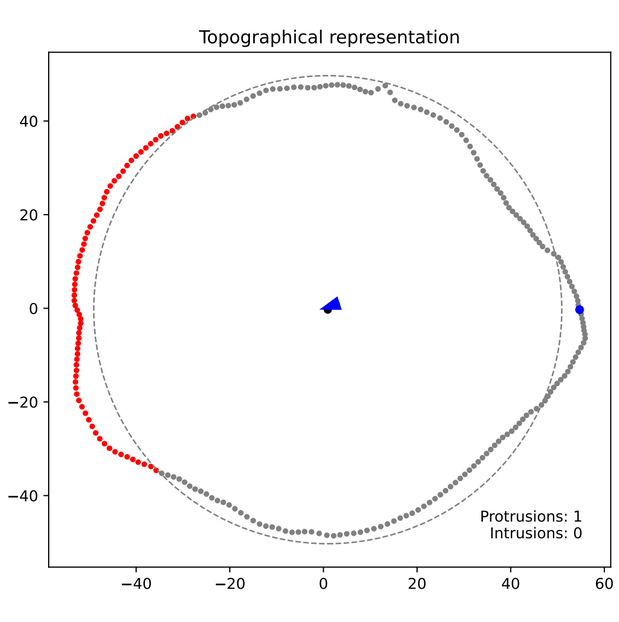

Shape evolution (t = 52.00)
Riemann Velocity: 0.1970
Max curvature: 1.1656

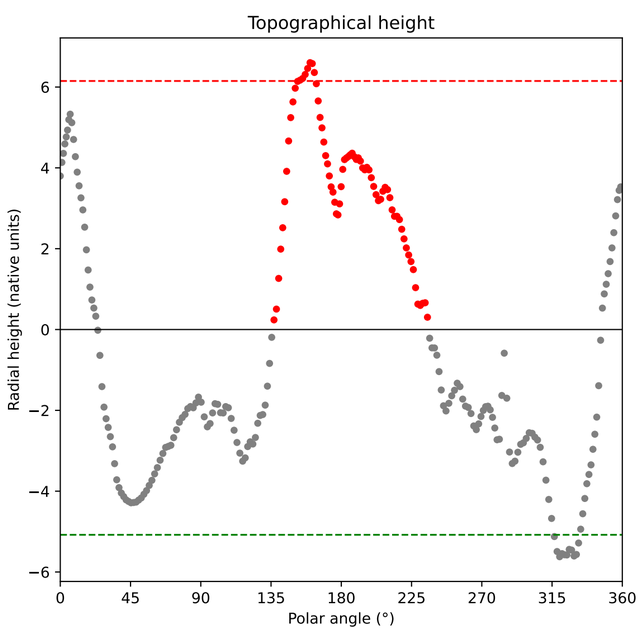

Topographical representation
Protrusions: 2
Intrusions: 0

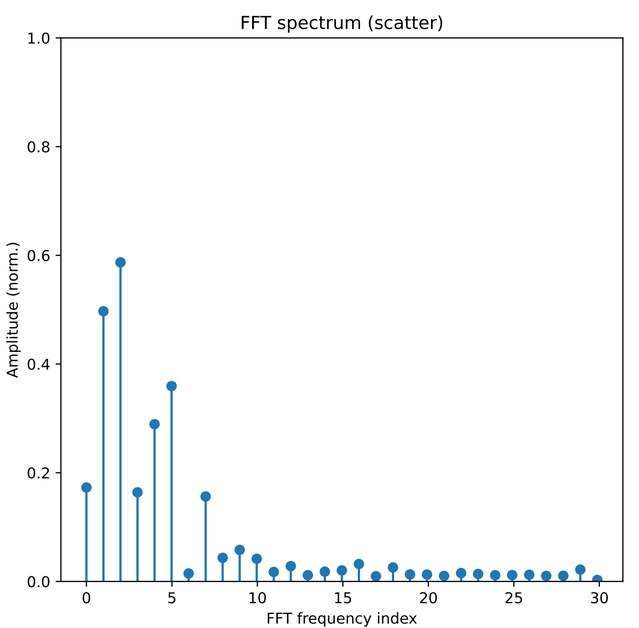

Topographical height
Radial height (native units)
Polar angle (°)

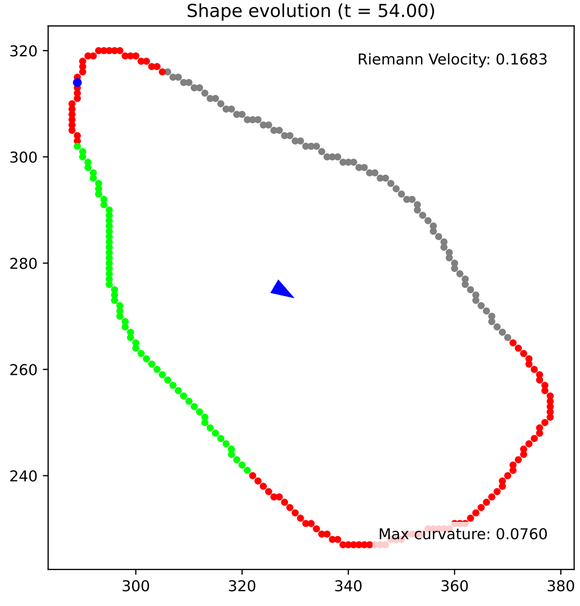

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

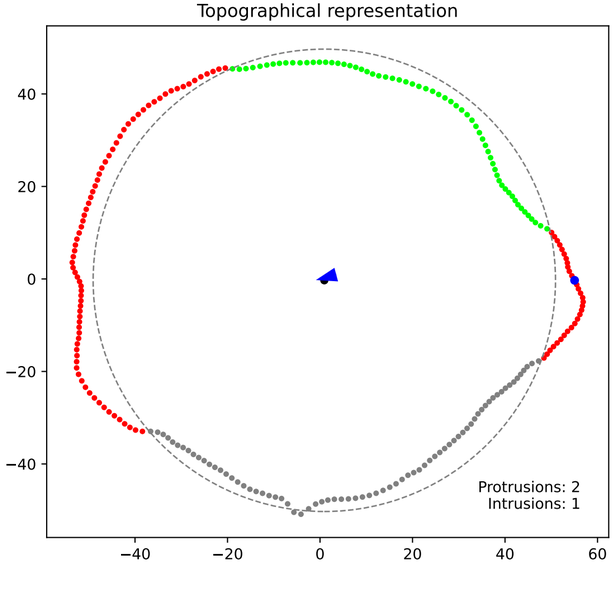

Shape evolution (t = 53.00)
Riemann Velocity: 0.1792
Max curvature: 0.0268

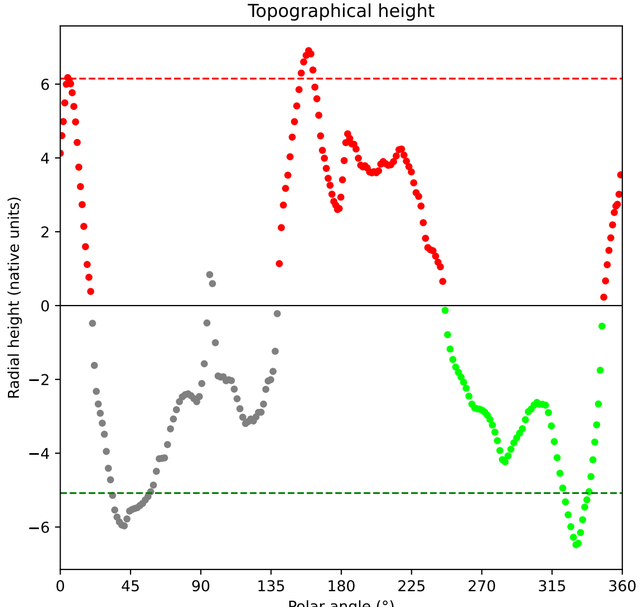

Topographical representation
Protrusions: 1
Intrusions: 0

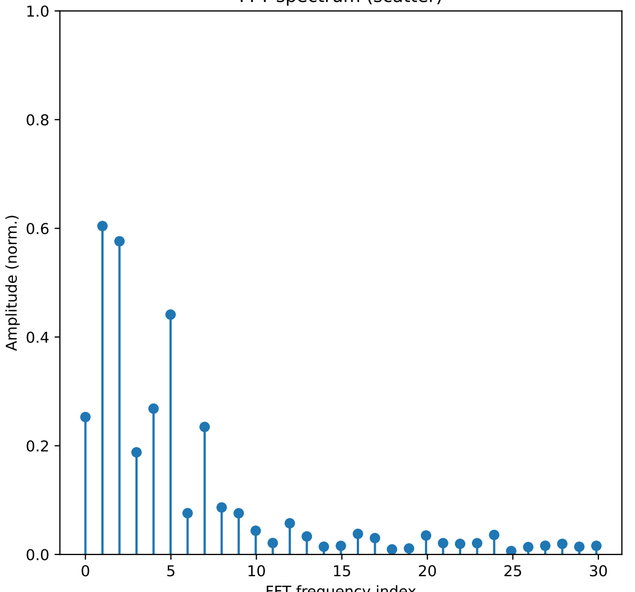

Topographical height
Radial height (native units)
Polar angle (°)

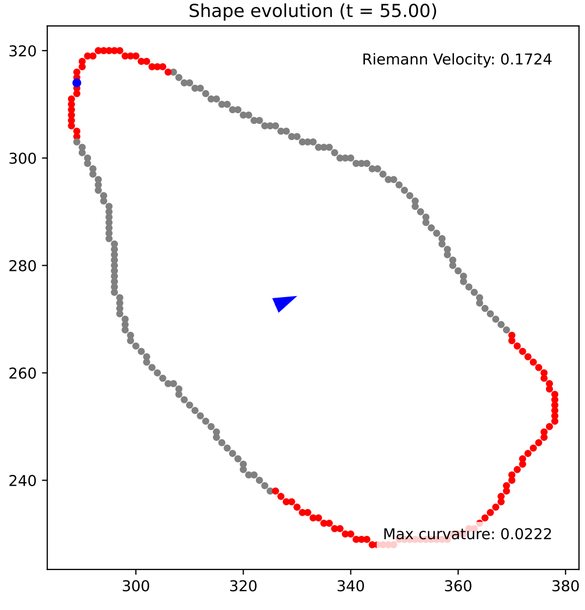

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

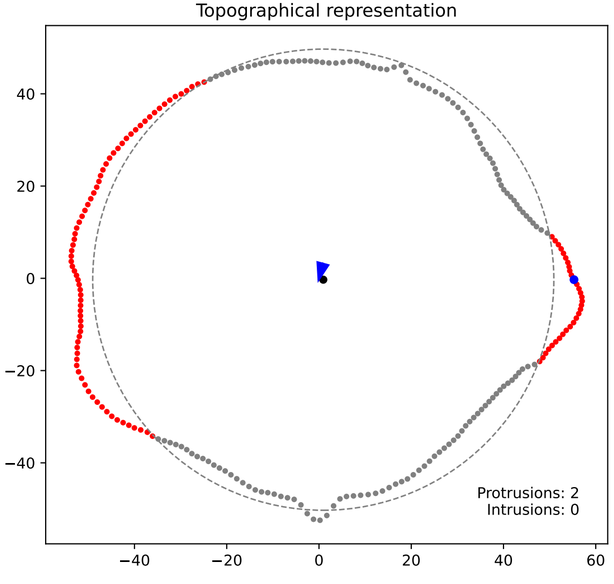

Shape evolution (t = 54.00)
Riemann Velocity: 0.1683
Max curvature: 0.0760
320
300
280
260
240
300
320
340
360
380

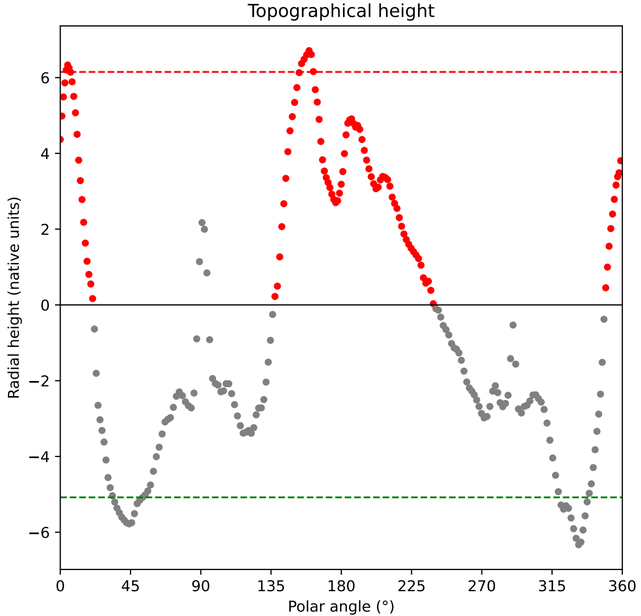

Topographical representation
Protrusions: 2
Intrusions: 1
40
20
0
−20
−40
−40
−20
0
20
40
60

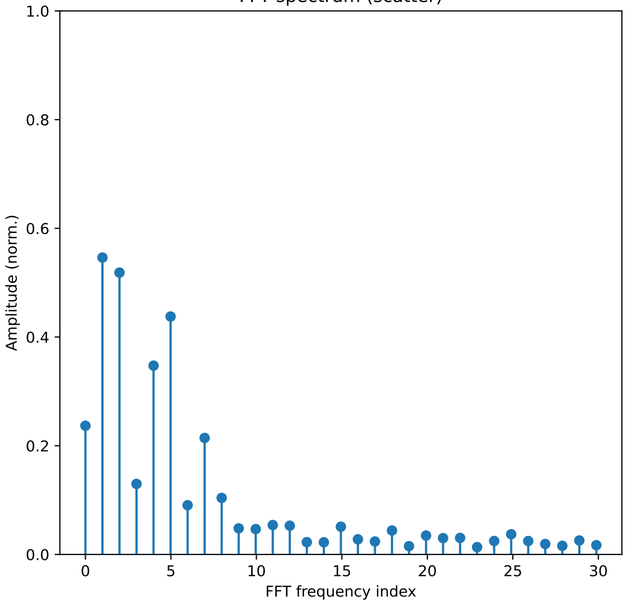

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

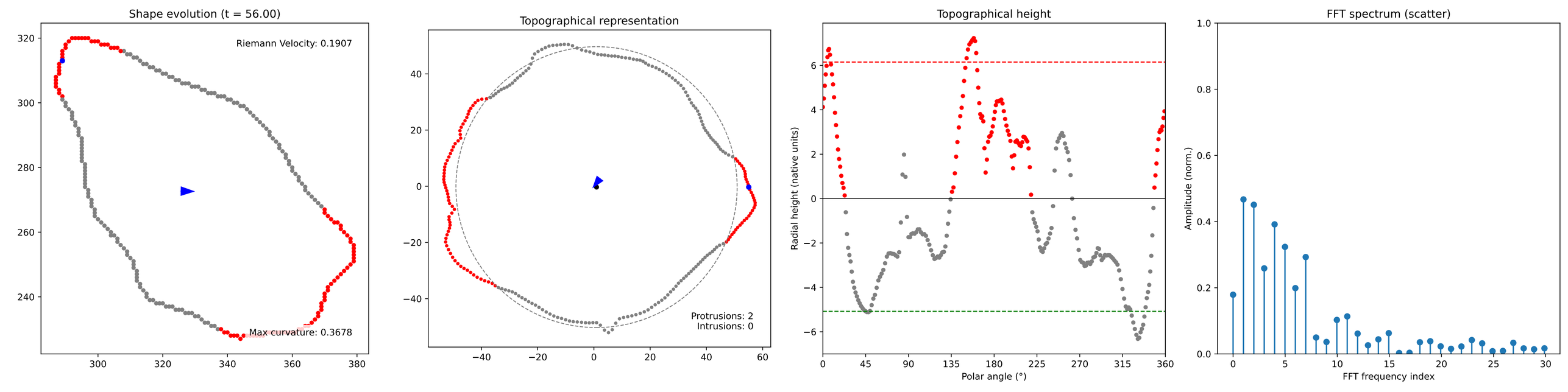

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

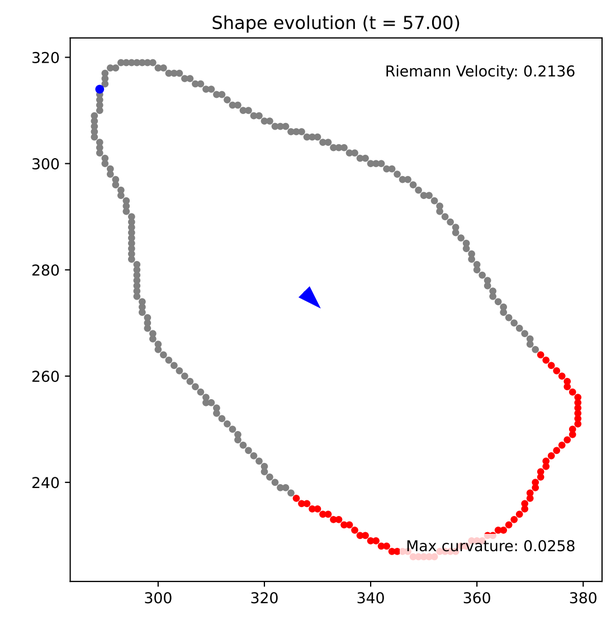

Shape evolution (t = 55.00)
Riemann Velocity: 0.1724
Max curvature: 0.0222

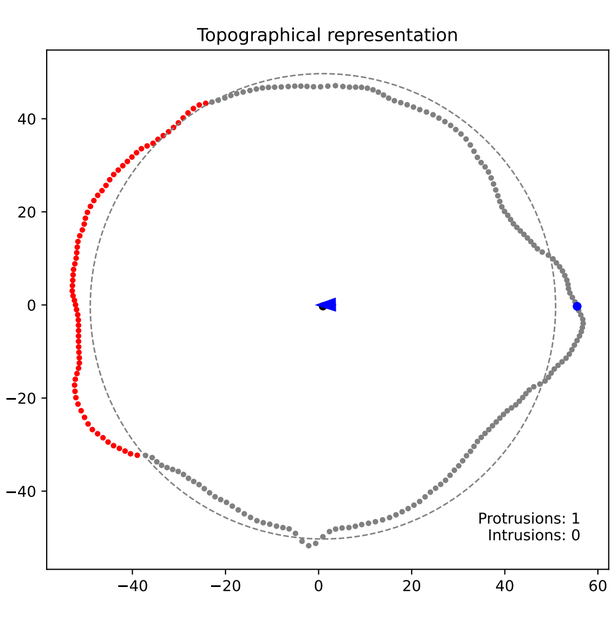

Topographical representation
Protrusions: 2
Intrusions: 0

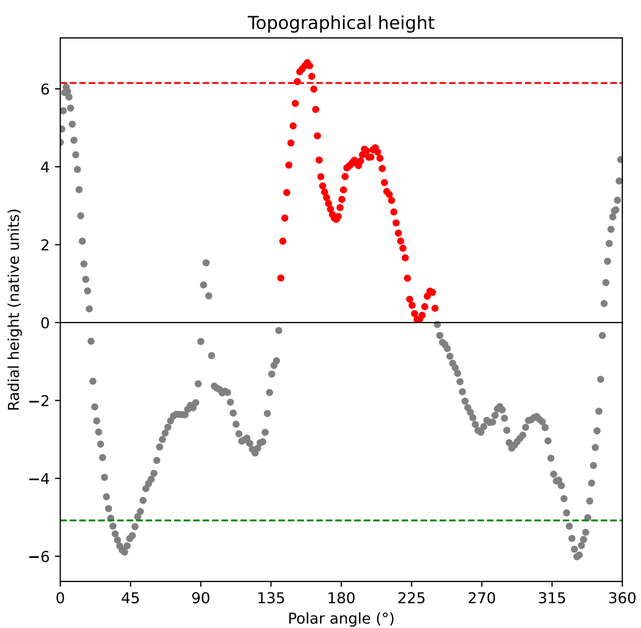

Topographical height
Radial height (native units)
Polar angle (°)

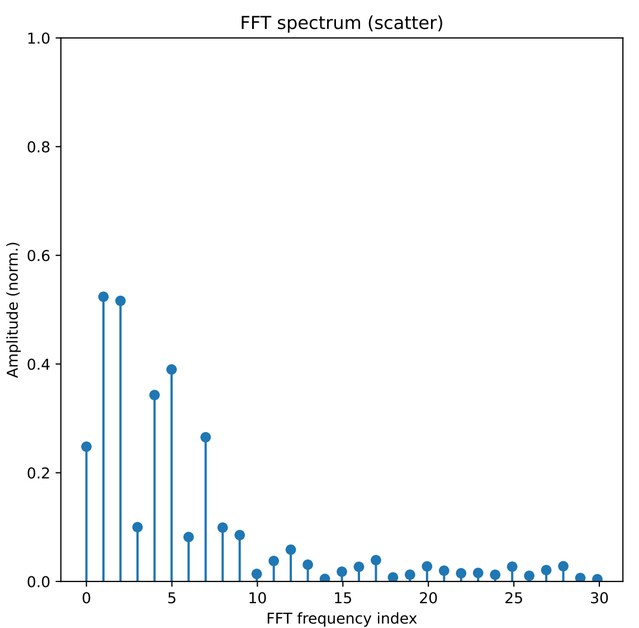

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

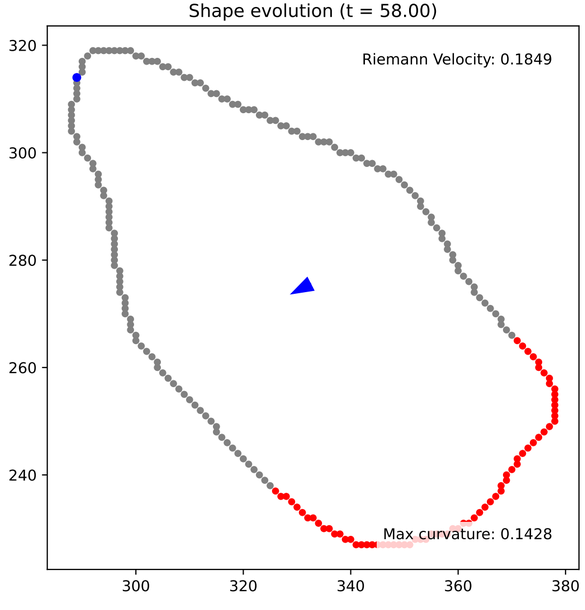

Shape evolution (t = 56.00)
Riemann Velocity: 0.1907
Max curvature: 0.3678
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

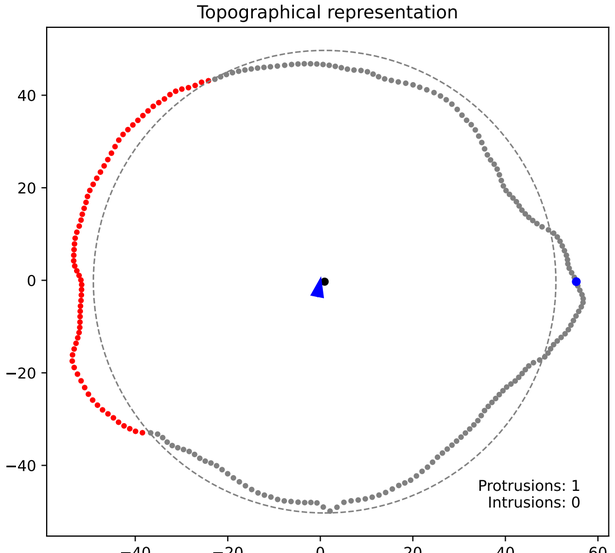

Shape evolution (t = 57.00)
Riemann Velocity: 0.2136
Max curvature: 0.0258

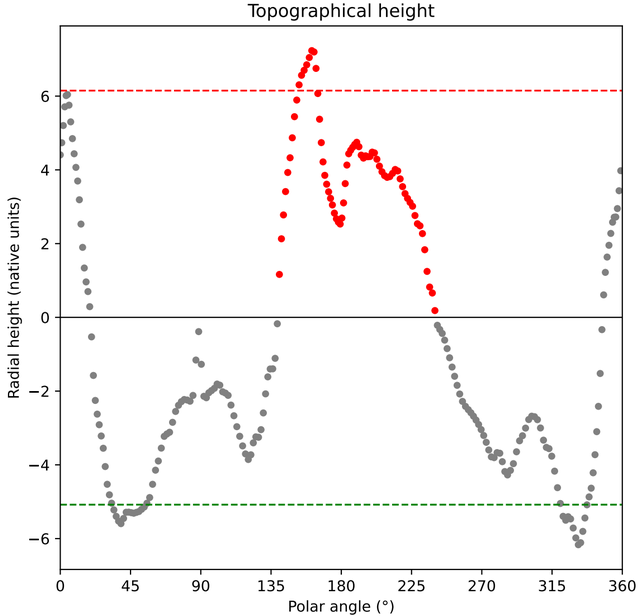

Topographical representation
Protrusions: 1
Intrusions: 0

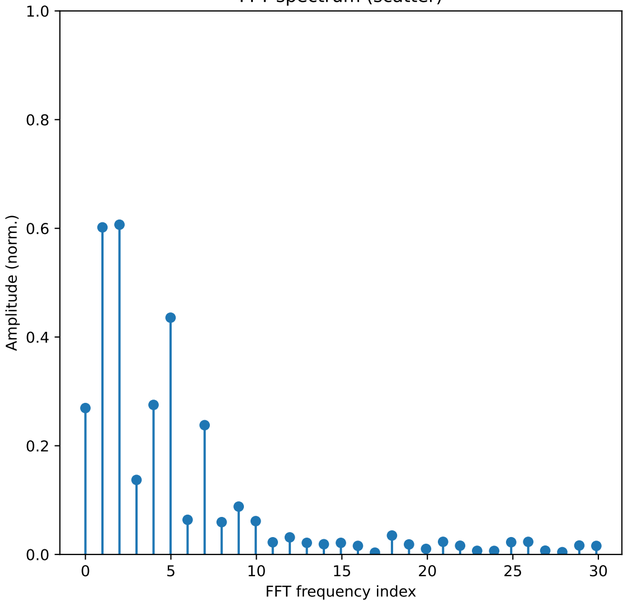

Topographical height
Radial height (native units)
Polar angle (°)

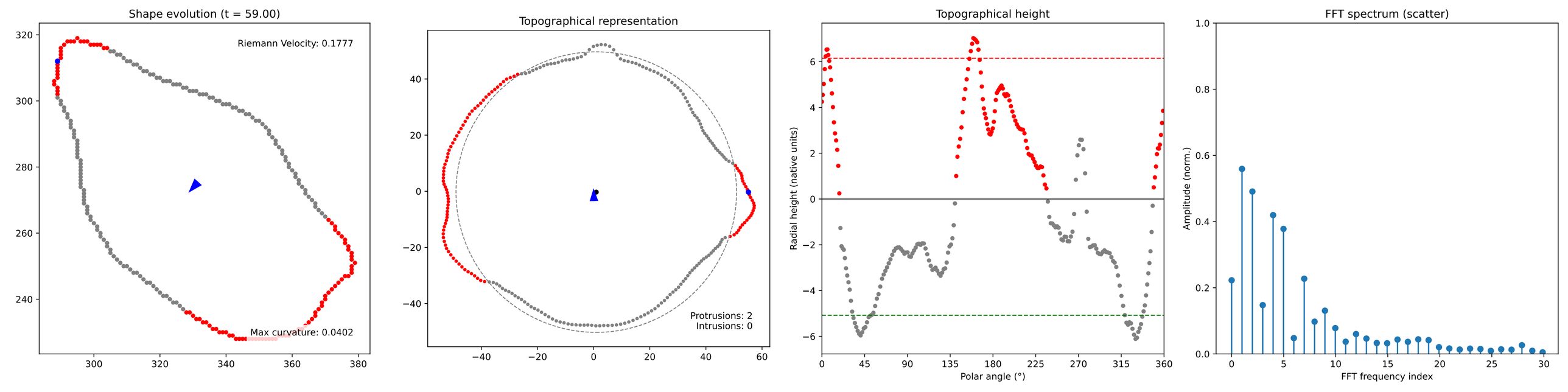

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

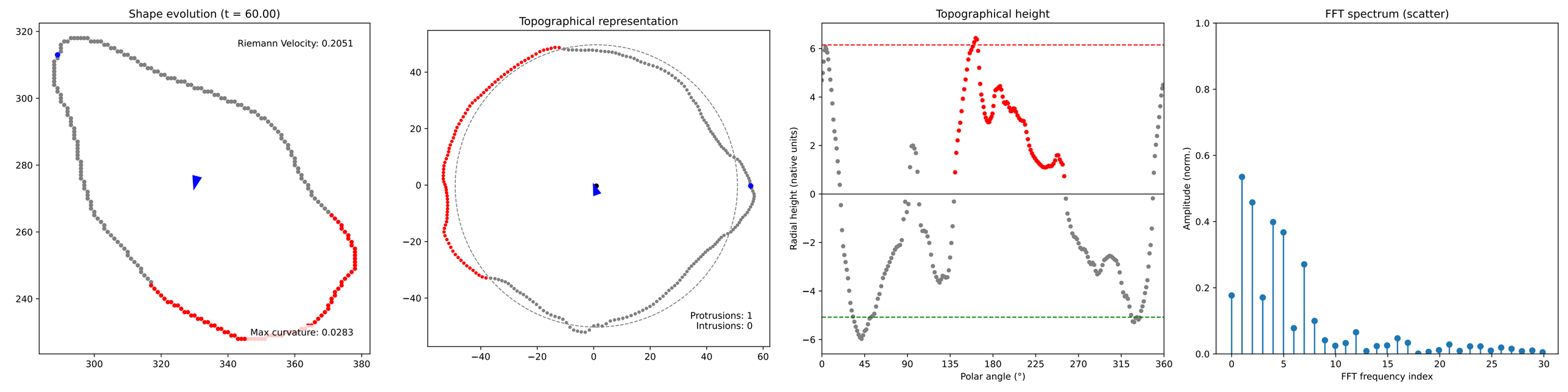

Shape evolution (t = 58.00)
Riemann Velocity: 0.1849
Max curvature: 0.1428

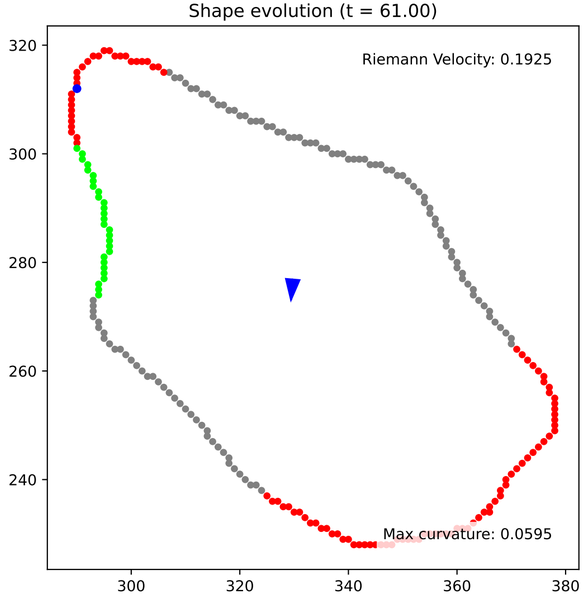

Topographical representation
Protrusions: 1
Intrusions: 0

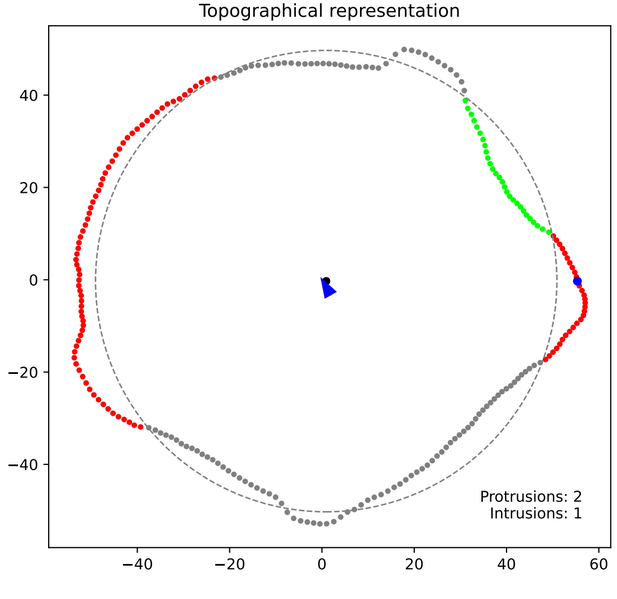

Topographical height
Radial height (native units)
Polar angle (°)

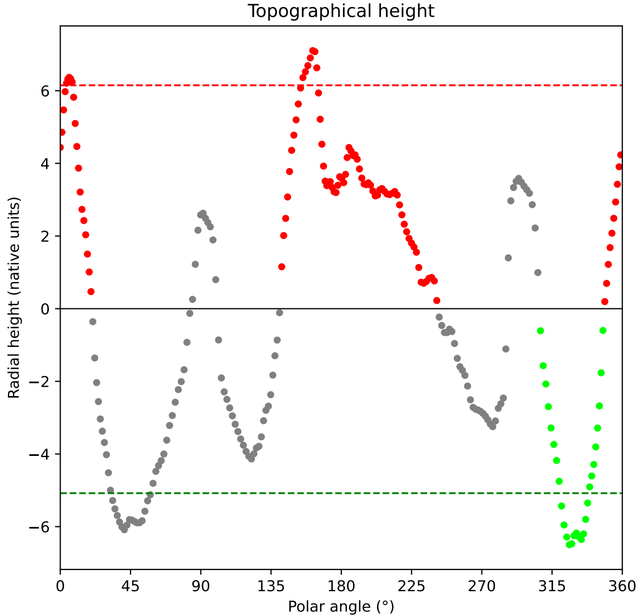

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

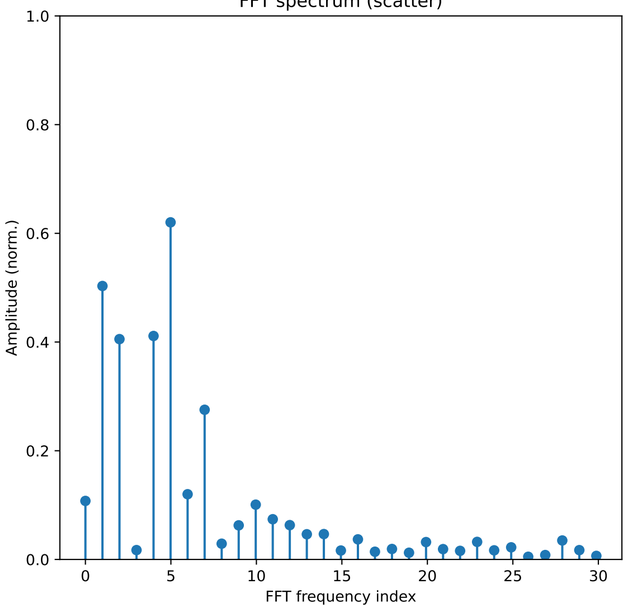

Shape evolution (t = 59.00)
Riemann Velocity: 0.1777
Max curvature: 0.0402
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

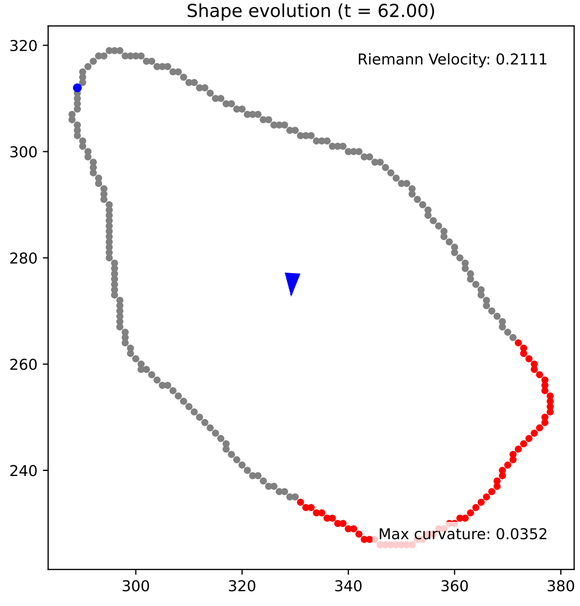

Shape evolution (t = 60.00)
Riemann Velocity: 0.2051
Max curvature: 0.0283
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

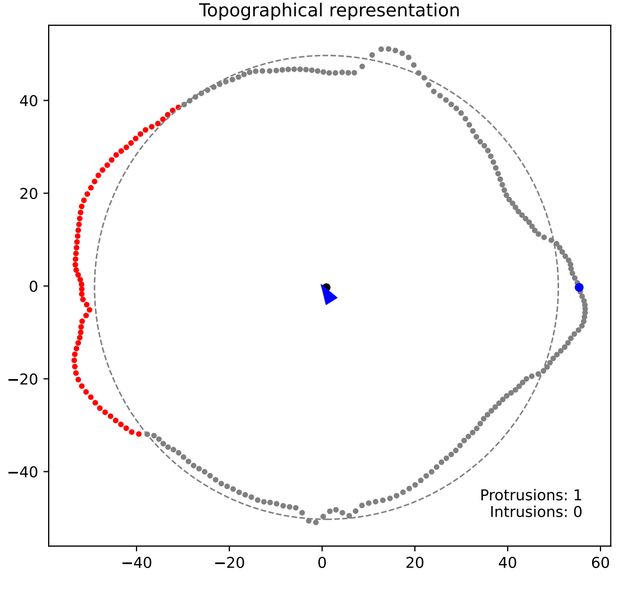

Shape evolution (t = 61.00)
Riemann Velocity: 0.1925
Max curvature: 0.0595

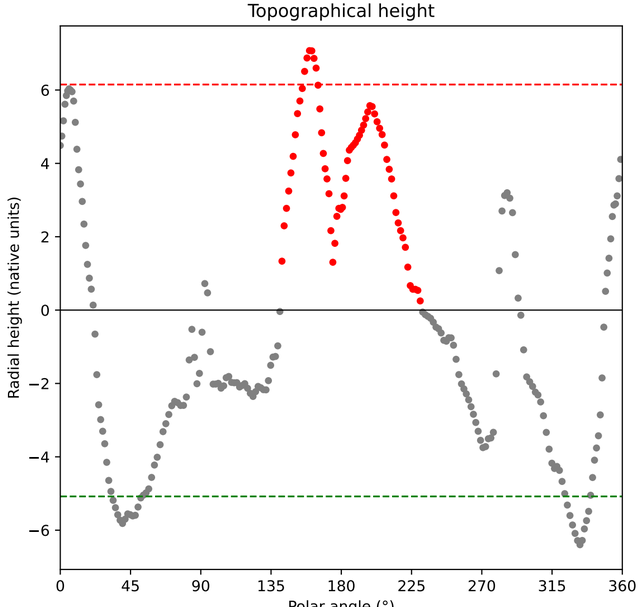

Topographical representation
Protrusions: 2
Intrusions: 1

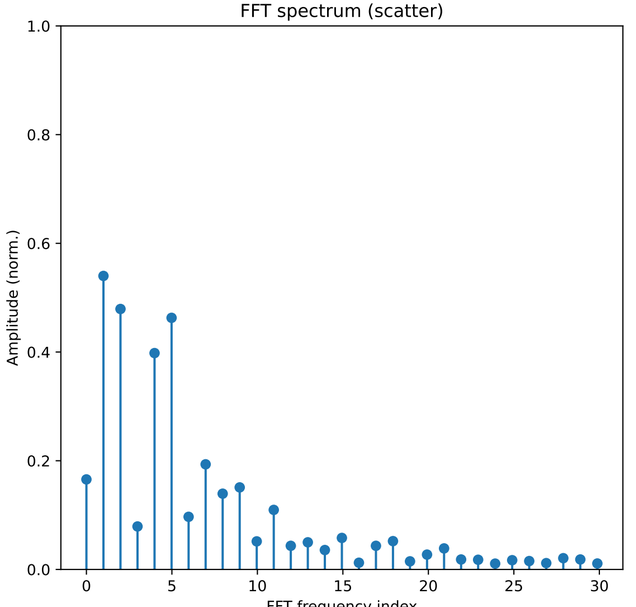

Topographical height
Radial height (native units)
Polar angle (°)

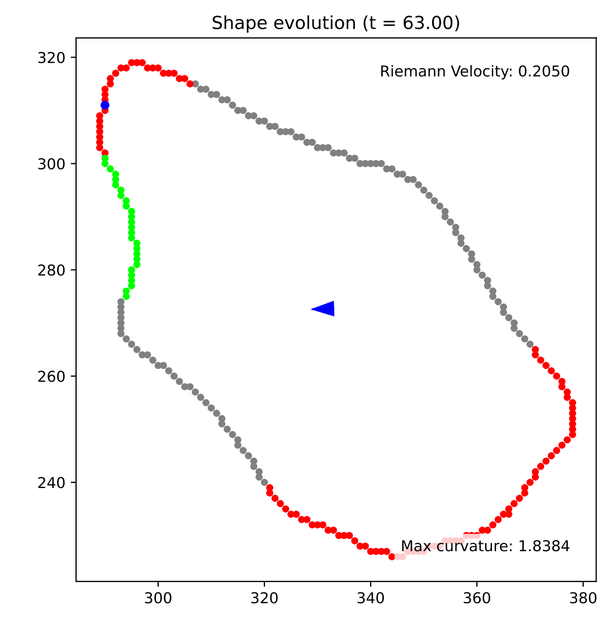

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

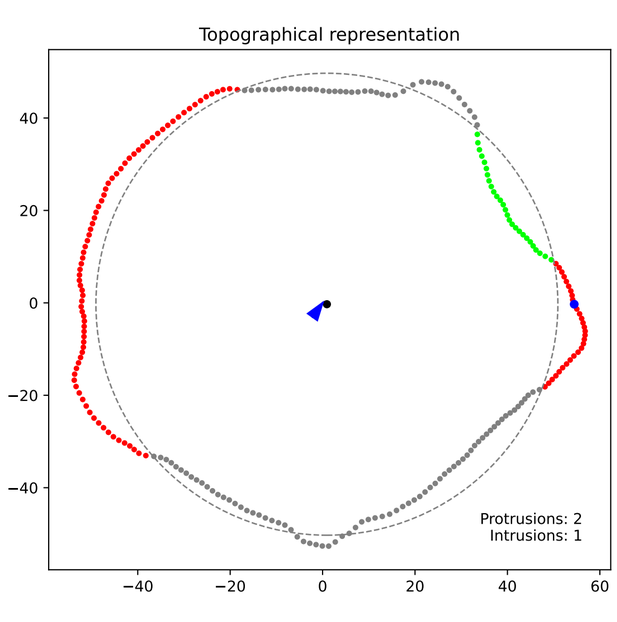

Shape evolution (t = 62.00)
Riemann Velocity: 0.2111
Max curvature: 0.0352
320
300
280
260
240
300
320
340
360
380

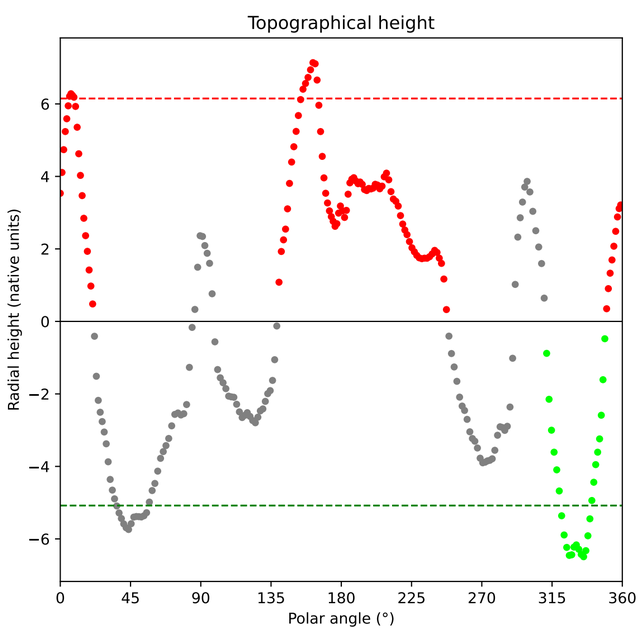

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

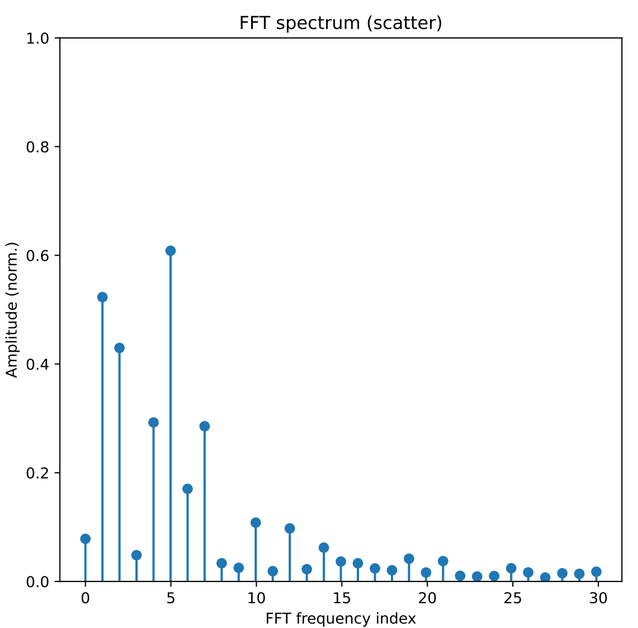

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

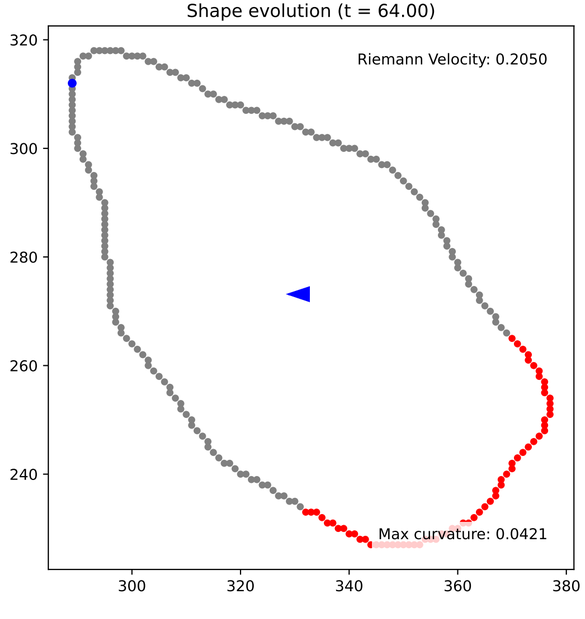

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

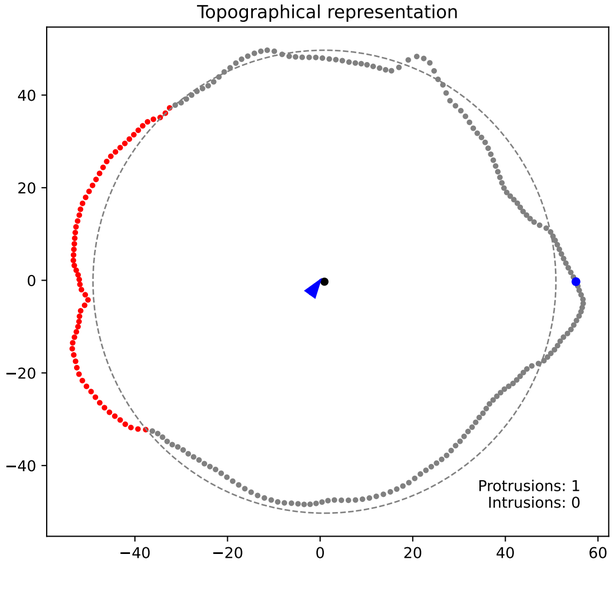

Shape evolution (t = 63.00)
Riemann Velocity: 0.2050
Max curvature: 1.8384

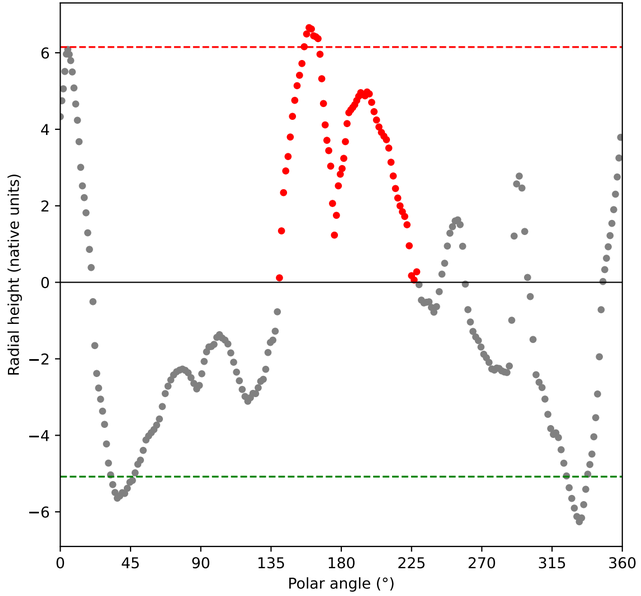

Topographical representation
Protrusions: 2
Intrusions: 1

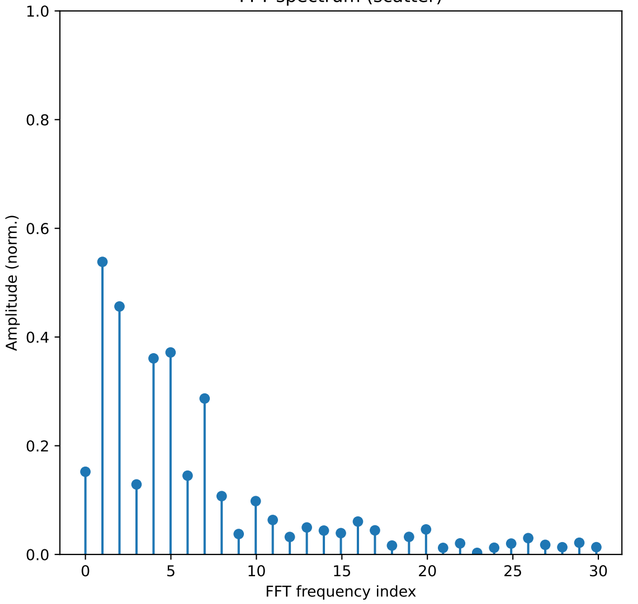

Topographical height
Radial height (native units)
Polar angle (°)

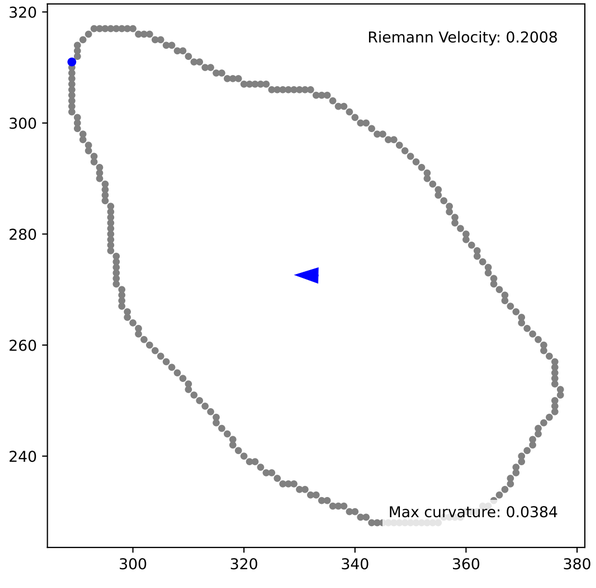

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

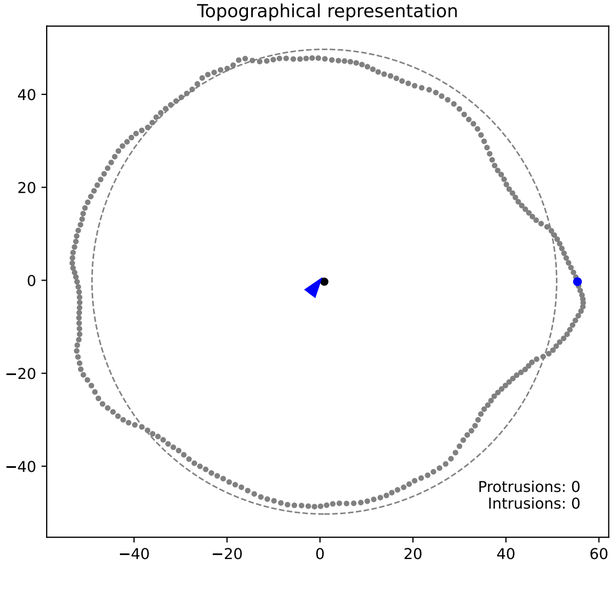

Shape evolution (t = 64.00)
Riemann Velocity: 0.2050
Max curvature: 0.0421

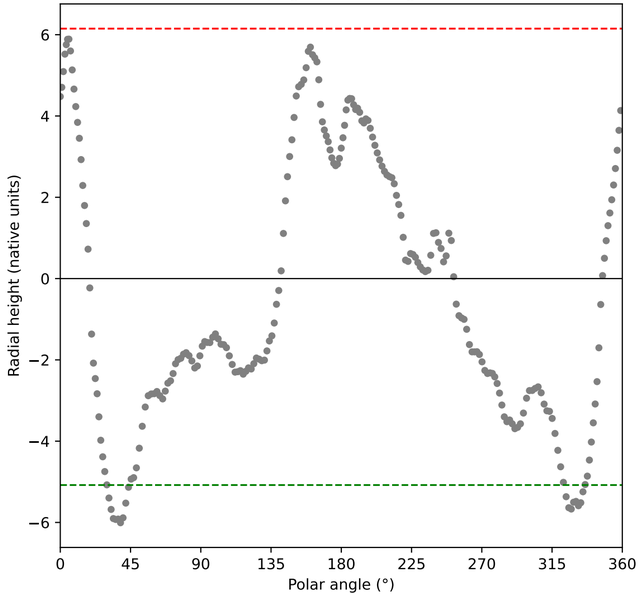

Topographical representation
Protrusions: 1
Intrusions: 0

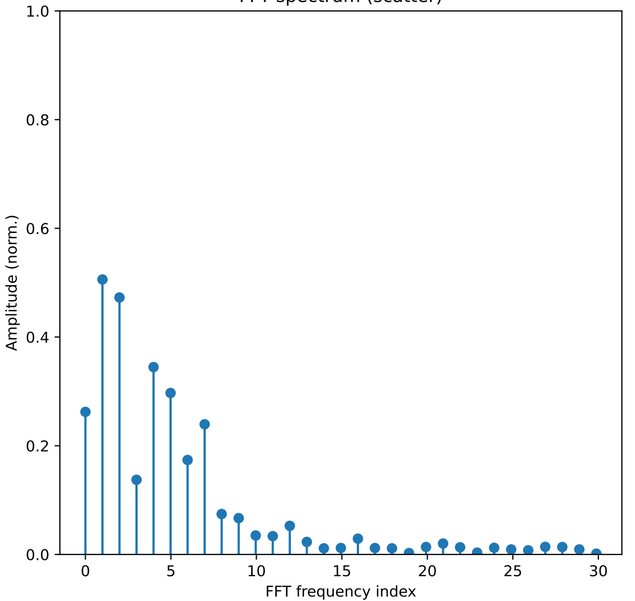

Topographical height
Radial height (native units)
Polar angle (°)

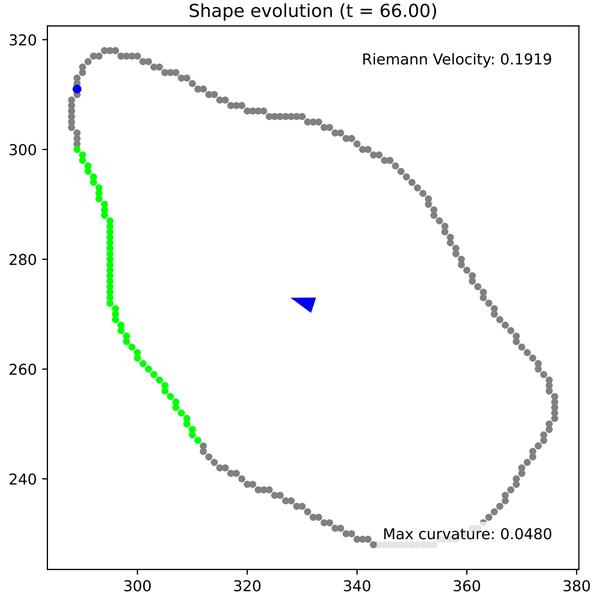

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

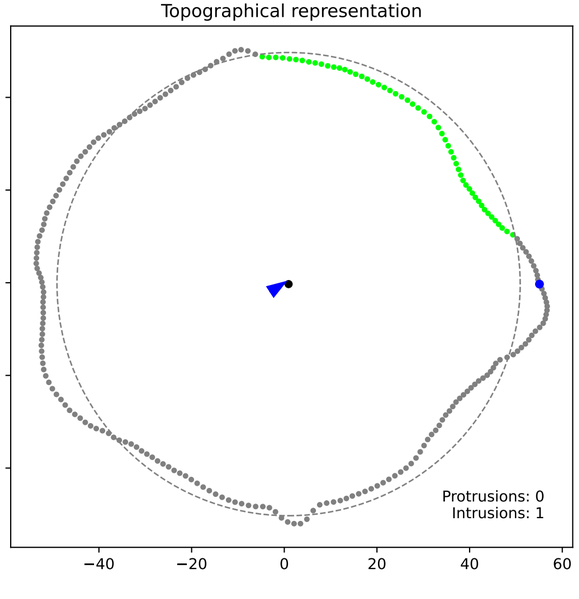

Shape evolution (t = 65.00)
Riemann Velocity: 0.2008
Max curvature: 0.0384
320
300
280
260
240
300
320
340
360
380

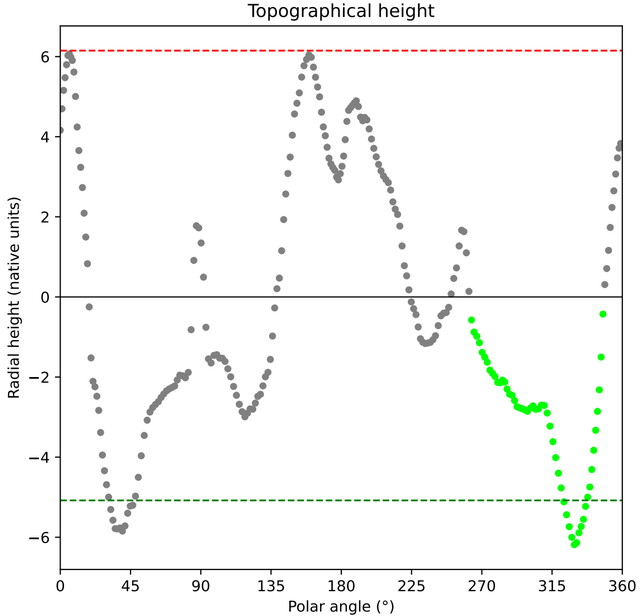

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

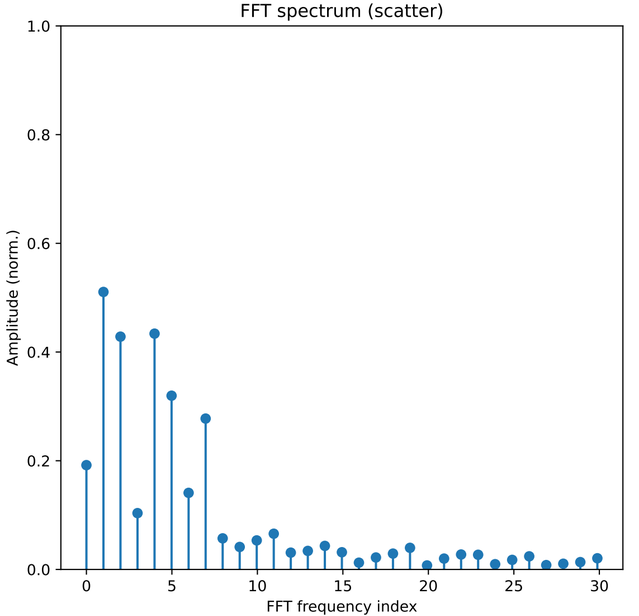

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

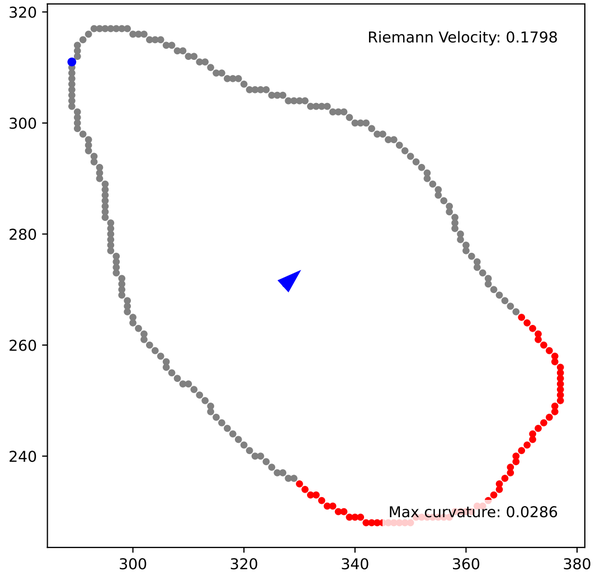

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

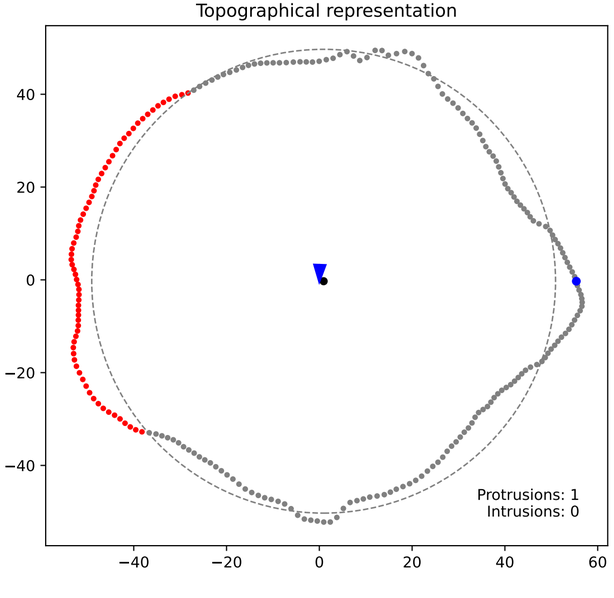

Shape evolution (t = 66.00)
Riemann Velocity: 0.1919
Max curvature: 0.0480
320
300
280
260
240
300
320
340
360
380

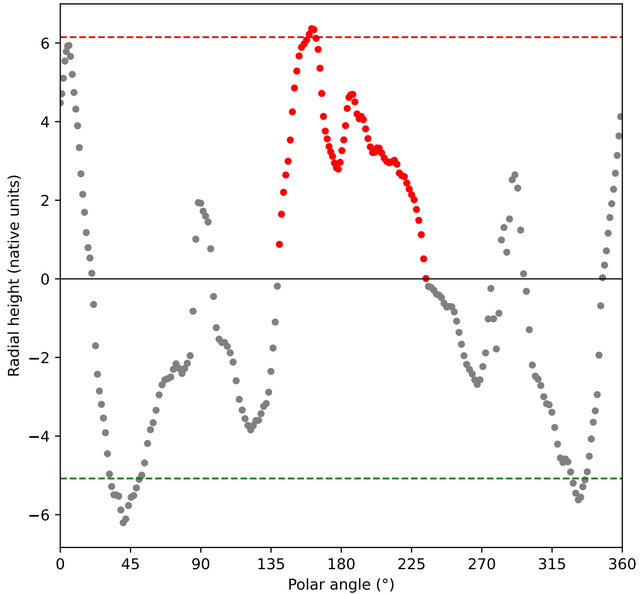

Topographical representation
Protrusions: 0
Intrusions: 1
40
20
0
−20
−40
−40
−20
0
20
40
60

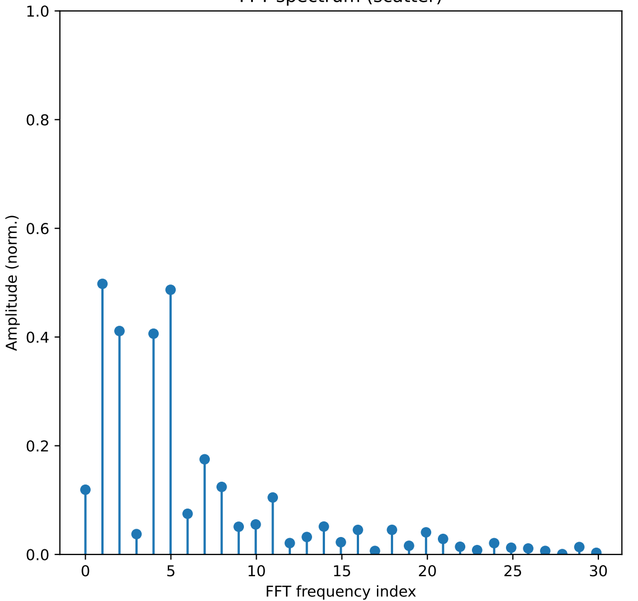

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

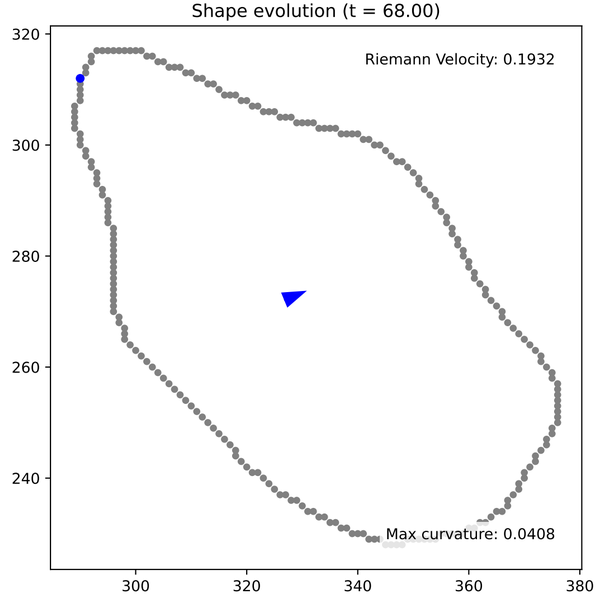

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

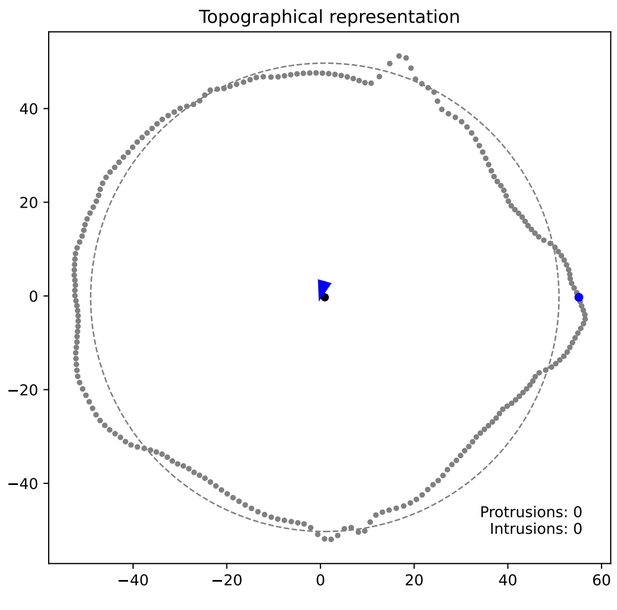

Shape evolution (t = 67.00)
Riemann Velocity: 0.1798
Max curvature: 0.0286
320
300
280
260
240
300
320
340
360
380

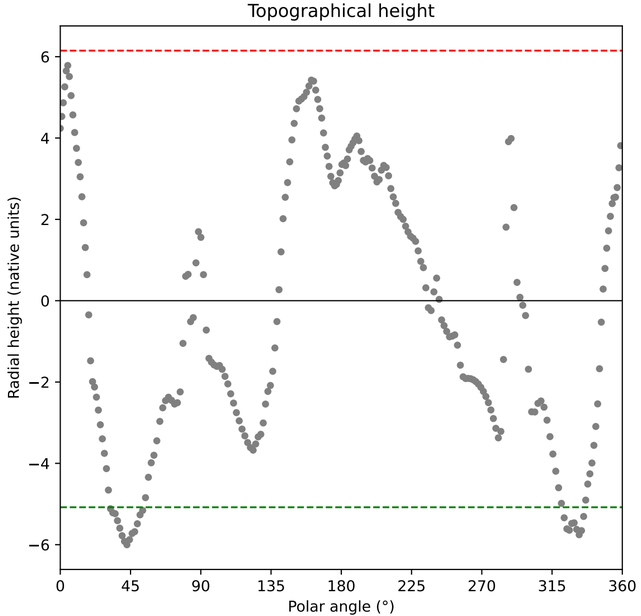

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

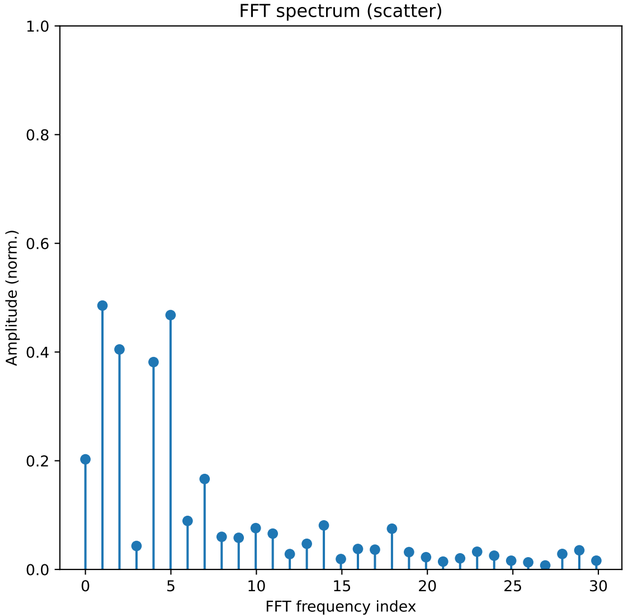

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

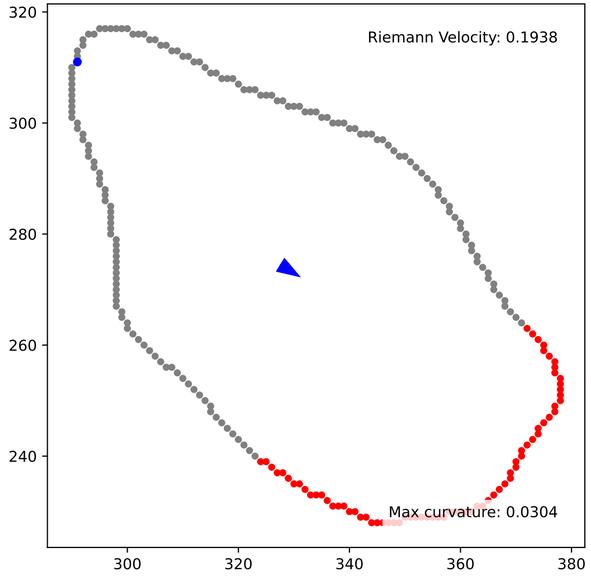

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

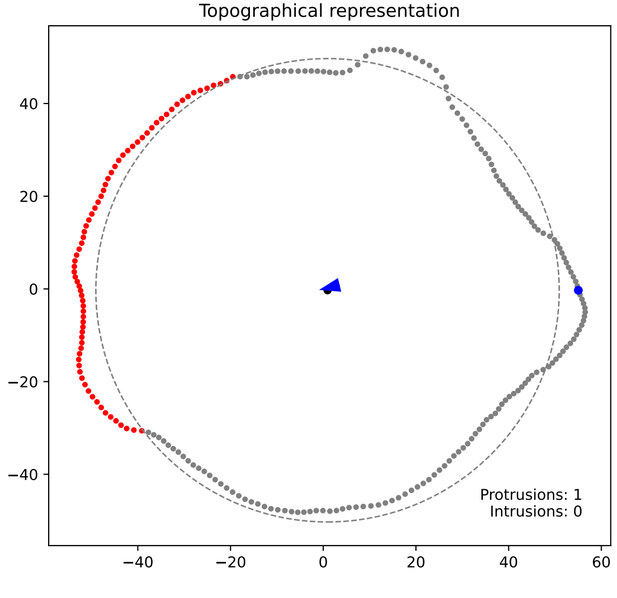

Shape evolution (t = 68.00)
Riemann Velocity: 0.1932
Max curvature: 0.0408

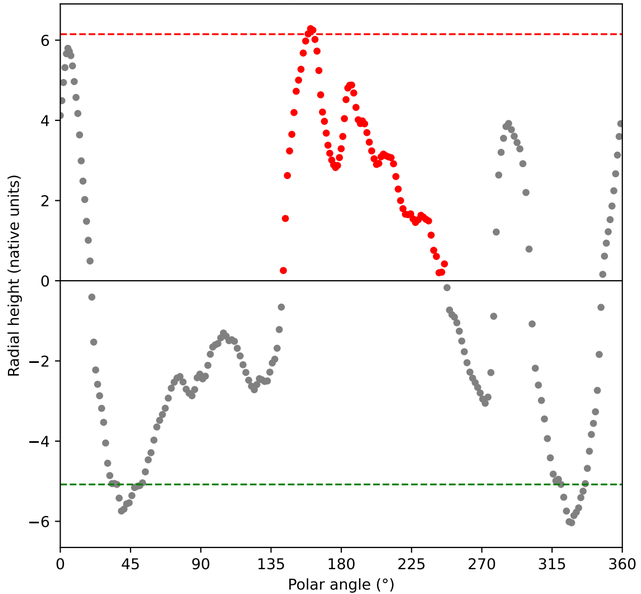

Topographical representation
Protrusions: 0
Intrusions: 0

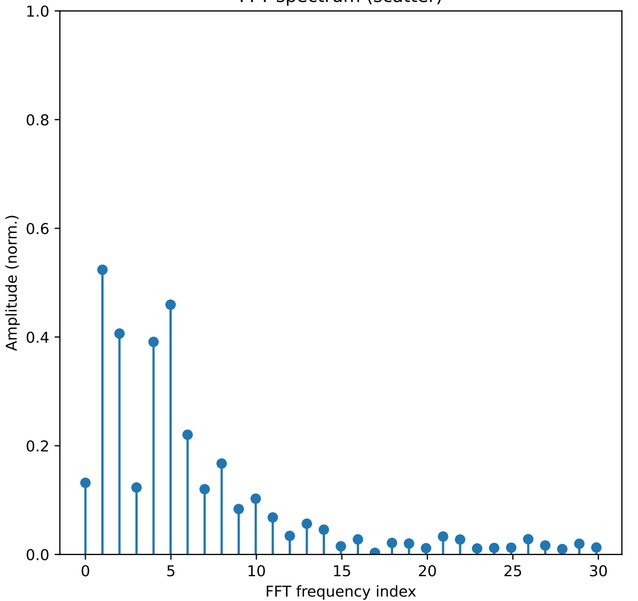

Topographical height
Radial height (native units)
Polar angle (°)

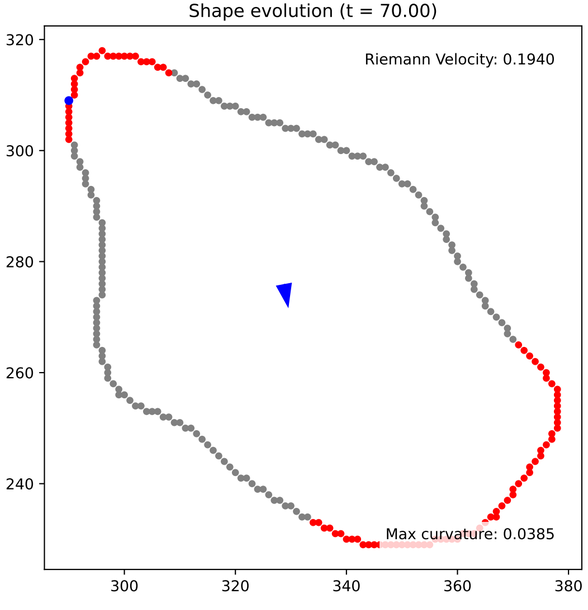

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

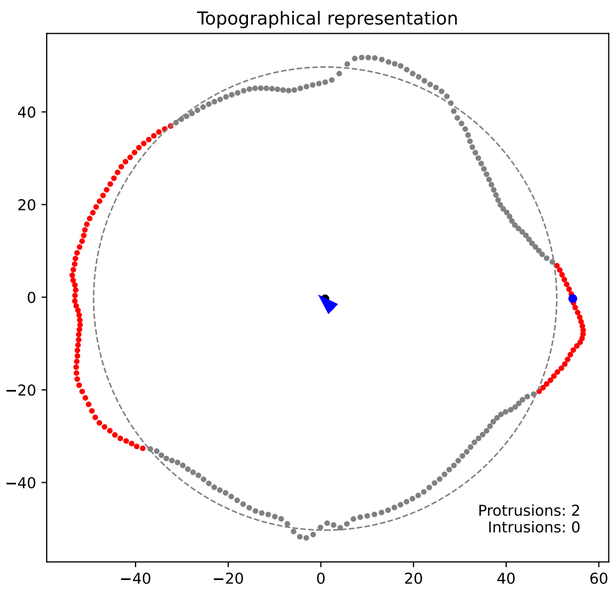

Shape evolution (t = 69.00)
Riemann Velocity: 0.1938
Max curvature: 0.0304
320
300
280
260
240
300
320
340
360
380

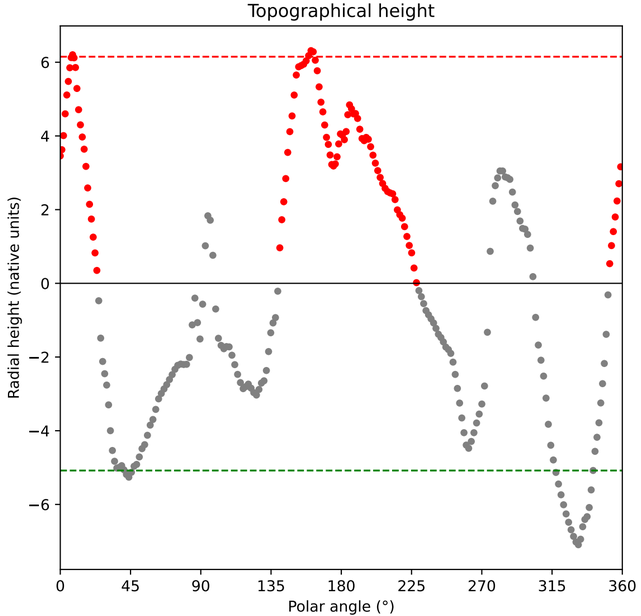

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

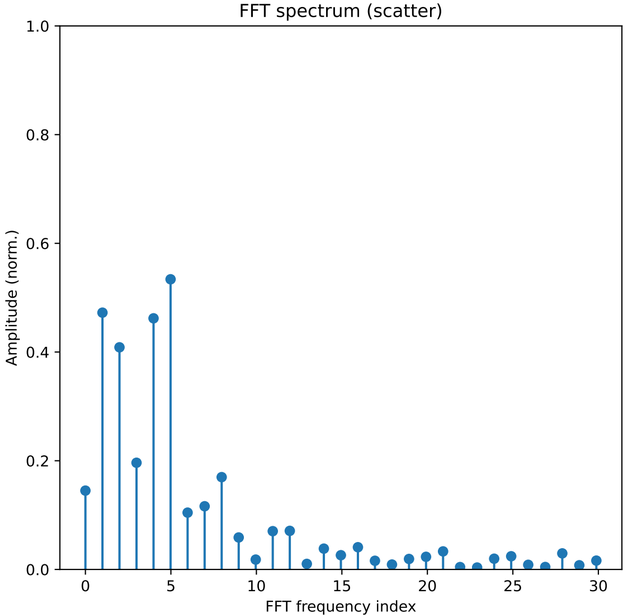

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

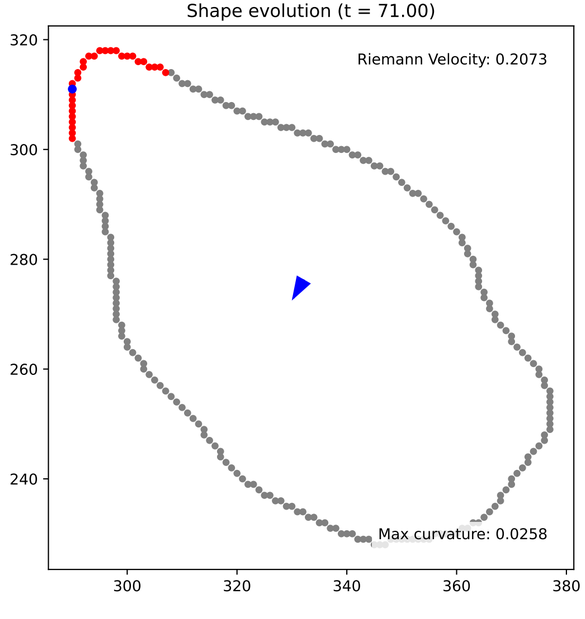

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

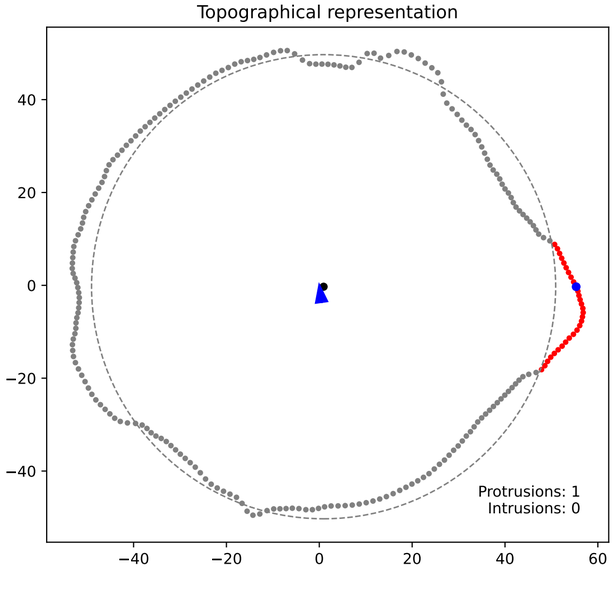

Shape evolution (t = 70.00)
Riemann Velocity: 0.1940
Max curvature: 0.0385
320
300
280
260
240
300
320
340
360
380

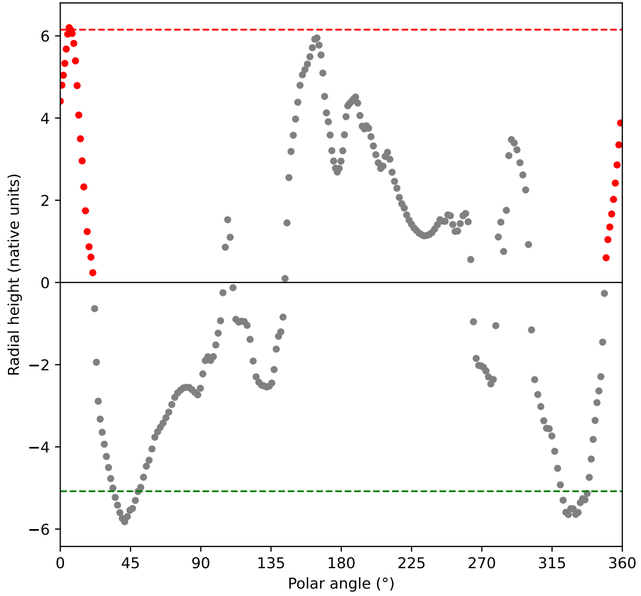

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

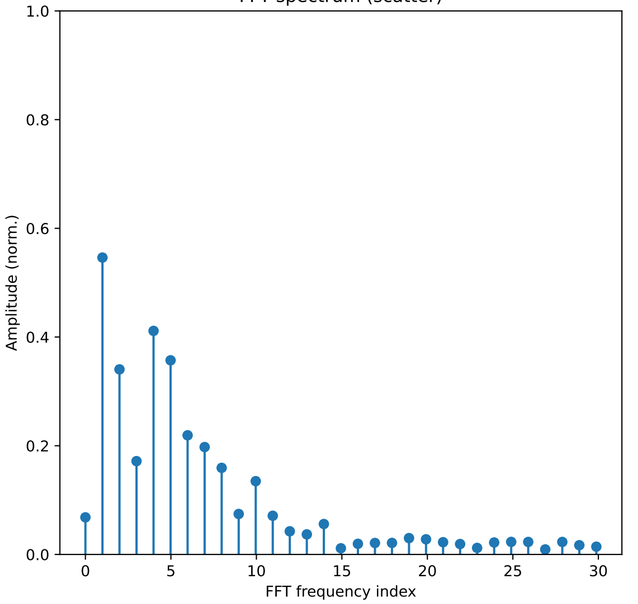

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

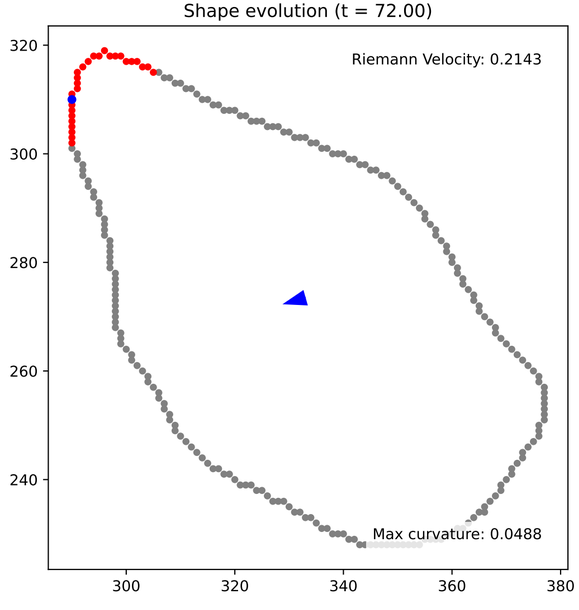

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

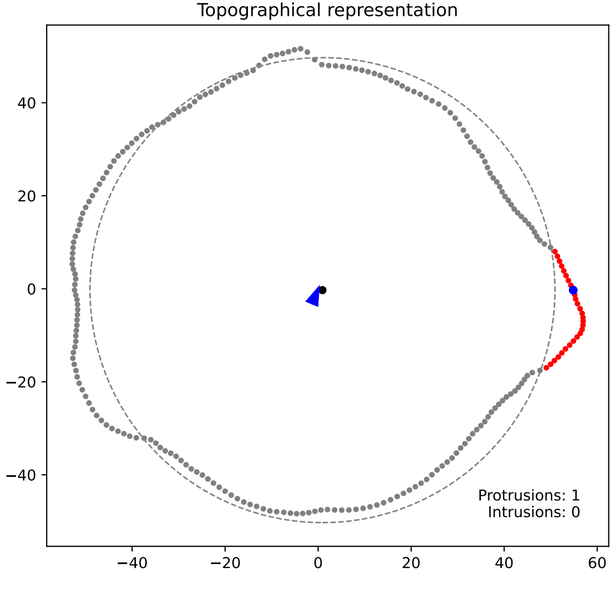

Shape evolution (t = 71.00)
Riemann Velocity: 0.2073
Max curvature: 0.0258

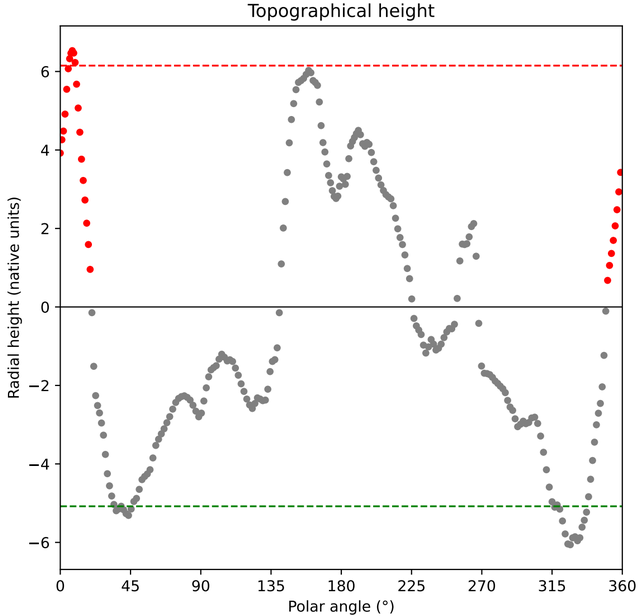

Topographical representation
Protrusions: 1
Intrusions: 0

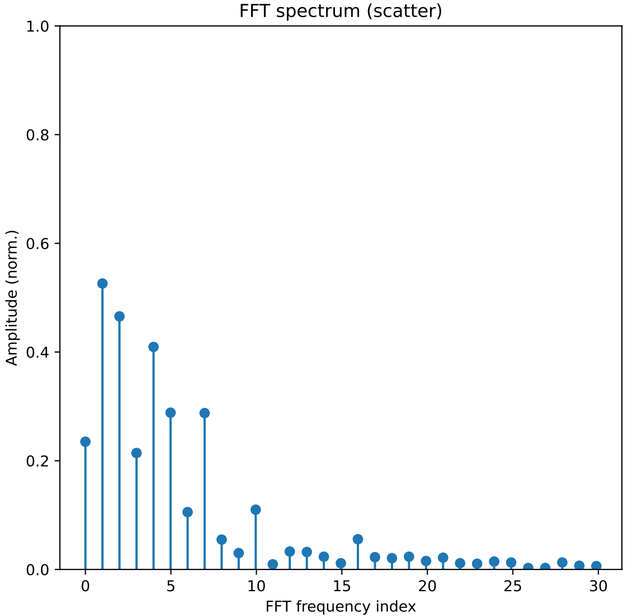

Topographical height
Radial height (native units)
Polar angle (°)

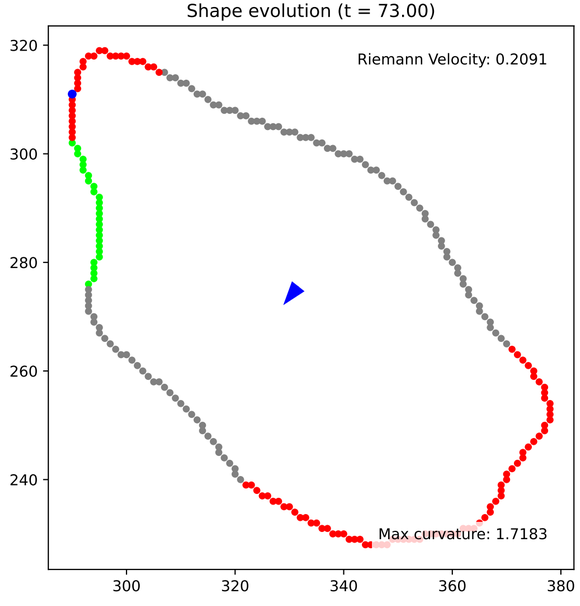

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

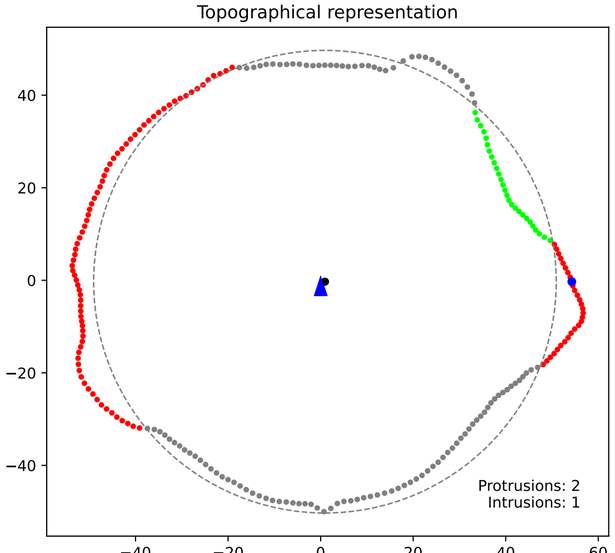

Shape evolution (t = 72.00)
Riemann Velocity: 0.2143
Max curvature: 0.0488
320
300
280
260
240
300
320
340
360
380

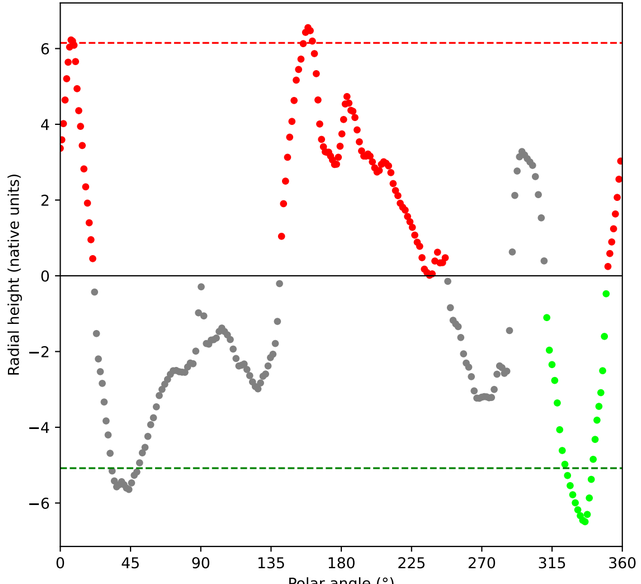

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

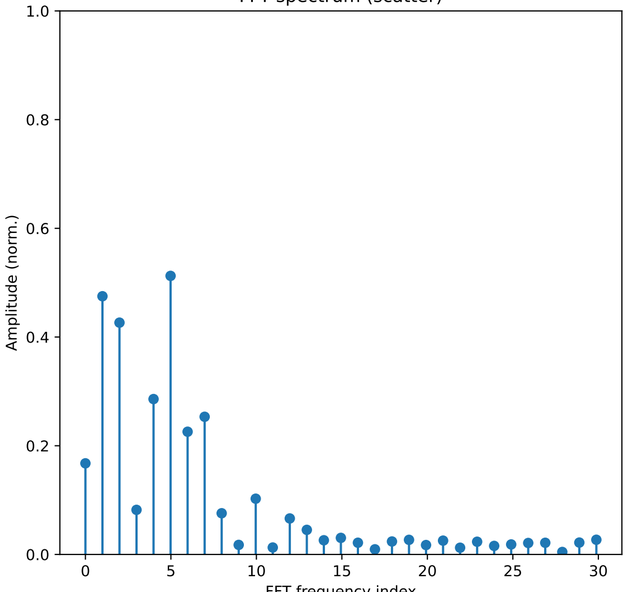

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

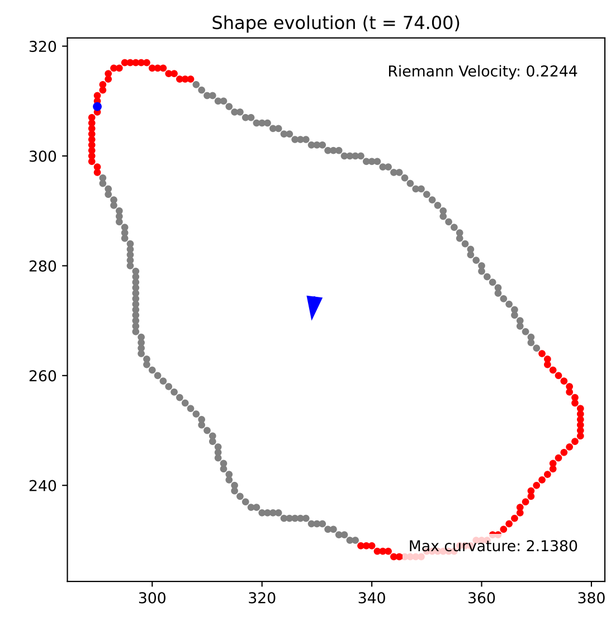

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

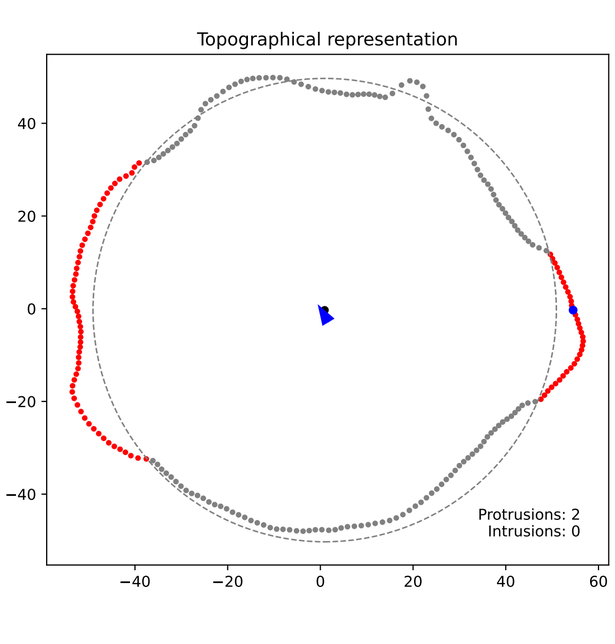

Shape evolution (t = 73.00)
Riemann Velocity: 0.2091
Max curvature: 1.7183

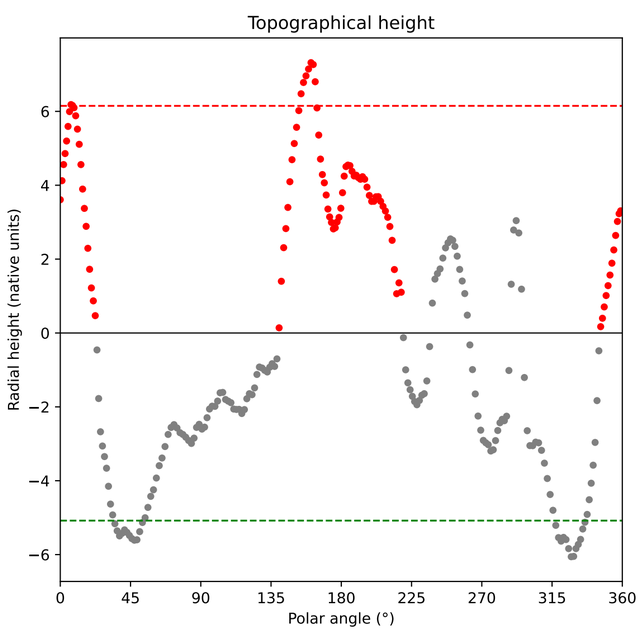

Topographical representation
Protrusions: 2
Intrusions: 1

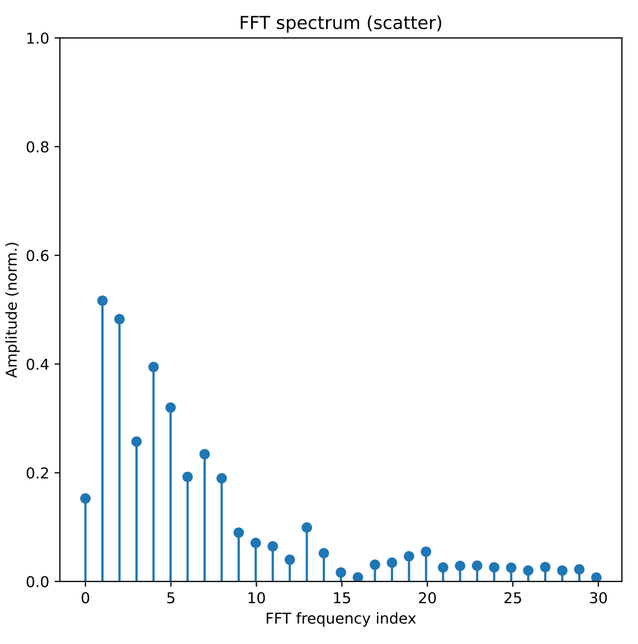

Topographical height
Radial height (native units)
Polar angle (°)

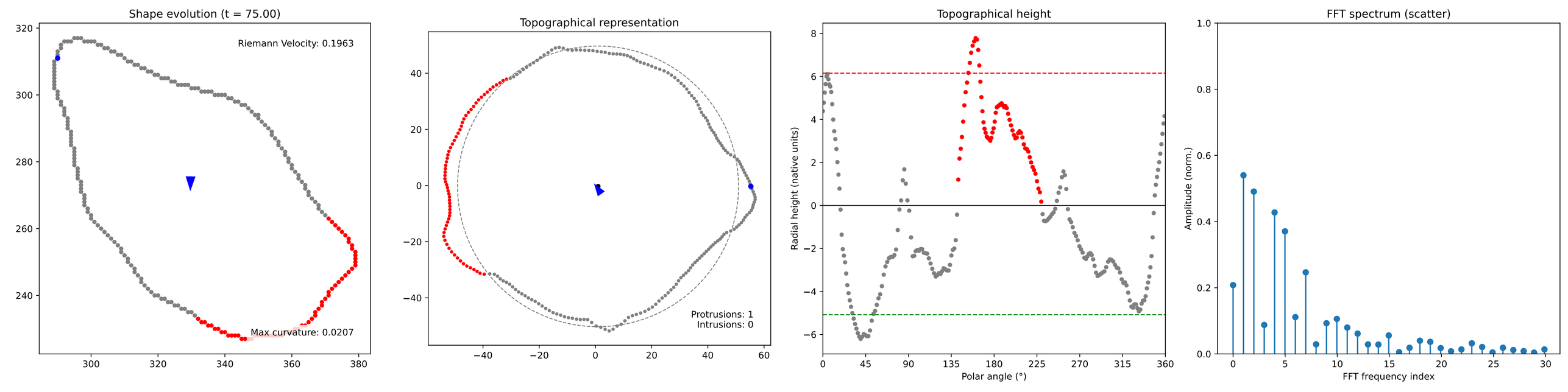

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

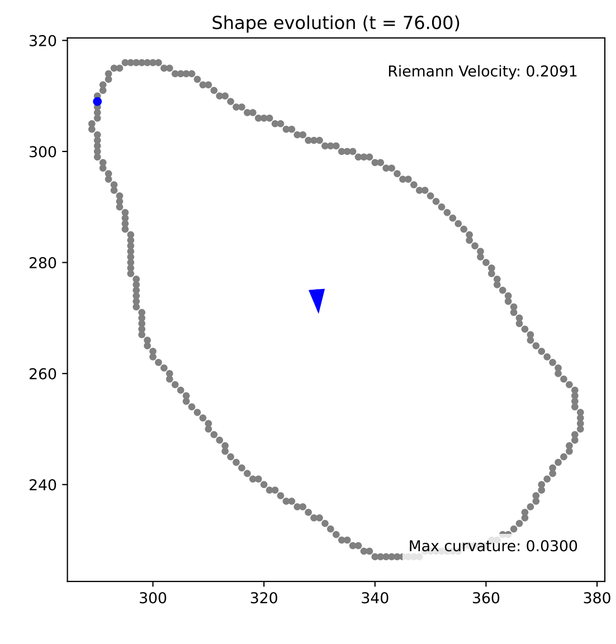

Shape evolution (t = 74.00)
Riemann Velocity: 0.2244
Max curvature: 2.1380

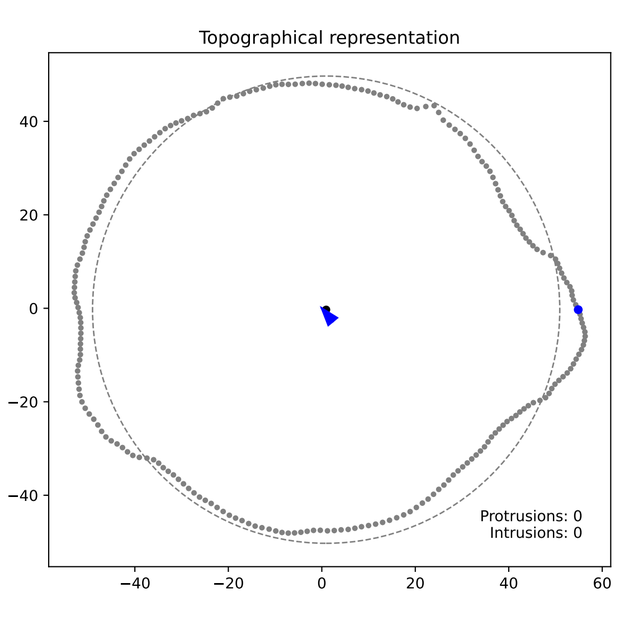

Topographical representation
Protrusions: 2
Intrusions: 0

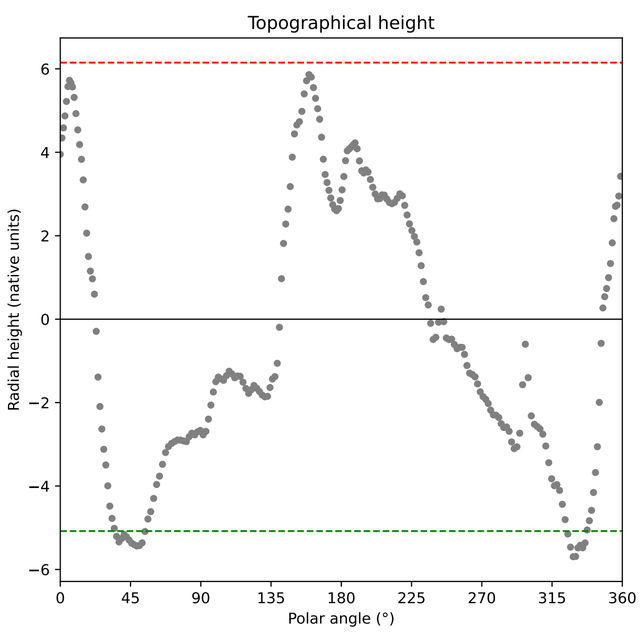

Topographical height
Radial height (native units)
Polar angle (°)

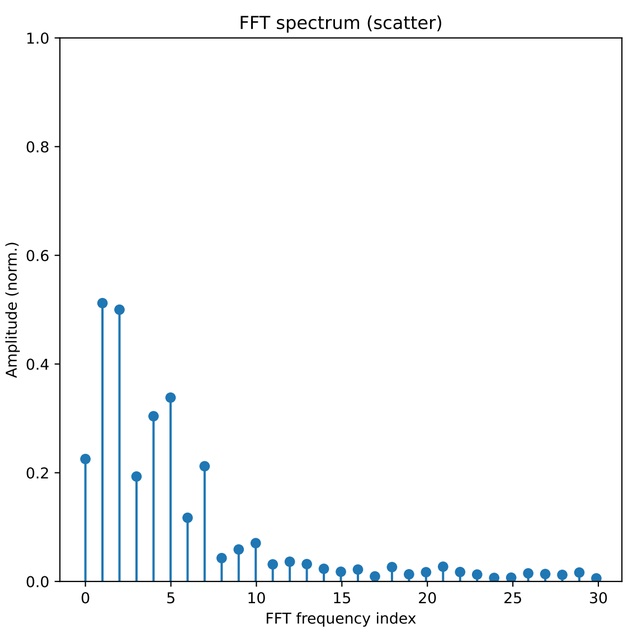

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

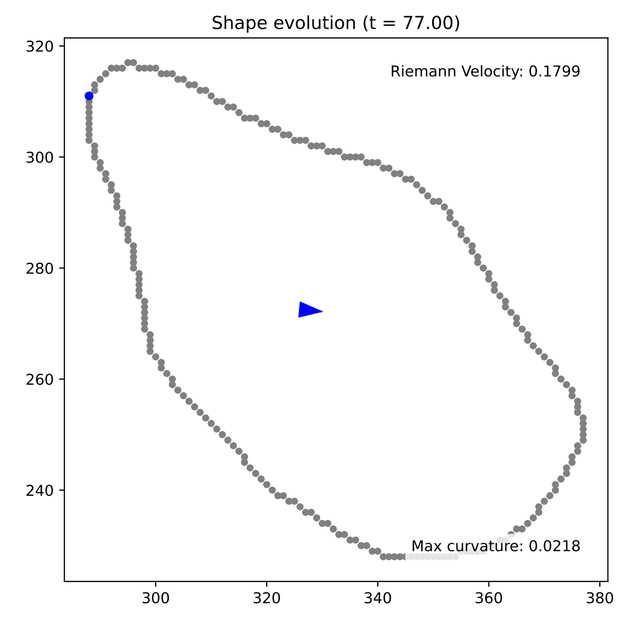

Shape evolution (t = 75.00)
Riemann Velocity: 0.1963
Max curvature: 0.0207
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

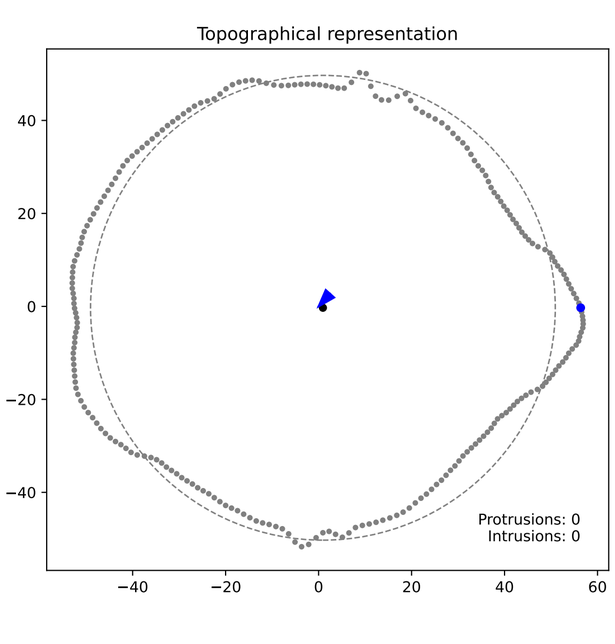

Shape evolution (t = 76.00)
Riemann Velocity: 0.2091
Max curvature: 0.0300
320
300
280
260
240
300
320
340
360
380

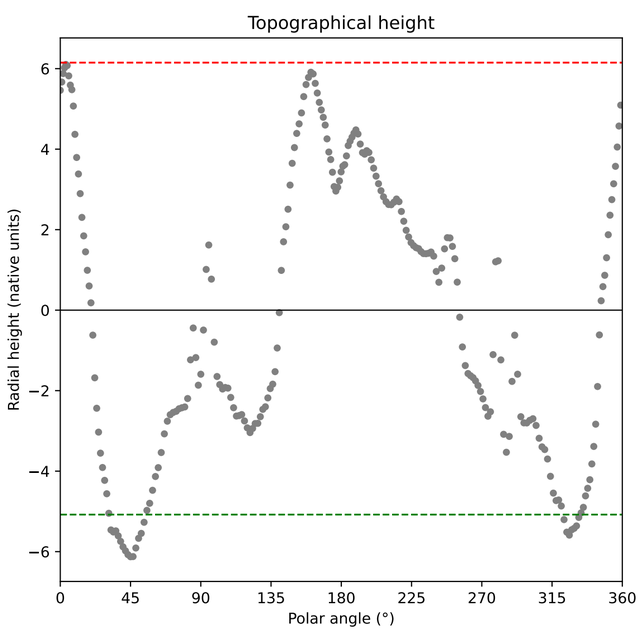

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

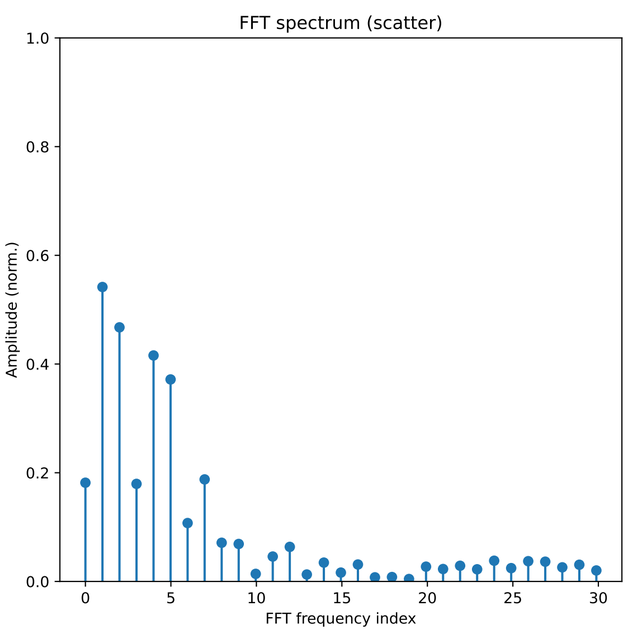

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

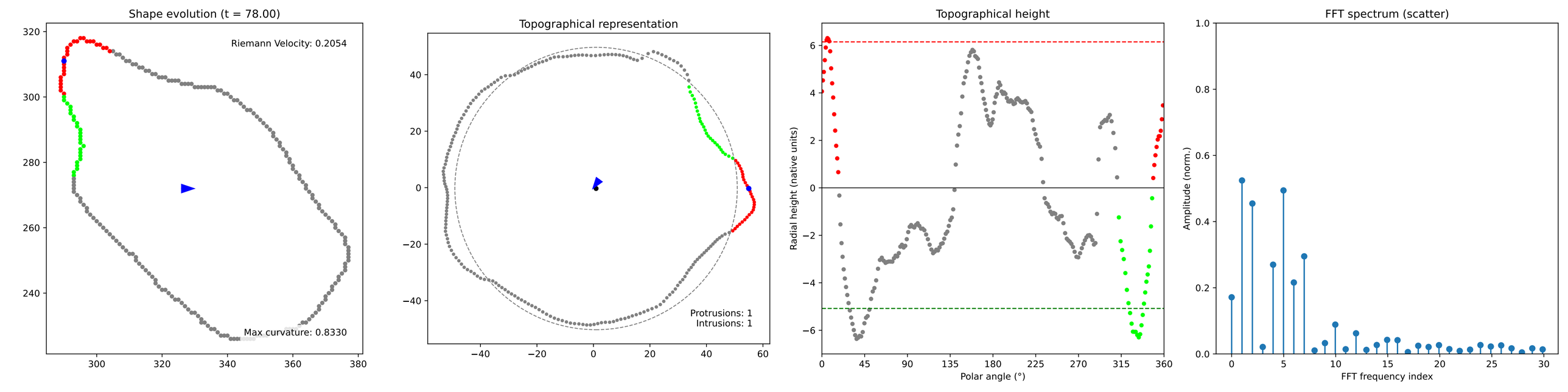

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

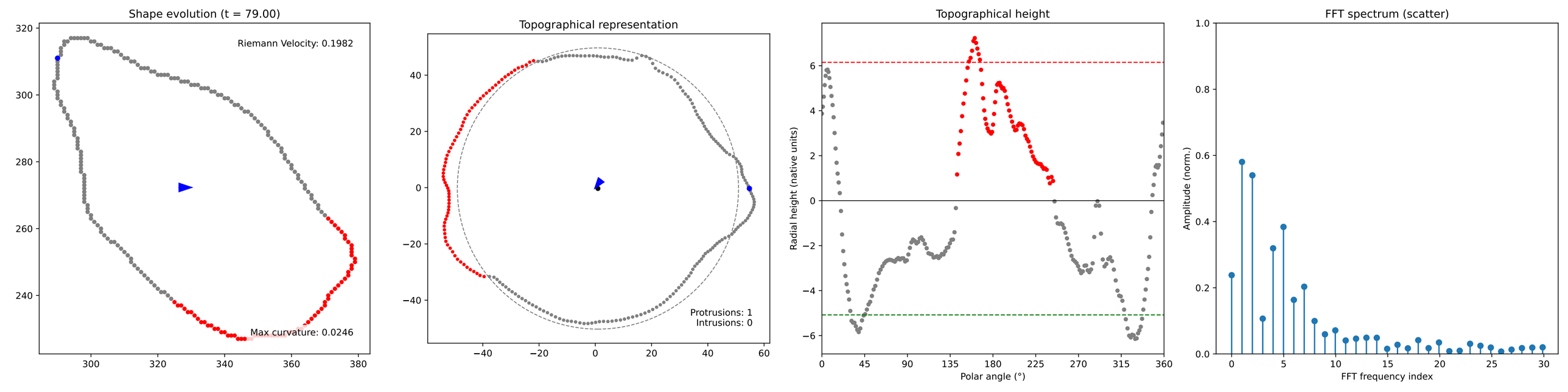

Shape evolution (t = 77.00)
Riemann Velocity: 0.1799
Max curvature: 0.0218

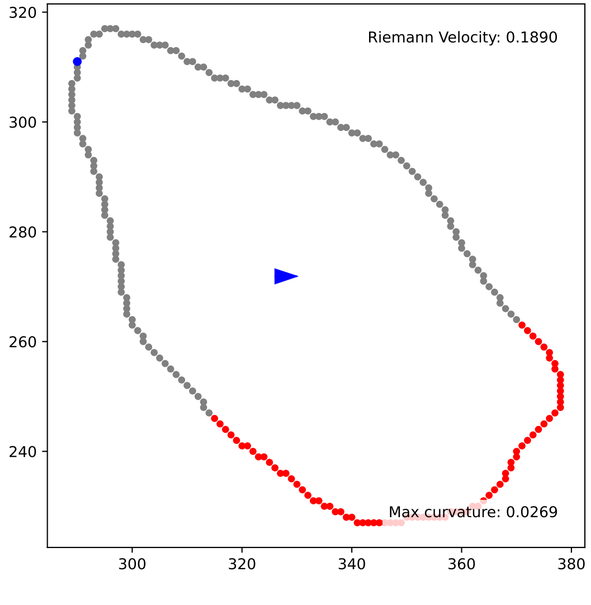

Topographical representation
Protrusions: 0
Intrusions: 0

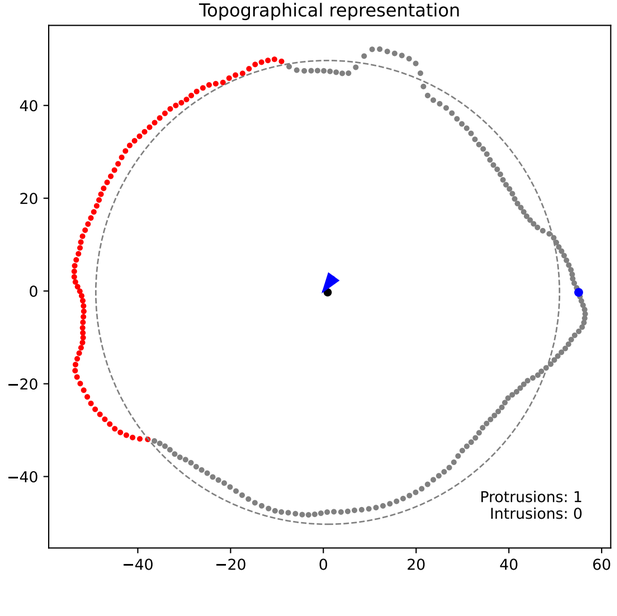

Topographical height
Radial height (native units)
Polar angle (°)

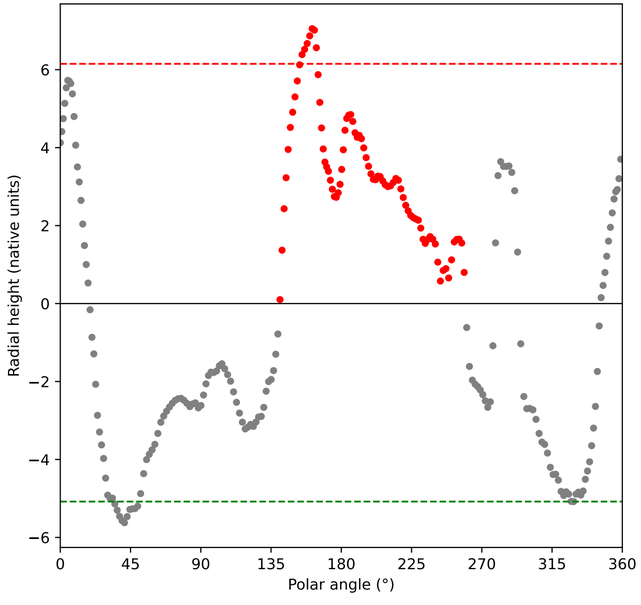

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

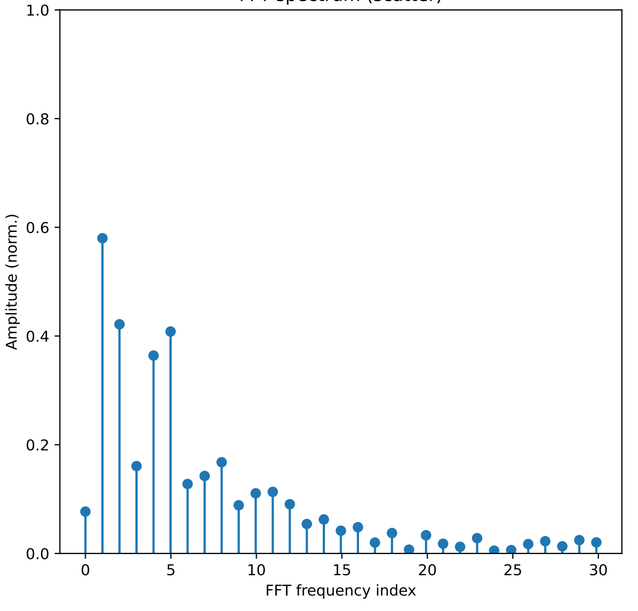

Shape evolution (t = 78.00)
Riemann Velocity: 0.2054
Max curvature: 0.8330
Topographical representation
Protrusions: 1
Intrusions: 1
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

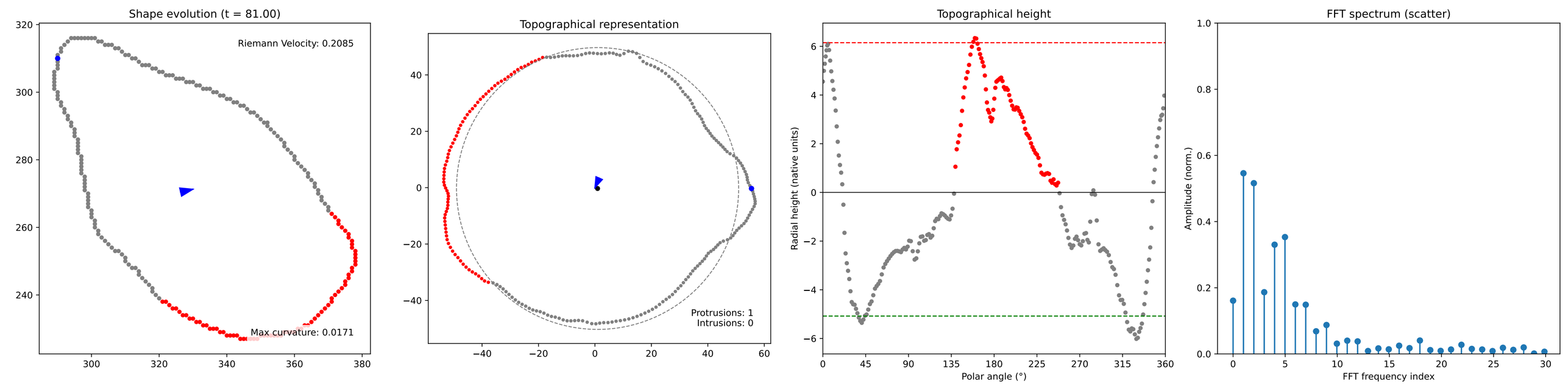

Shape evolution (t = 79.00)
Riemann Velocity: 0.1982
Max curvature: 0.0246
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

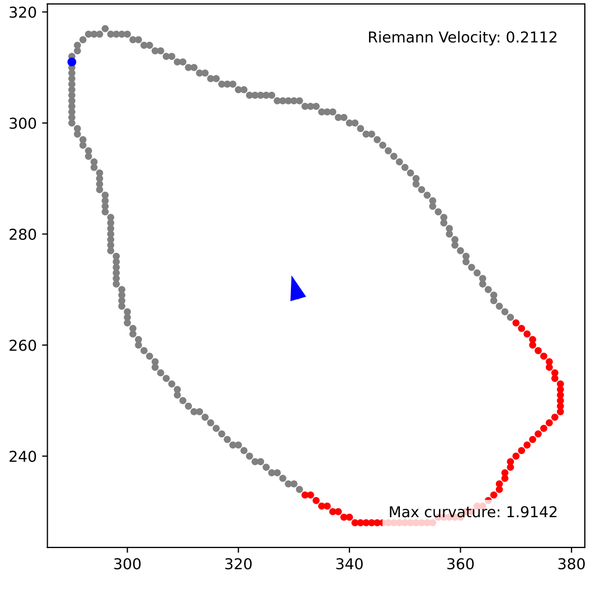

Shape evolution (t = 80.00)
Riemann Velocity: 0.1890
Max curvature: 0.0269

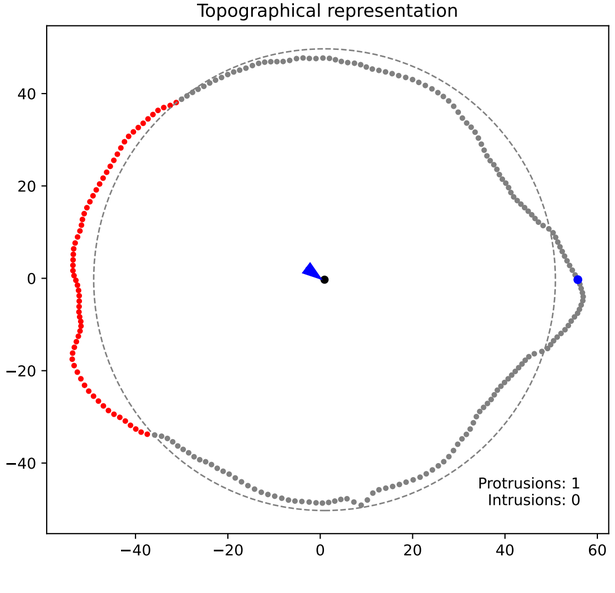

Topographical representation
Protrusions: 1
Intrusions: 0

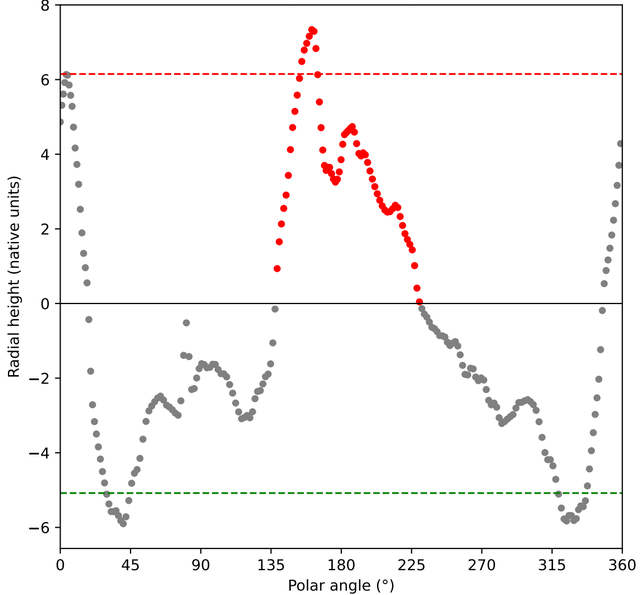

Topographical height
Radial height (native units)
Polar angle (°)

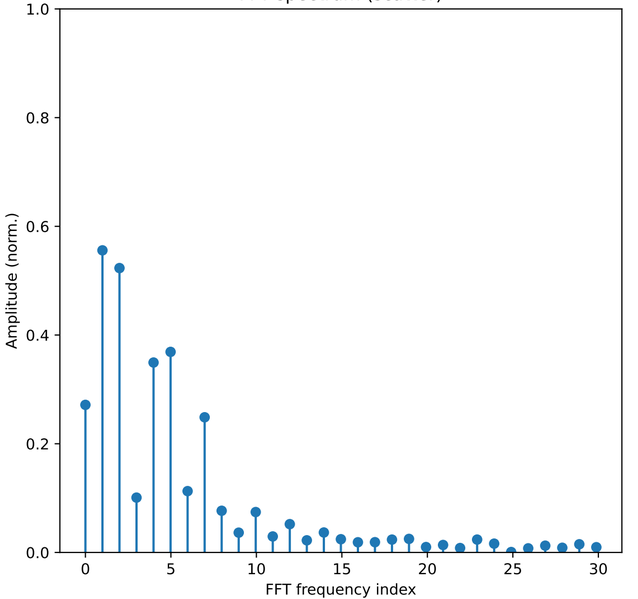

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

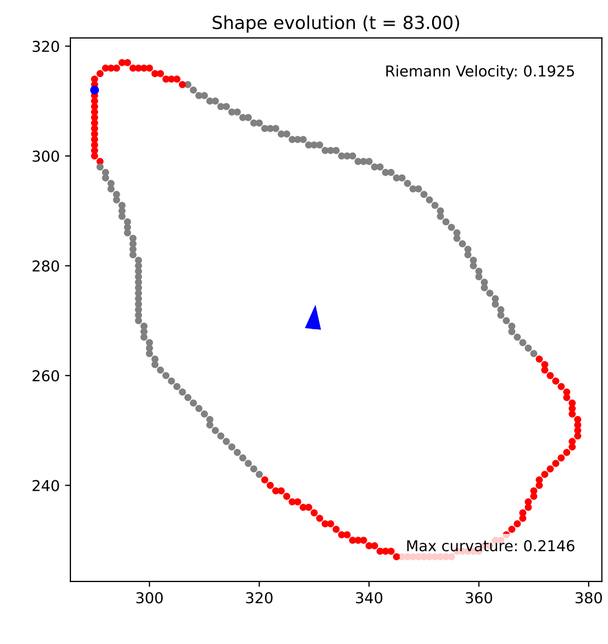

Shape evolution (t = 81.00)
Riemann Velocity: 0.2085
Max curvature: 0.0171
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

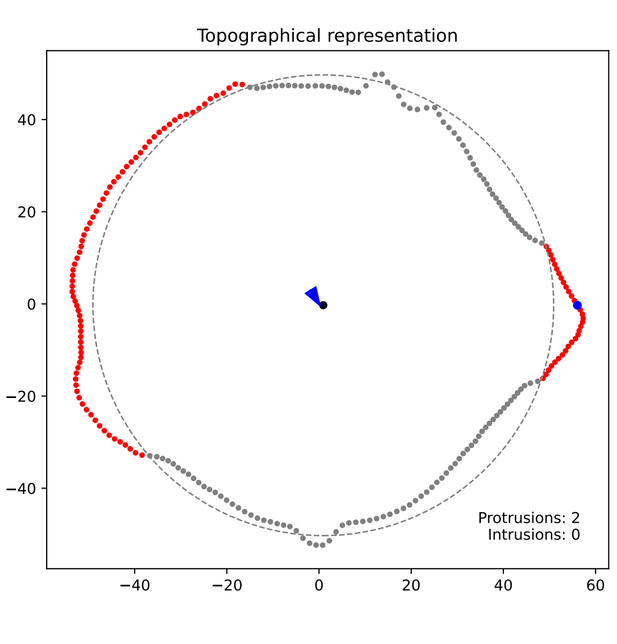

Shape evolution (t = 82.00)
Riemann Velocity: 0.2112
Max curvature: 1.9142

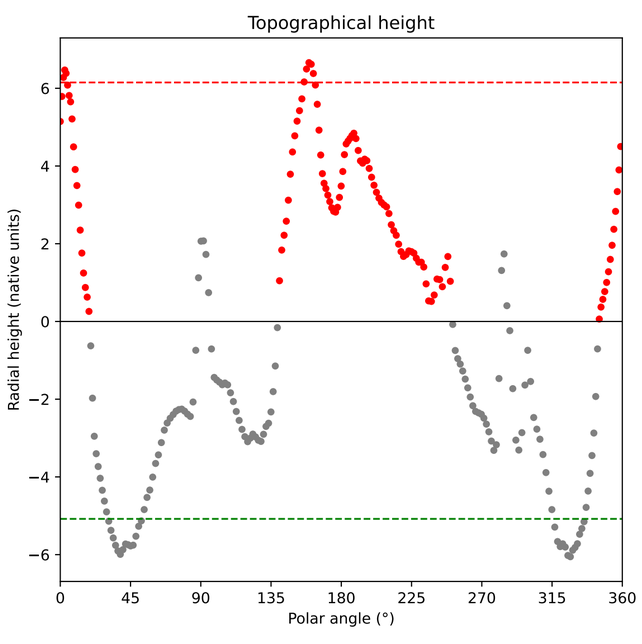

Topographical representation
Protrusions: 1
Intrusions: 0

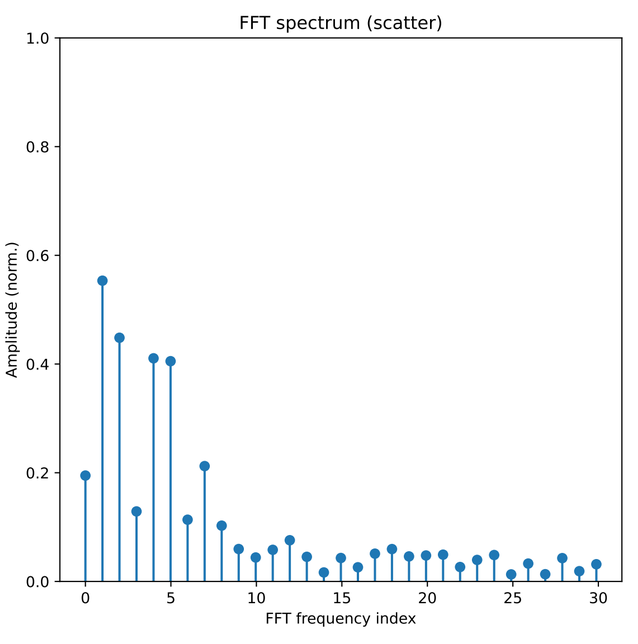

Topographical height
Radial height (native units)
Polar angle (°)

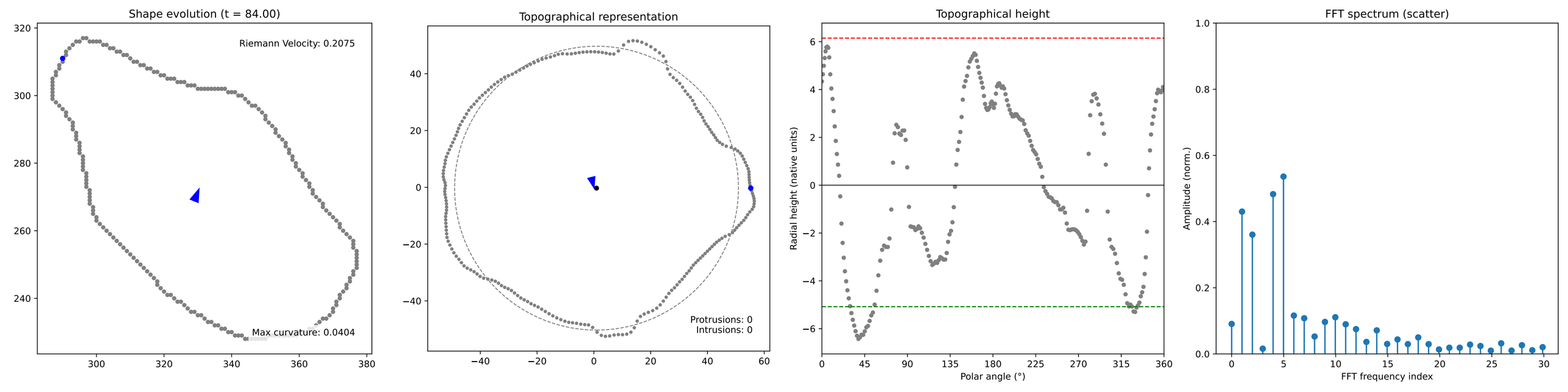

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

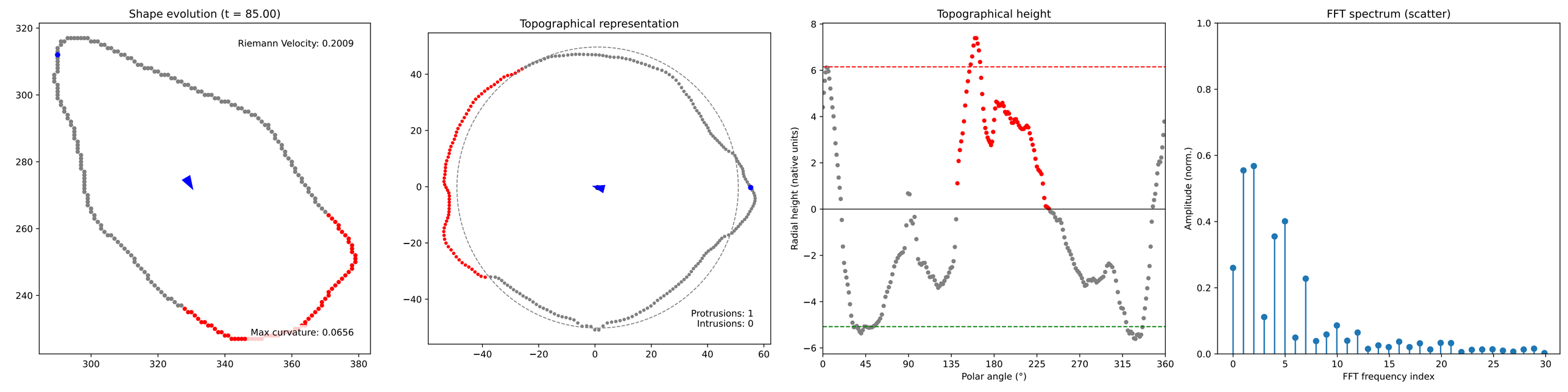

Shape evolution (t = 83.00)
Riemann Velocity: 0.1925
Max curvature: 0.2146

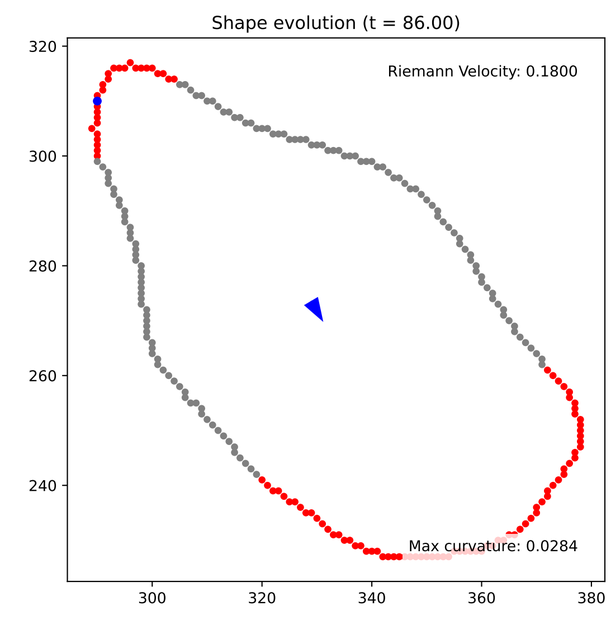

Topographical representation
Protrusions: 2
Intrusions: 0

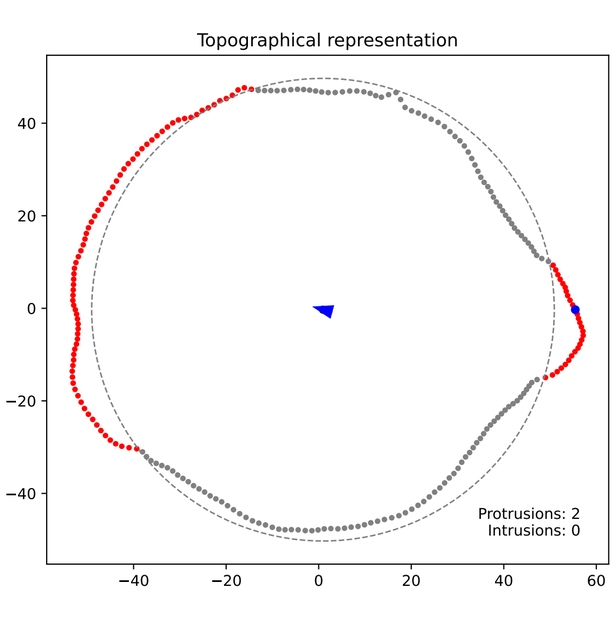

Topographical height
Radial height (native units)
Polar angle (°)

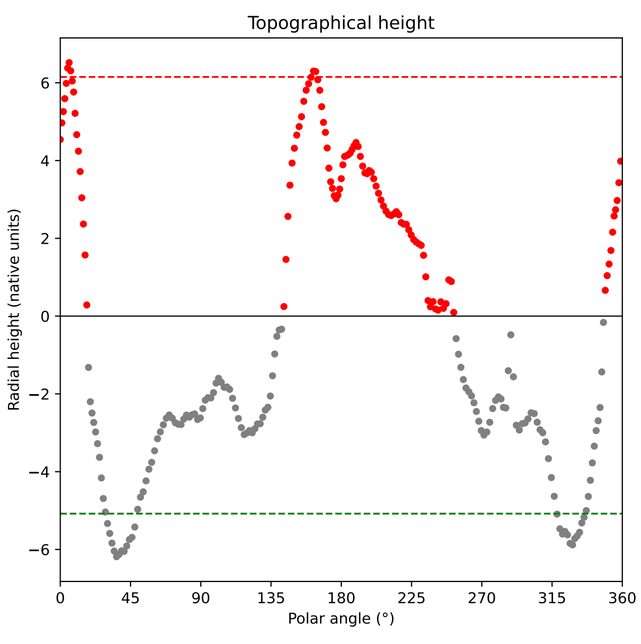

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

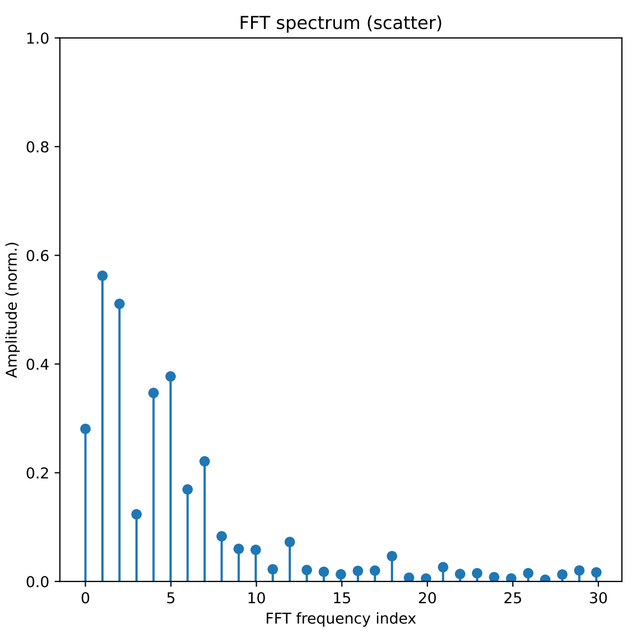

Shape evolution (t = 84.00)
Riemann Velocity: 0.2075
Max curvature: 0.0404
Topographical representation
Protrusions: 0
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

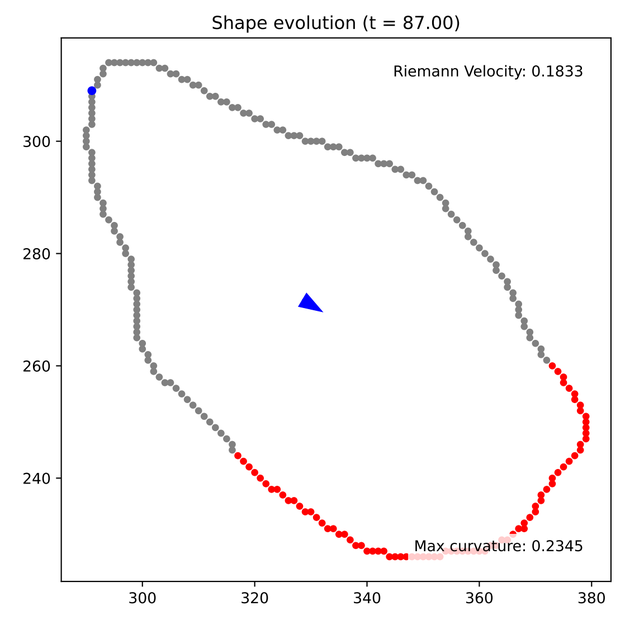

Shape evolution (t = 85.00)
Riemann Velocity: 0.2009
Max curvature: 0.0656
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

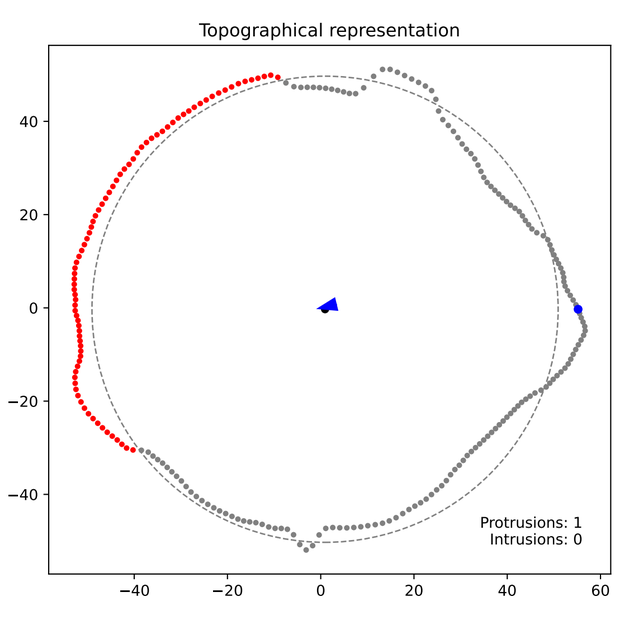

Shape evolution (t = 86.00)
Riemann Velocity: 0.1800
Max curvature: 0.0284

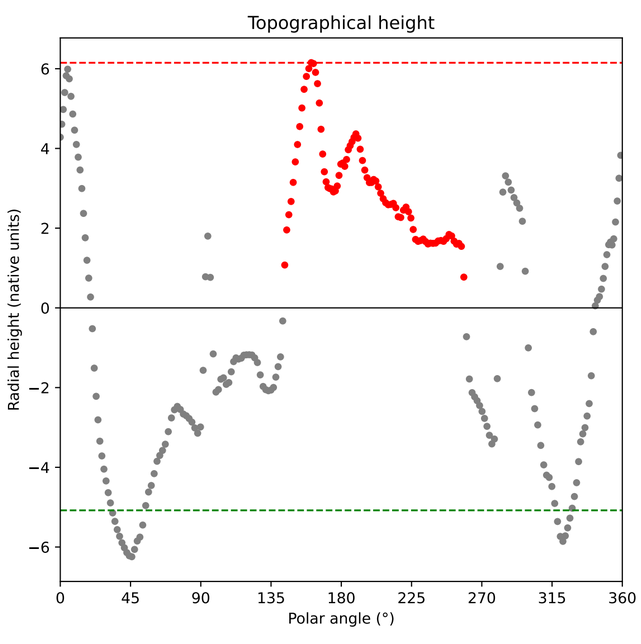

Topographical representation
Protrusions: 2
Intrusions: 0

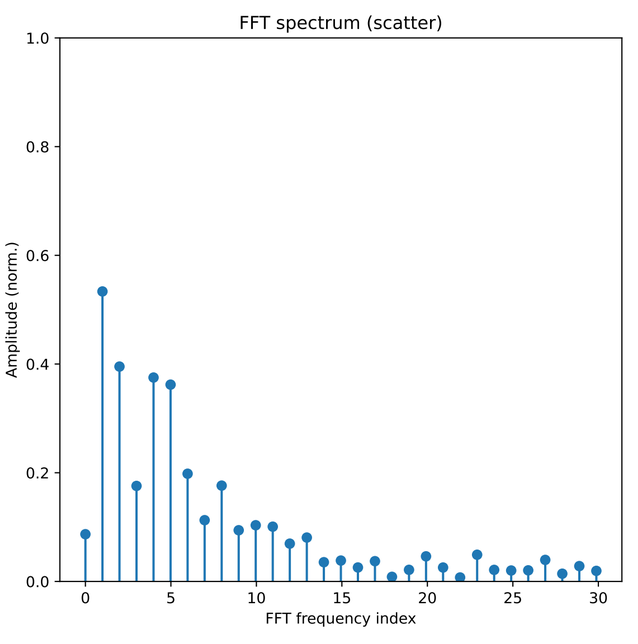

Topographical height
Radial height (native units)
Polar angle (°)

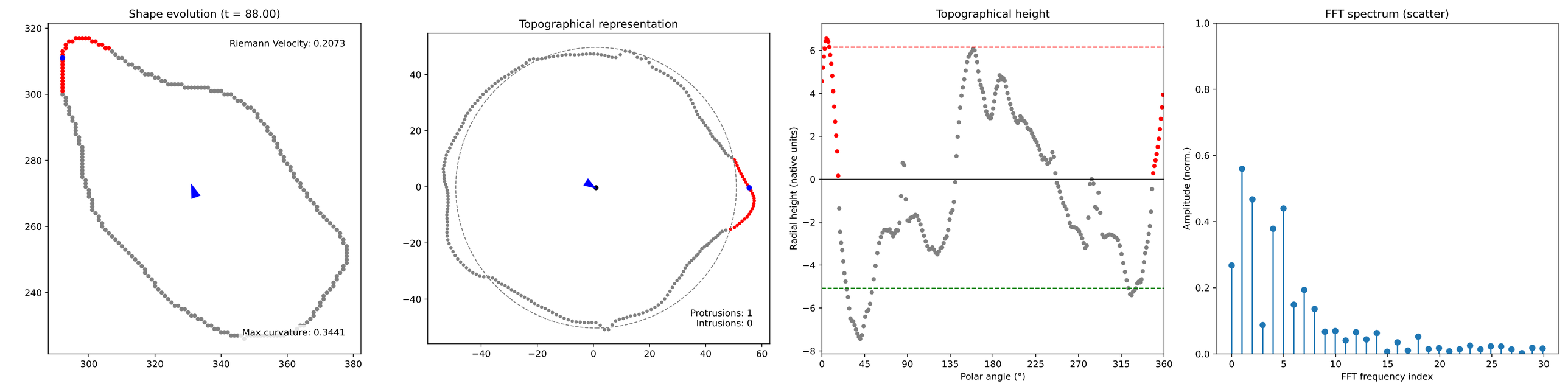

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

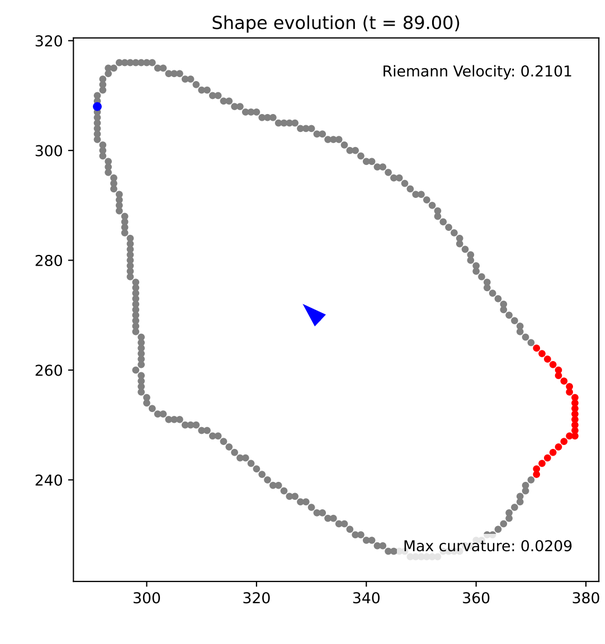

Shape evolution (t = 87.00)
Riemann Velocity: 0.1833
Max curvature: 0.2345
300
280
260
240
300
320
340
360
380

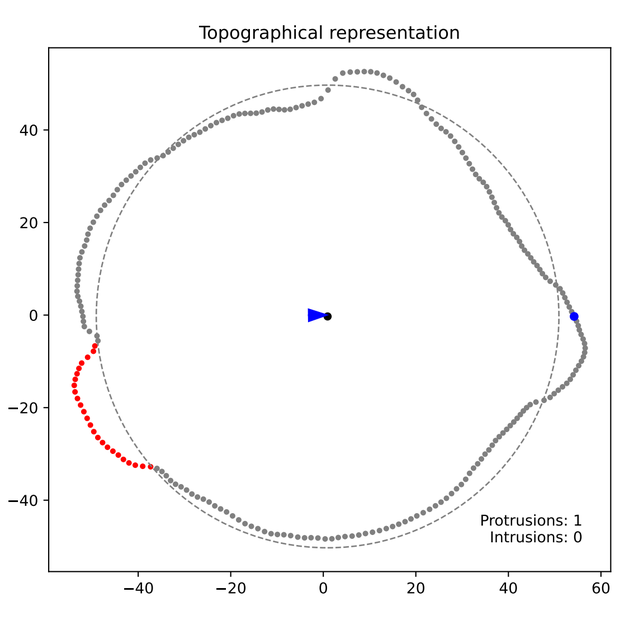

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

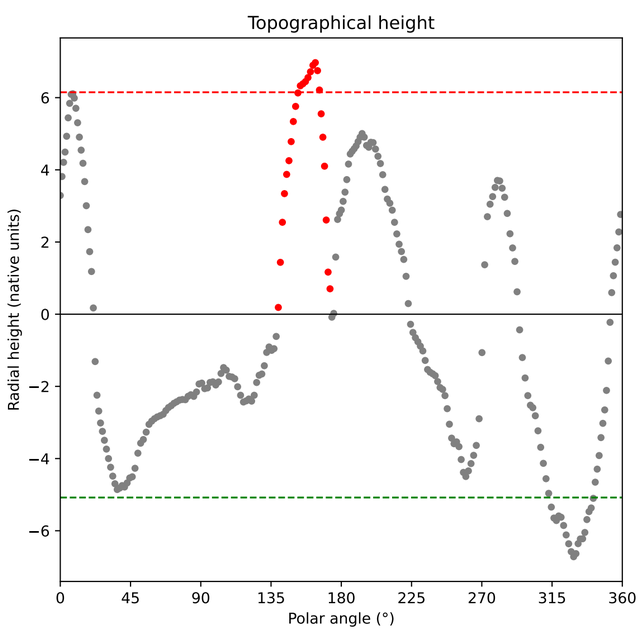

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

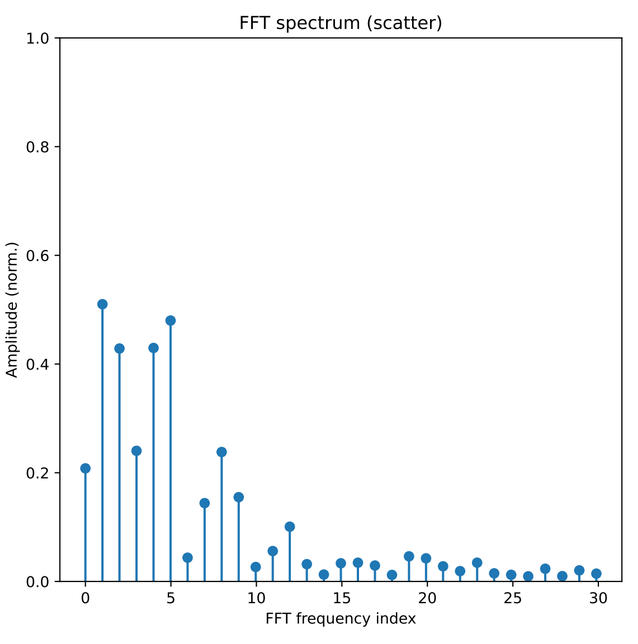

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

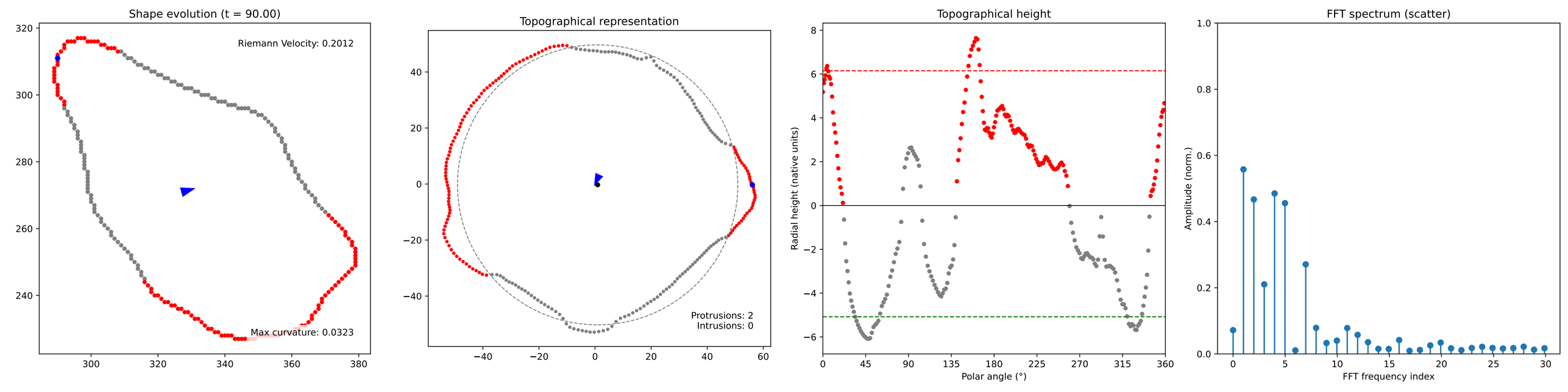

Shape evolution (t = 88.00)
Riemann Velocity: 0.2073
Max curvature: 0.3441
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

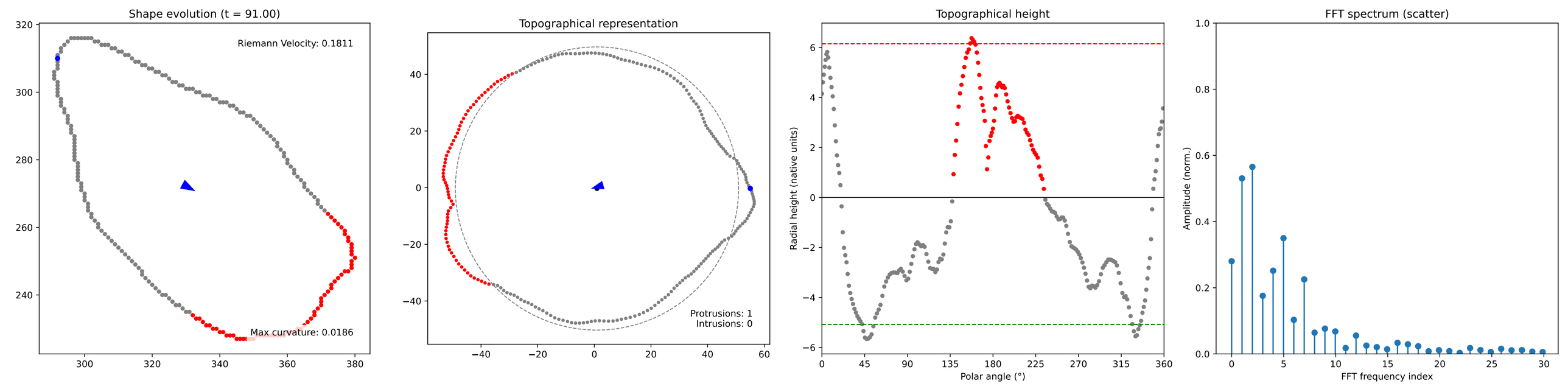

Shape evolution (t = 89.00)
Riemann Velocity: 0.2101
Max curvature: 0.0209

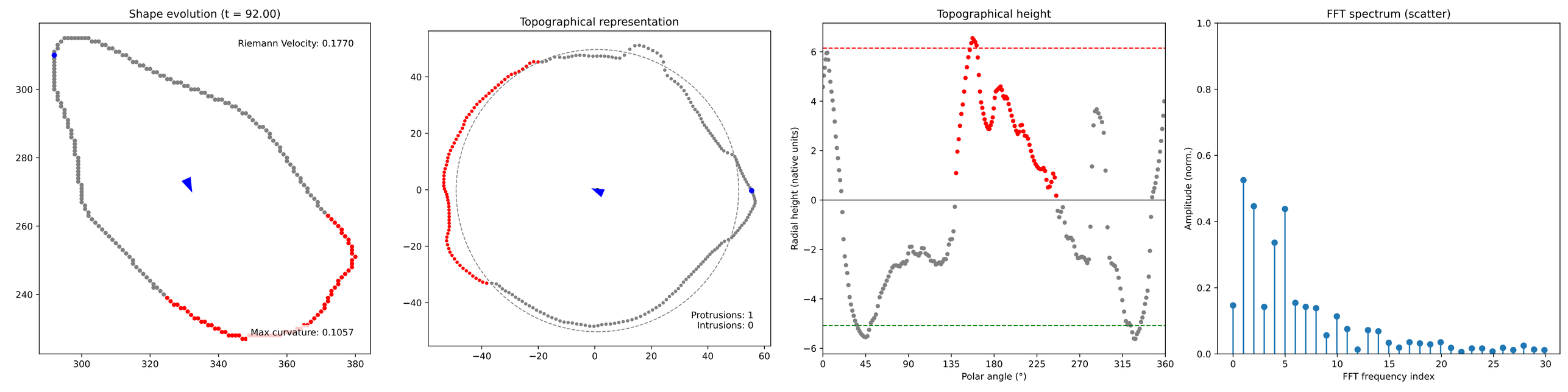

Topographical representation
Protrusions: 1
Intrusions: 0

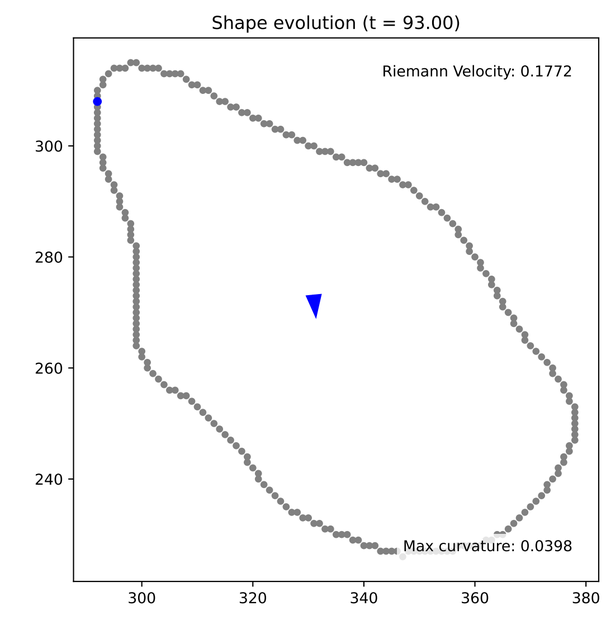

Topographical height
Radial height (native units)
Polar angle (°)

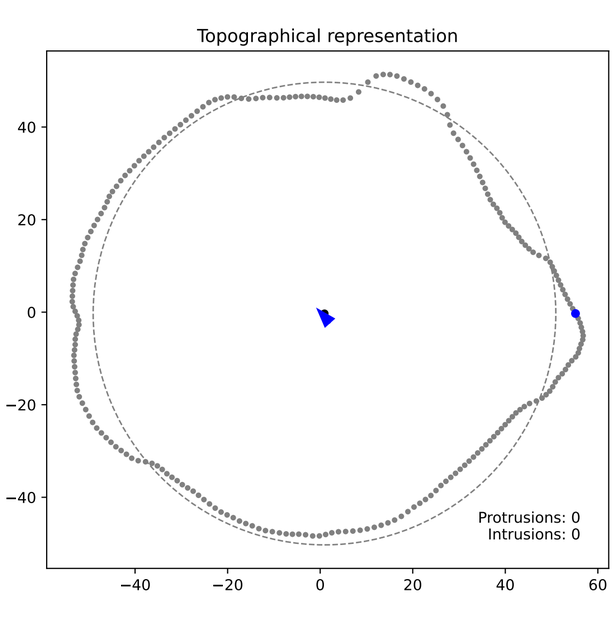

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

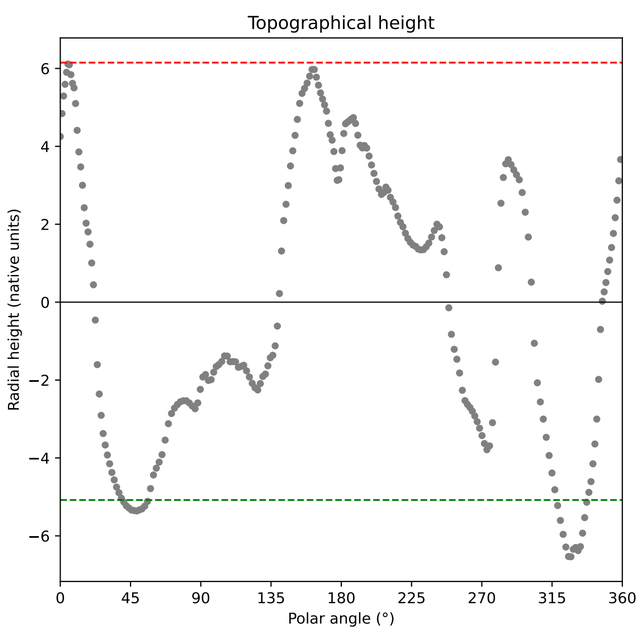

Shape evolution (t = 90.00)
Riemann Velocity: 0.2012
Max curvature: 0.0323
Topographical representation
Protrusions: 2
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

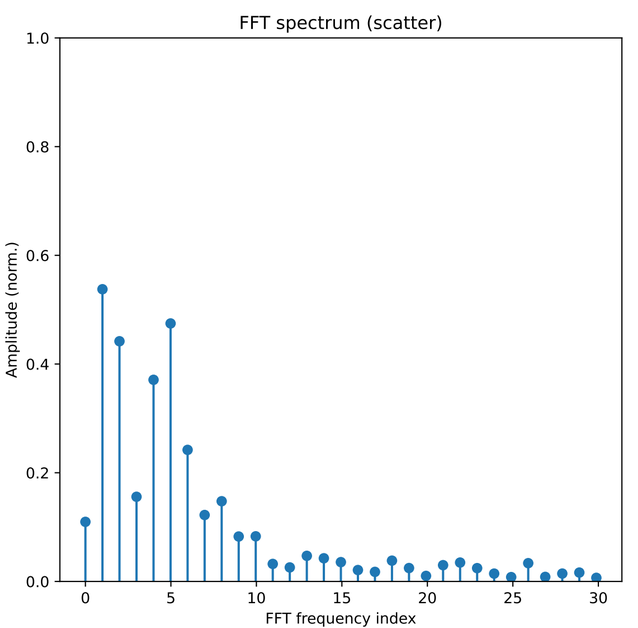

Shape evolution (t = 91.00)
Riemann Velocity: 0.1811
Max curvature: 0.0186
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

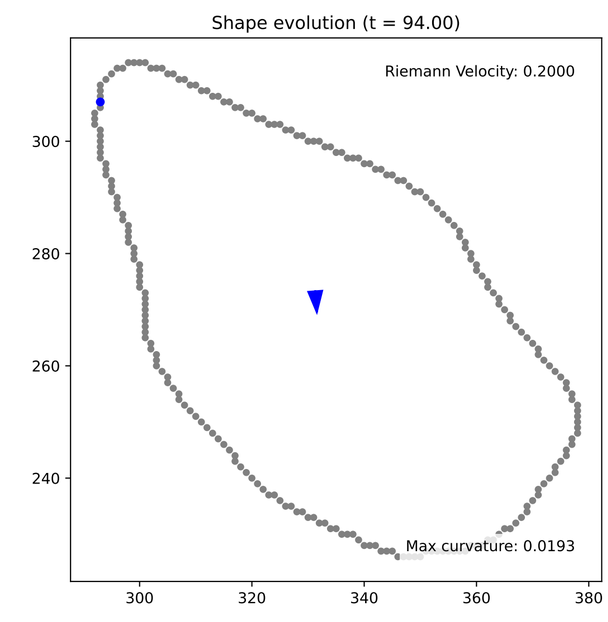

Shape evolution (t = 92.00)
Riemann Velocity: 0.1770
Max curvature: 0.1057
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

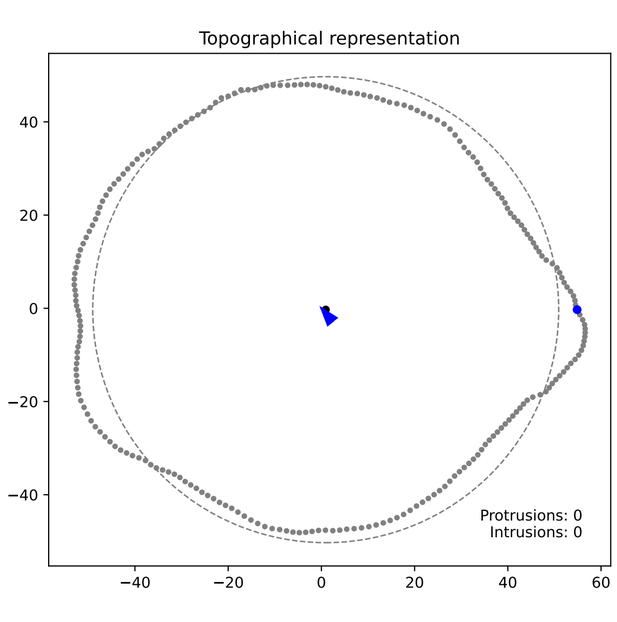

Shape evolution (t = 93.00)
Riemann Velocity: 0.1772
Max curvature: 0.0398
300
280
260
240
300
320
340
360
380

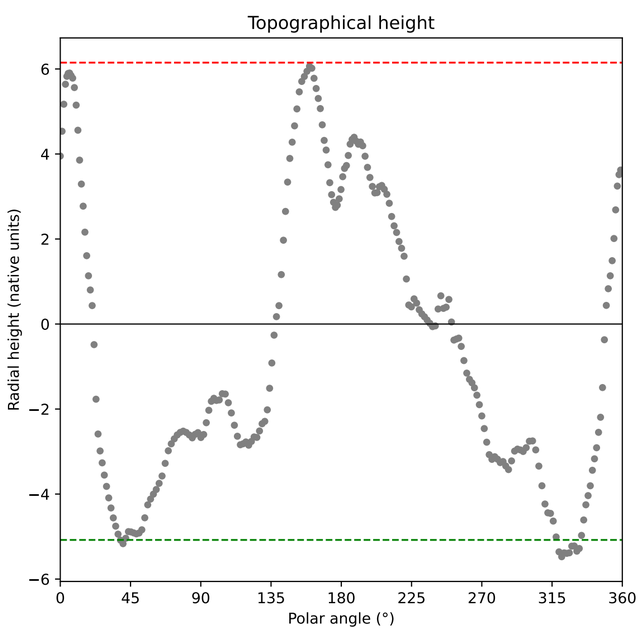

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

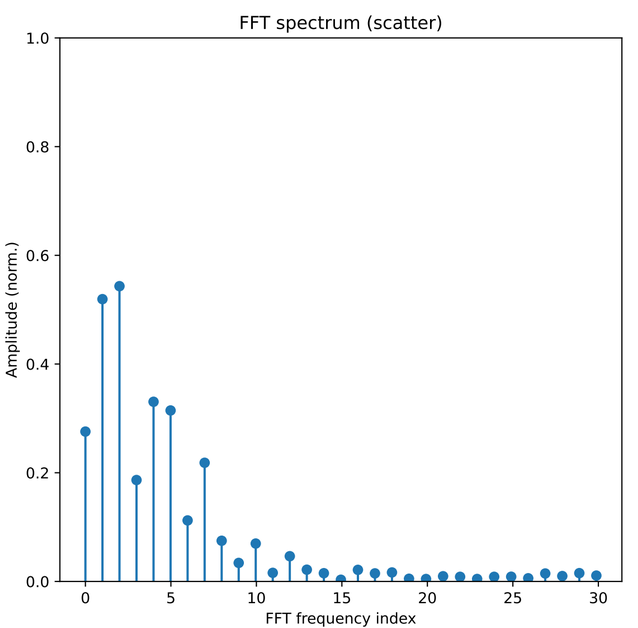

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

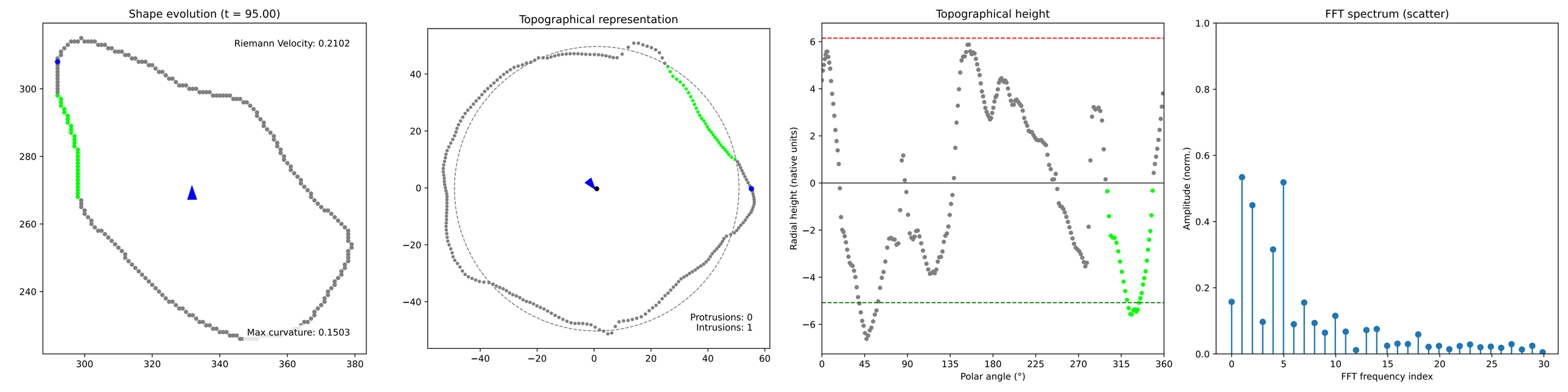

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

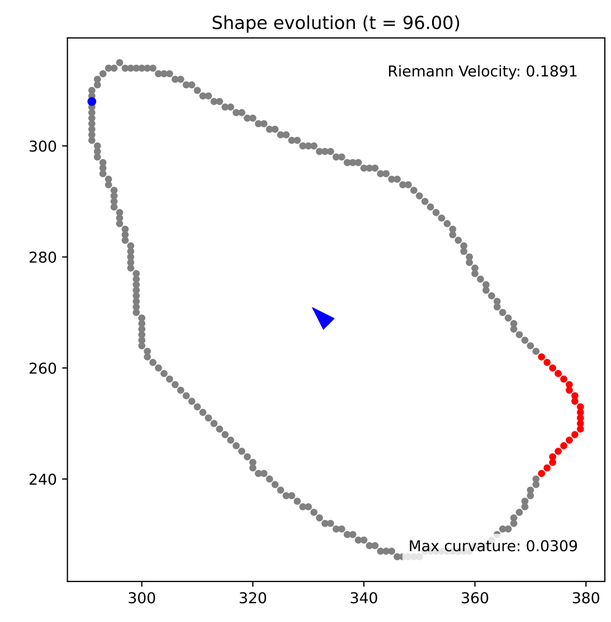

Shape evolution (t = 94.00)
Riemann Velocity: 0.2000
Max curvature: 0.0193

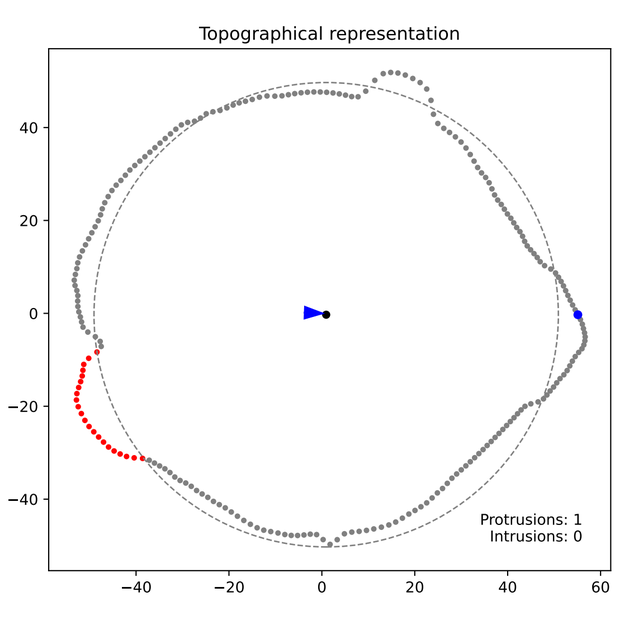

Topographical representation
Protrusions: 0
Intrusions: 0

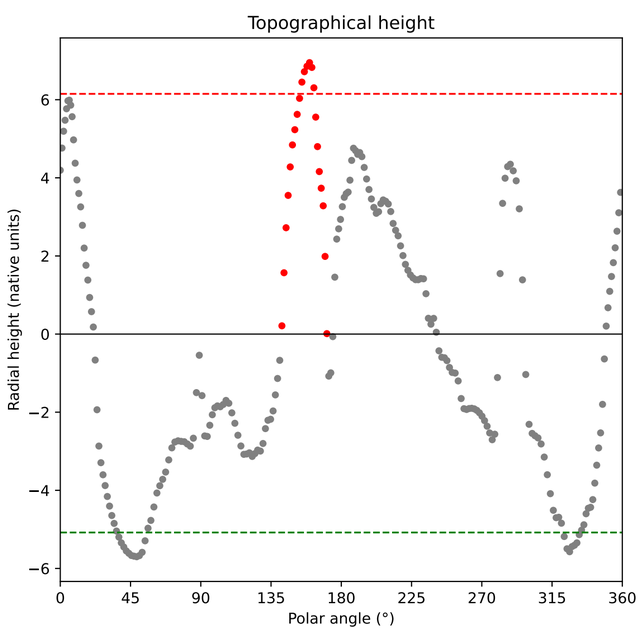

Topographical height
Radial height (native units)
Polar angle (°)

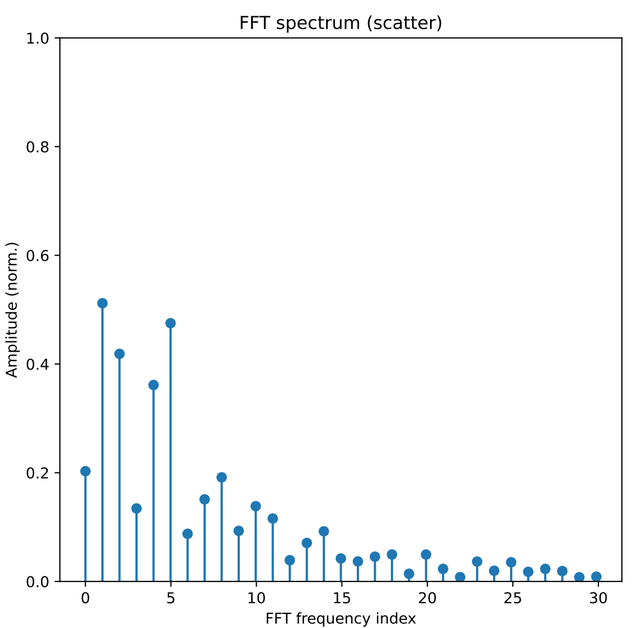

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

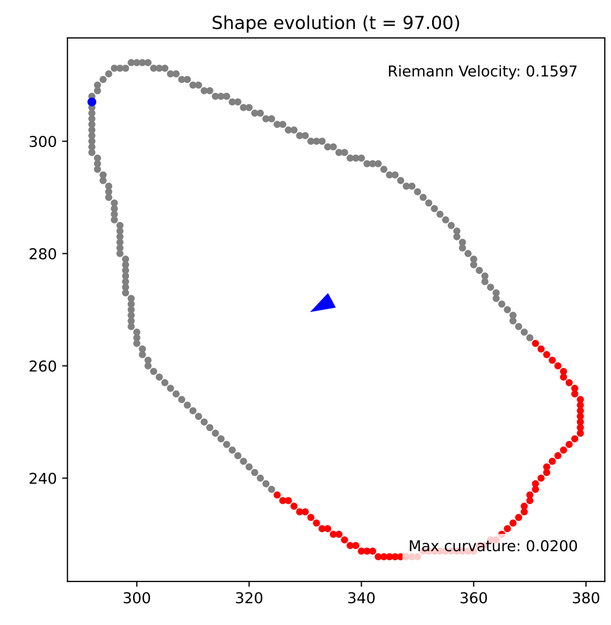

Shape evolution (t = 95.00)
Riemann Velocity: 0.2102
Max curvature: 0.1503
Topographical representation
Protrusions: 0
Intrusions: 1
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

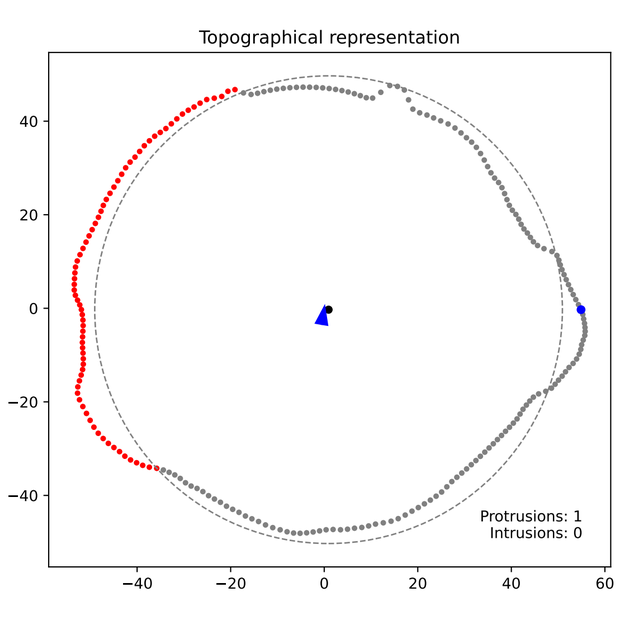

Shape evolution (t = 96.00)
Riemann Velocity: 0.1891
Max curvature: 0.0309
300
280
260
240
300
320
340
360
380

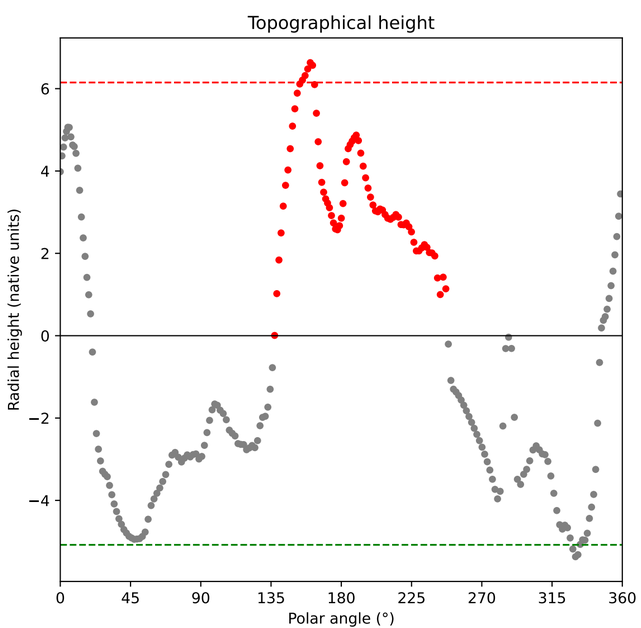

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

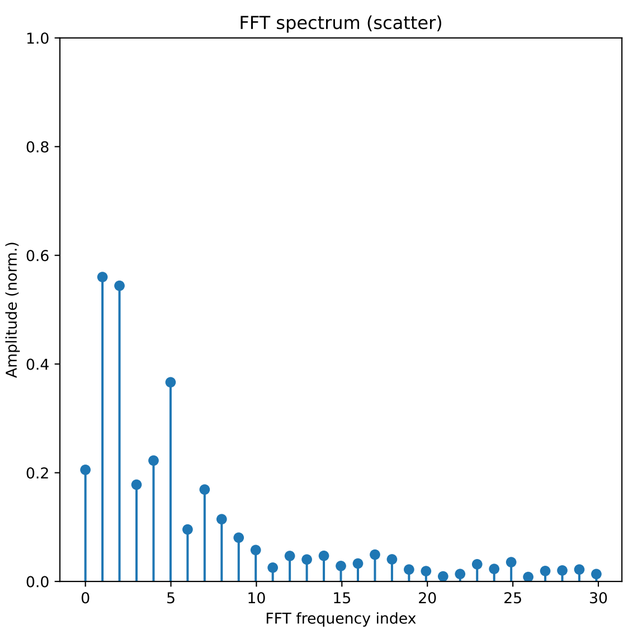

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

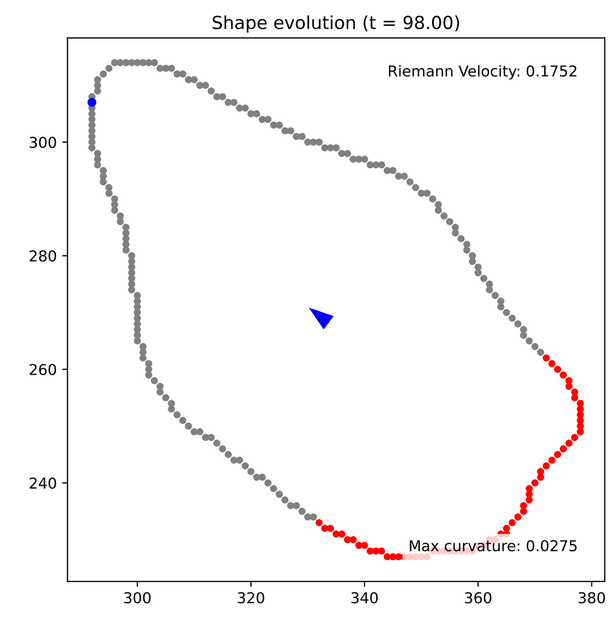

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

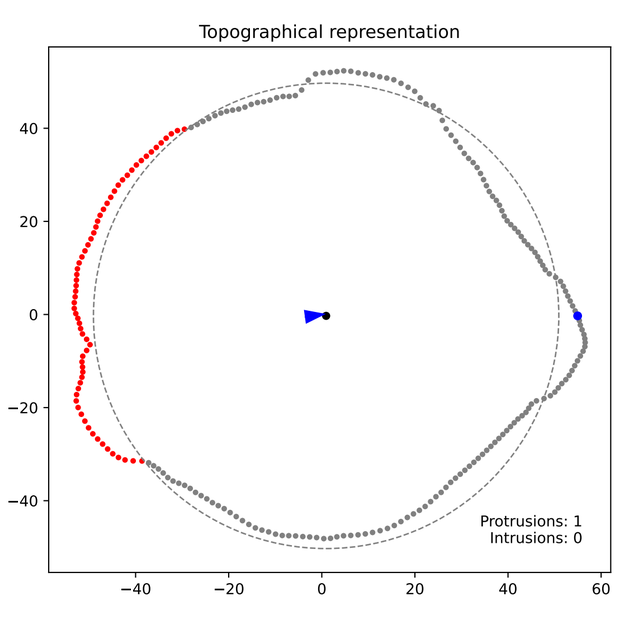

Shape evolution (t = 97.00)
Riemann Velocity: 0.1597
Max curvature: 0.0200
300
280
260
240
300
320
340
360
380

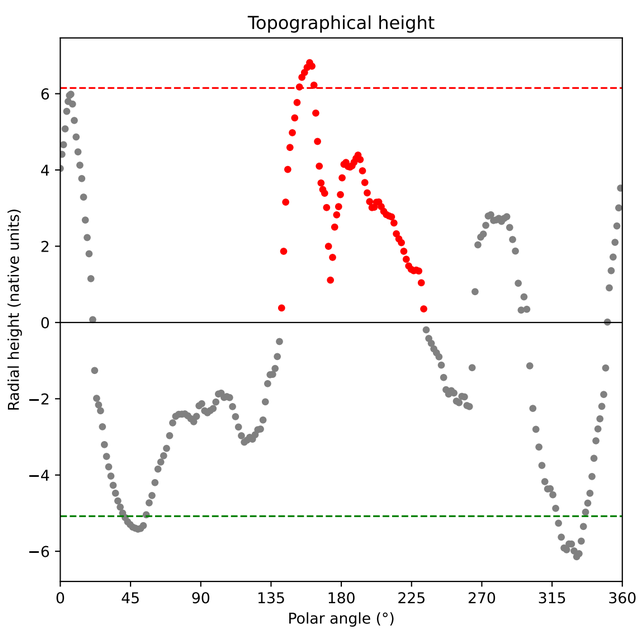

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

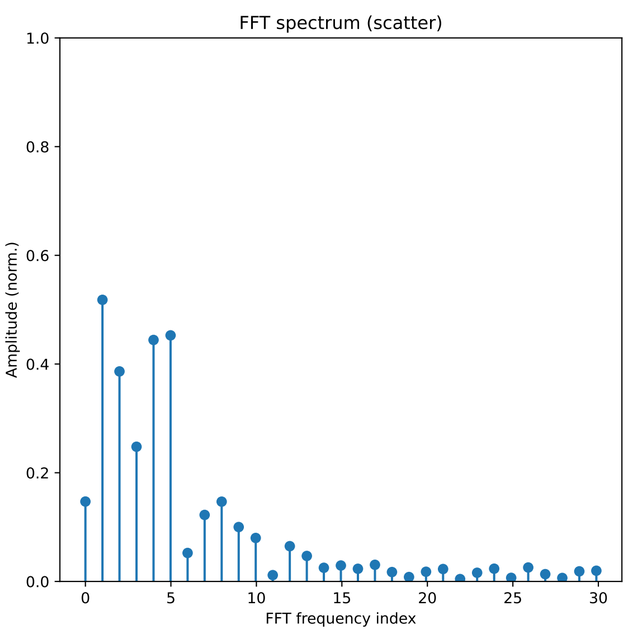

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
0
45
90
135
180
225
270
315
360

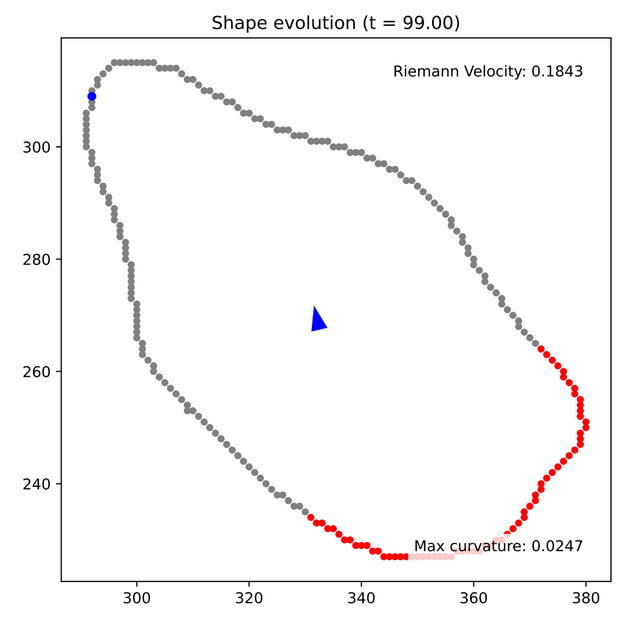

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

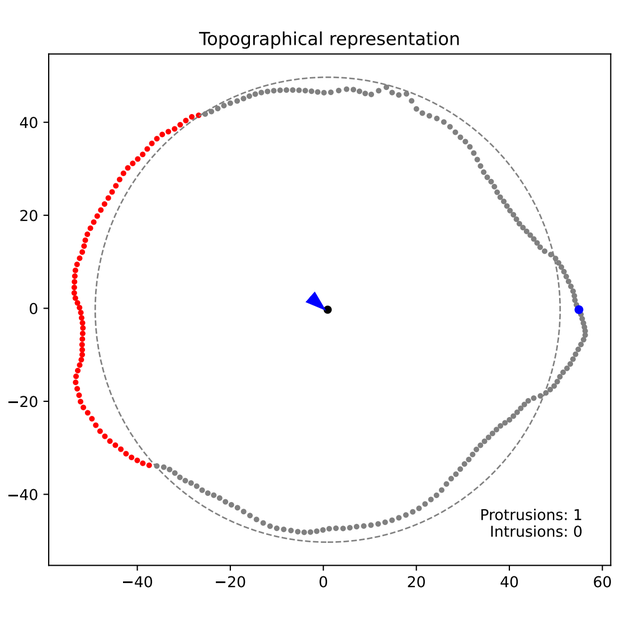

Shape evolution (t = 98.00)
Riemann Velocity: 0.1752
Max curvature: 0.0275
300
280
260
240
300
320
340
360
380

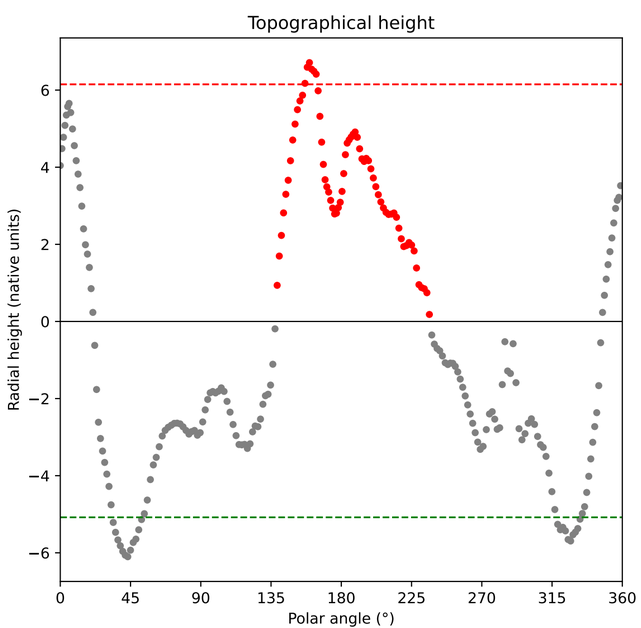

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

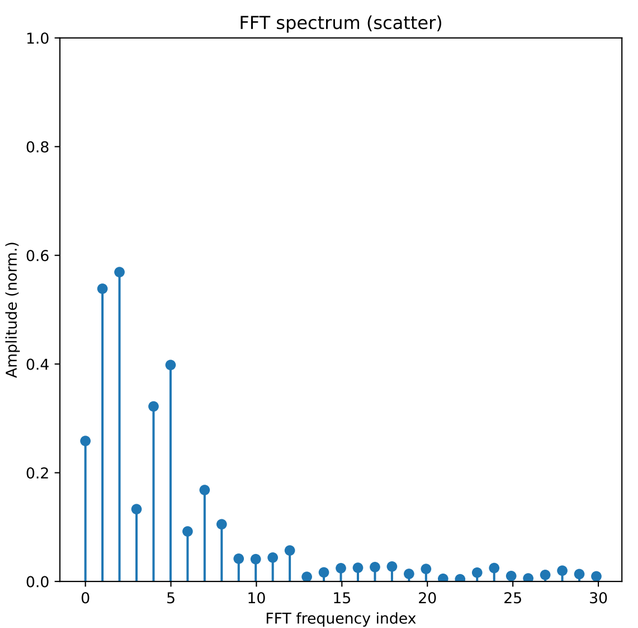

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

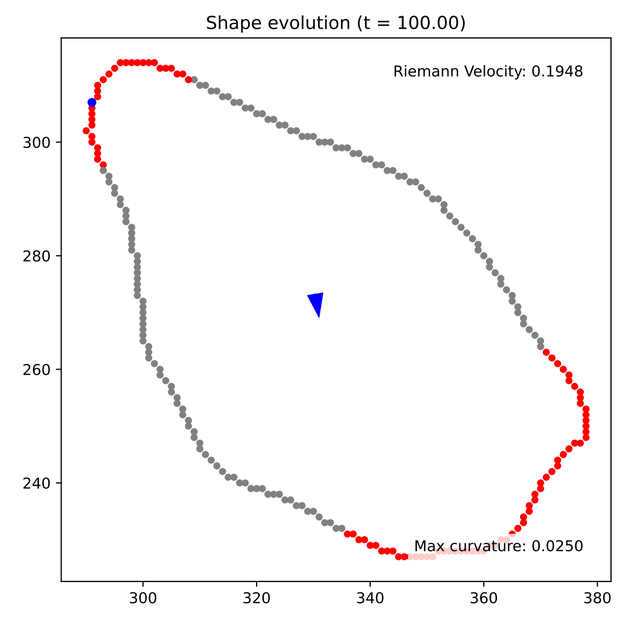

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

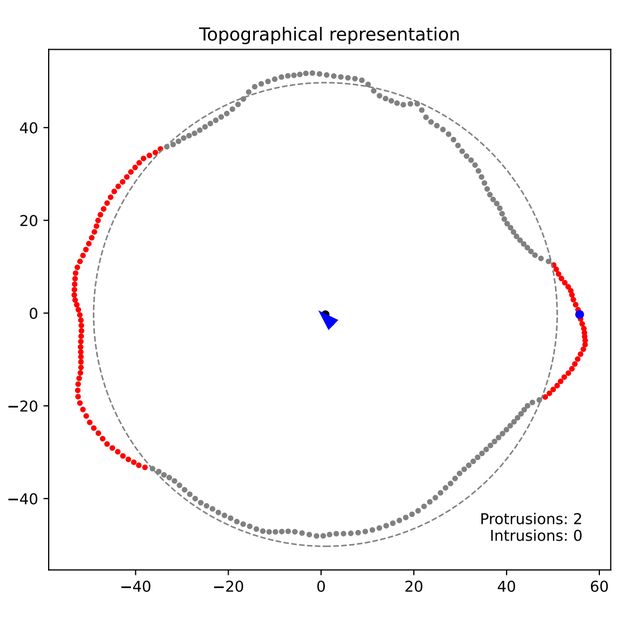

Shape evolution (t = 99.00)
Riemann Velocity: 0.1843
Max curvature: 0.0247
300
280
260
240
300
320
340
360
380

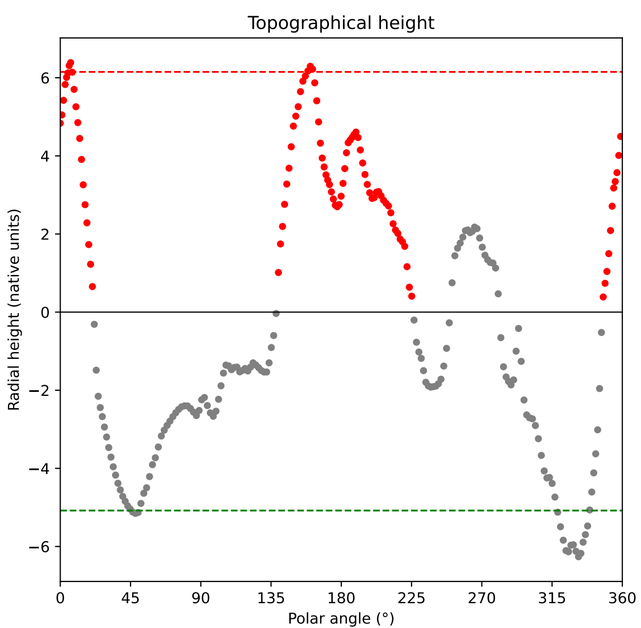

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

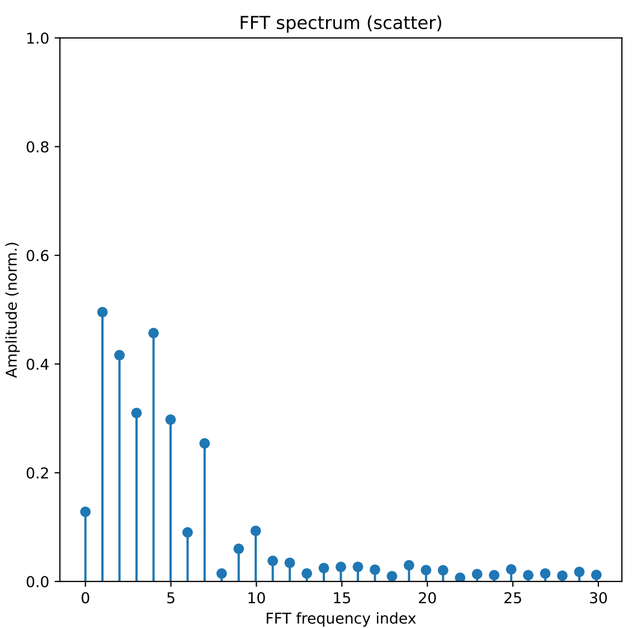

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

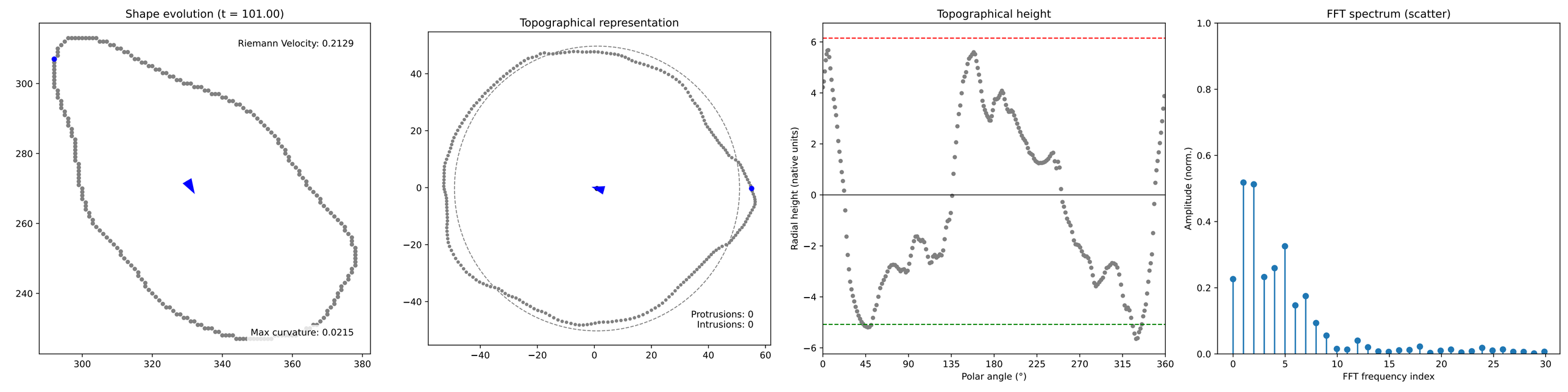

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

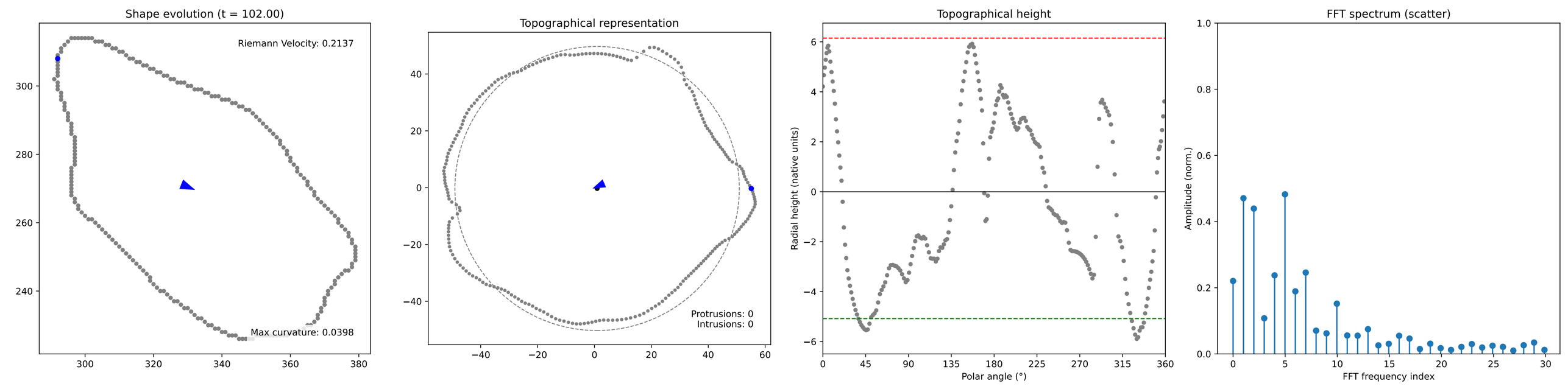

Shape evolution (t = 100.00)
Riemann Velocity: 0.1948
Max curvature: 0.0250
300
280
260
240
300
320
340
360
380

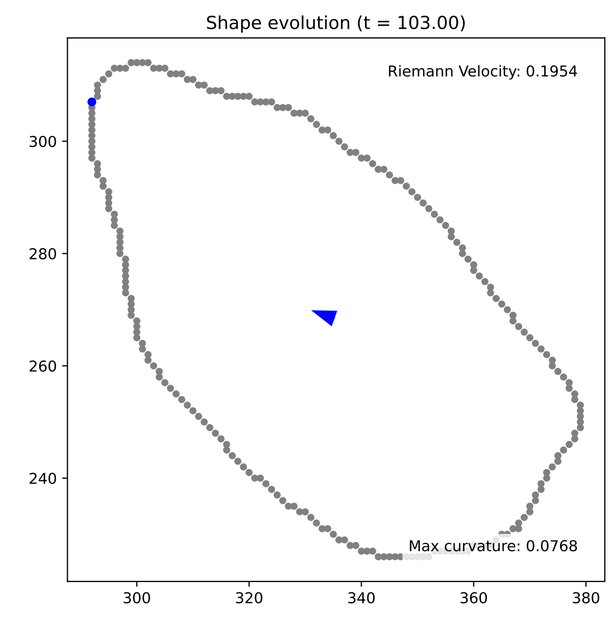

Topographical representation
Protrusions: 2
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

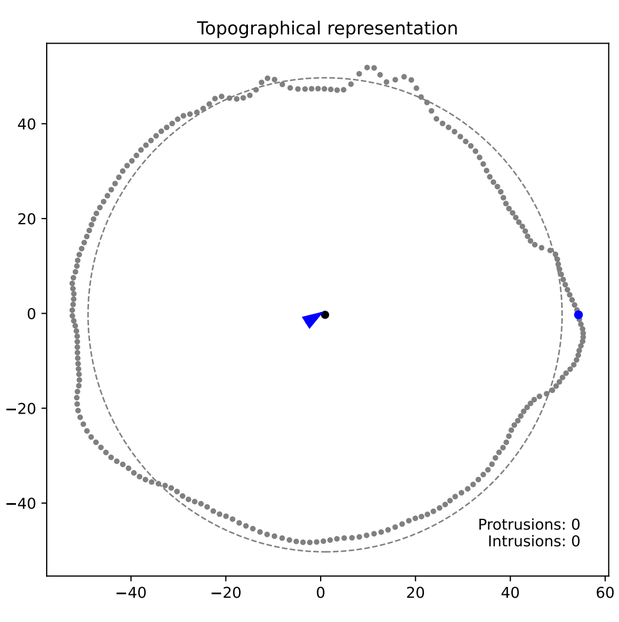

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

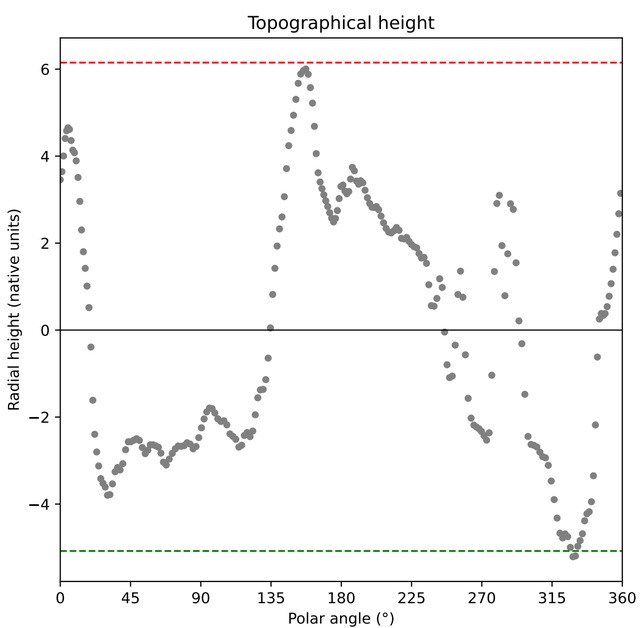

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

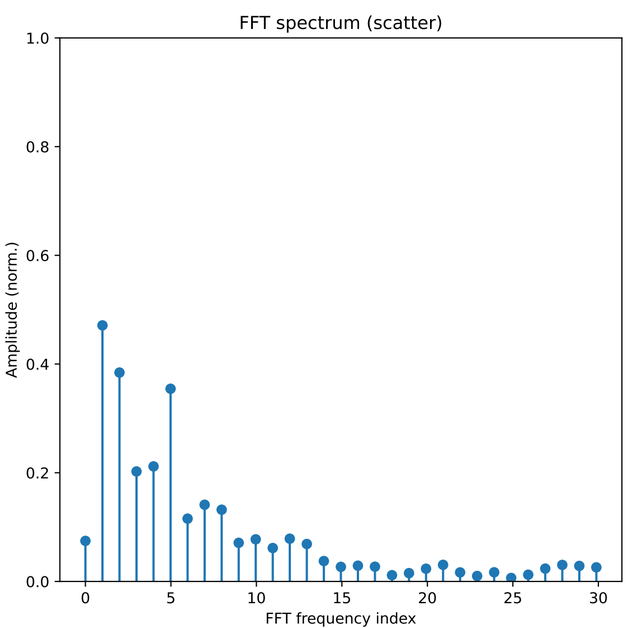

Shape evolution (t = 101.00)
Riemann Velocity: 0.2129
Max curvature: 0.0215
Topographical representation
Protrusions: 0
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

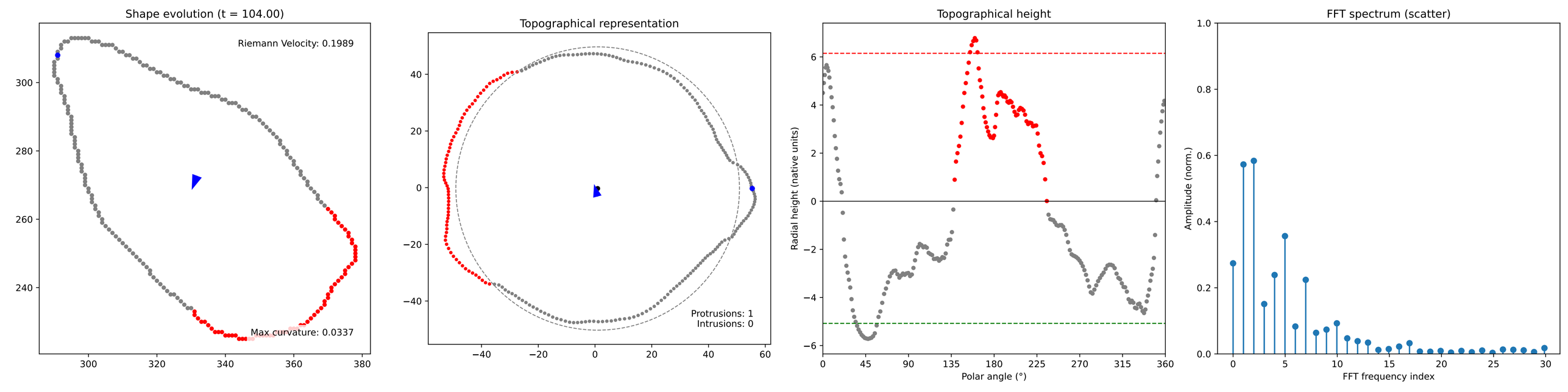

Shape evolution (t = 102.00)
Riemann Velocity: 0.2137
Max curvature: 0.0398
Topographical representation
Protrusions: 0
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

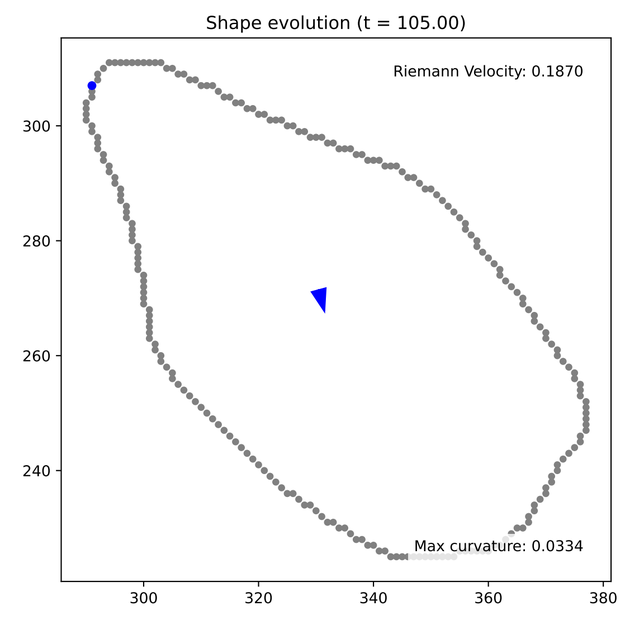

Shape evolution (t = 103.00)
Riemann Velocity: 0.1954
Max curvature: 0.0768
300
280
260
240
300
320
340
360
380

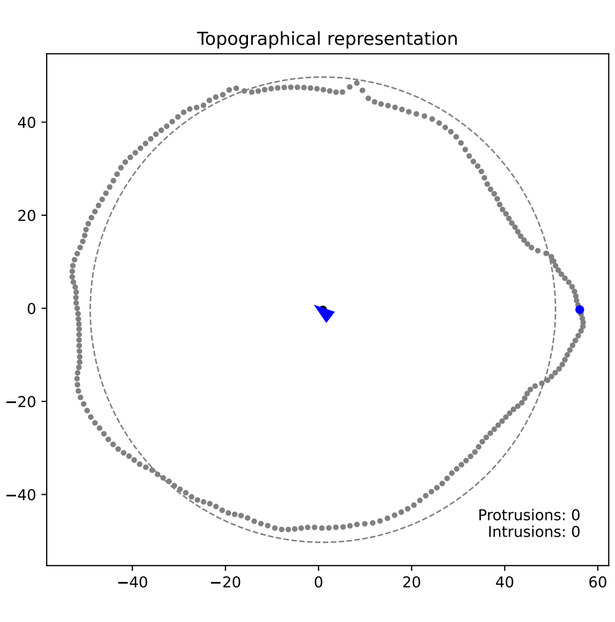

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

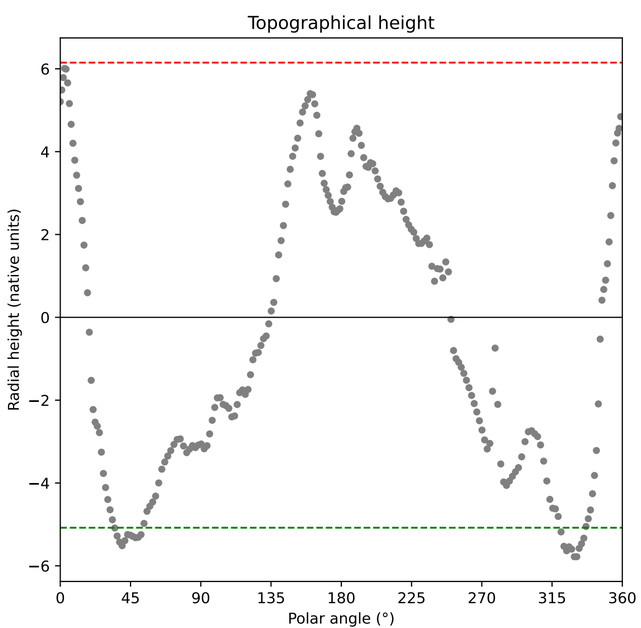

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
0
45
90
135
180
225
270
315
360

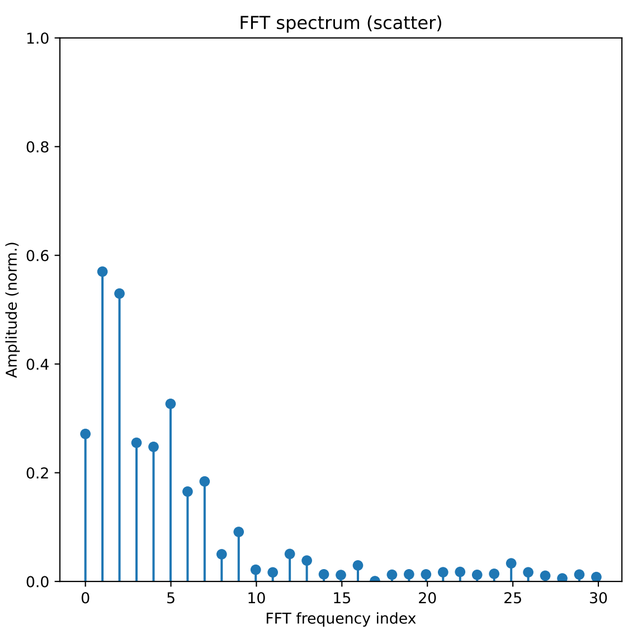

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

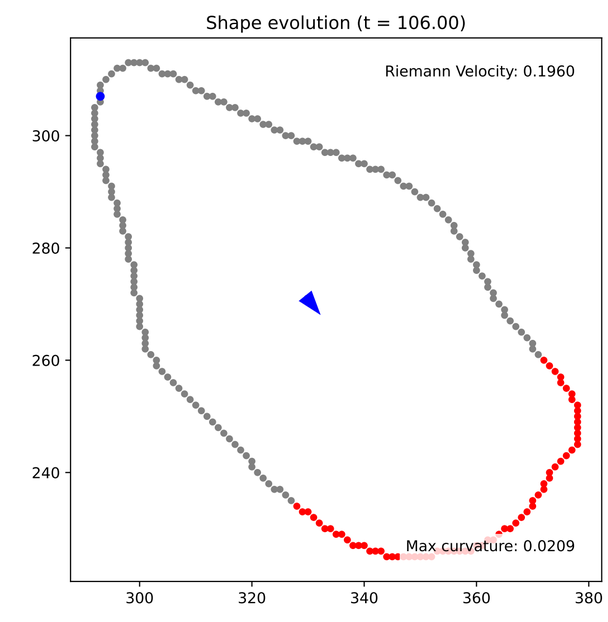

Shape evolution (t = 104.00)
Riemann Velocity: 0.1989
Max curvature: 0.0337
Topographical representation
Protrusions: 1
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

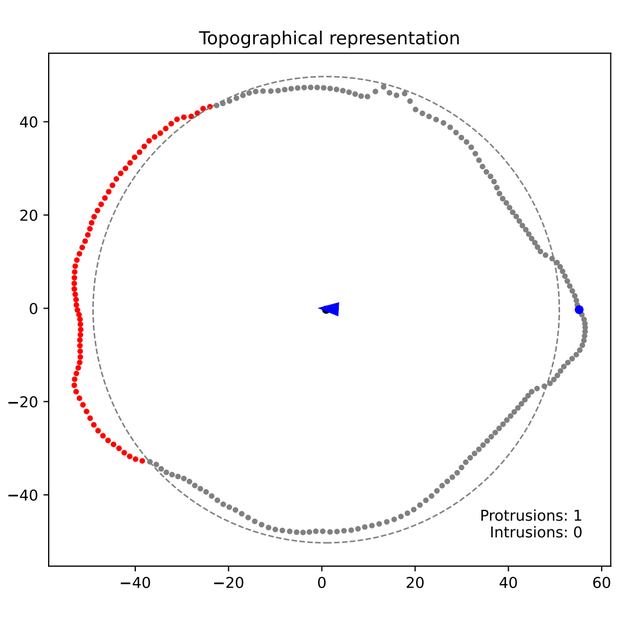

Shape evolution (t = 105.00)
Riemann Velocity: 0.1870
Max curvature: 0.0334

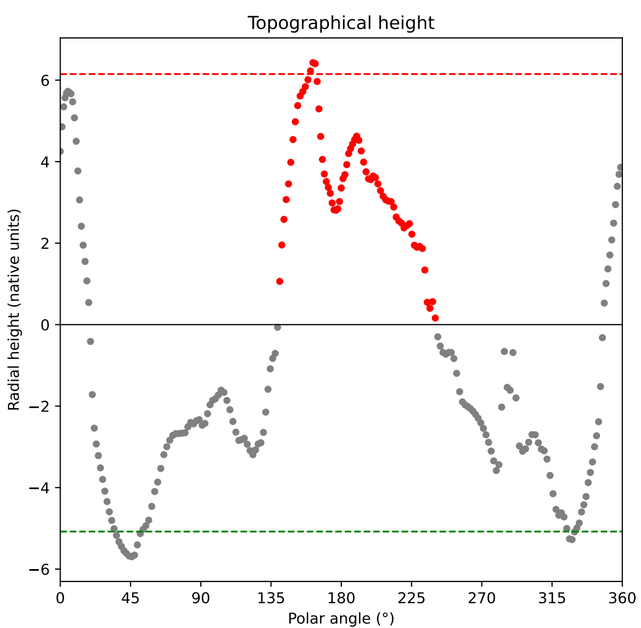

Topographical representation
Protrusions: 0
Intrusions: 0

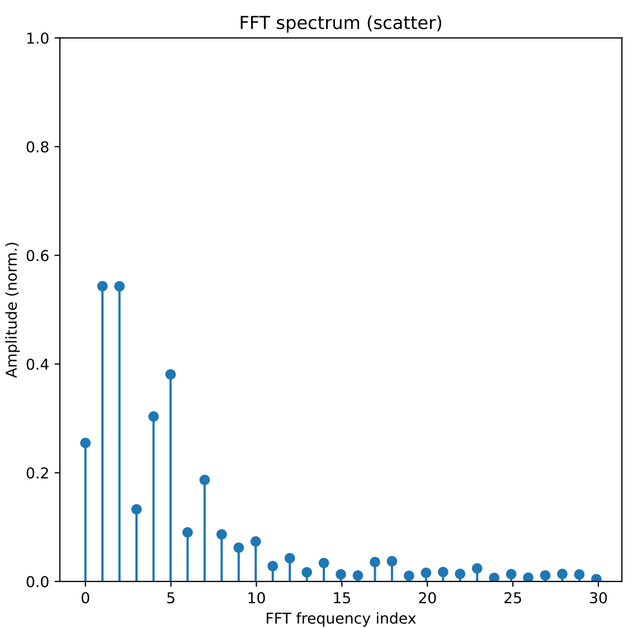

Topographical height
Radial height (native units)
Polar angle (°)

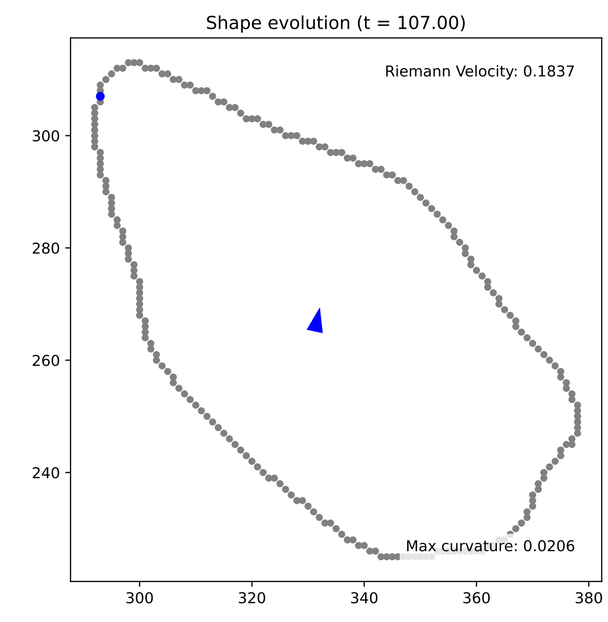

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

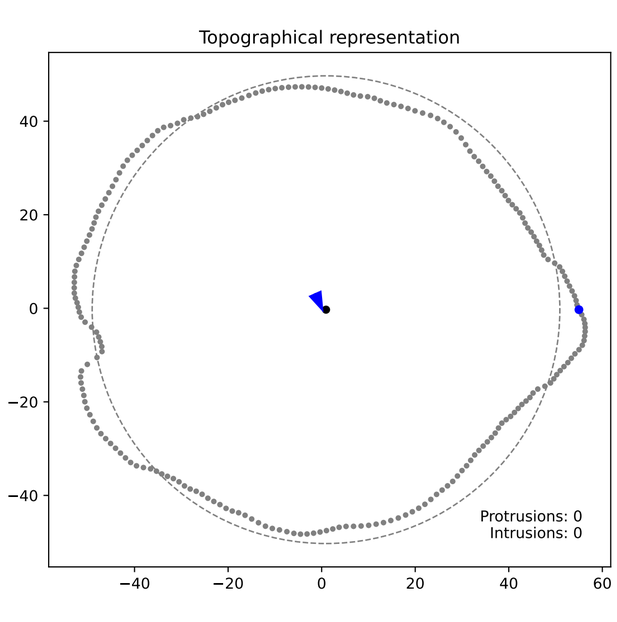

Shape evolution (t = 106.00)
Riemann Velocity: 0.1960
Max curvature: 0.0209
300
280
260
240
300
320
340
360
380

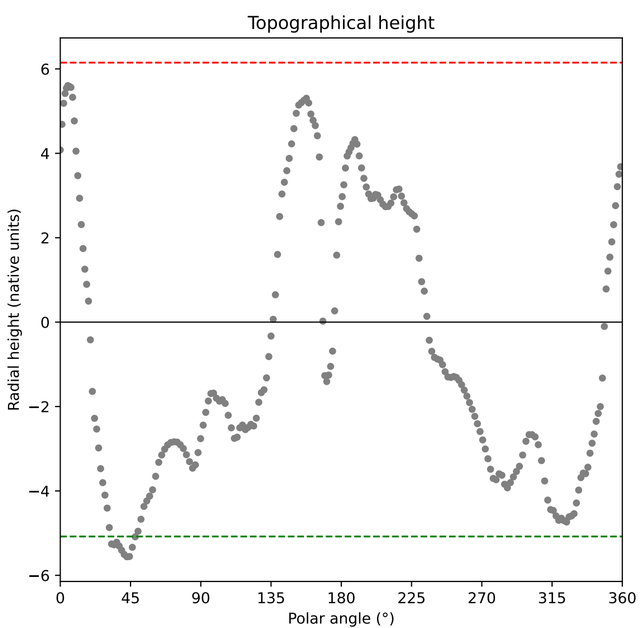

Topographical representation
Protrusions: 1
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

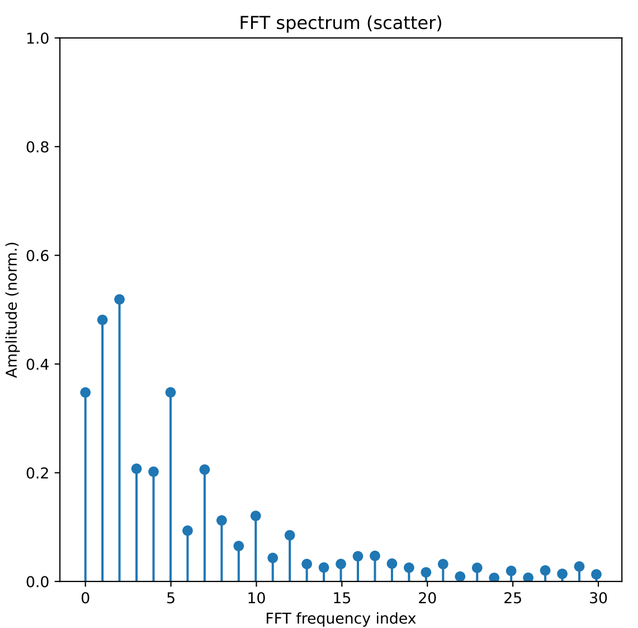

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

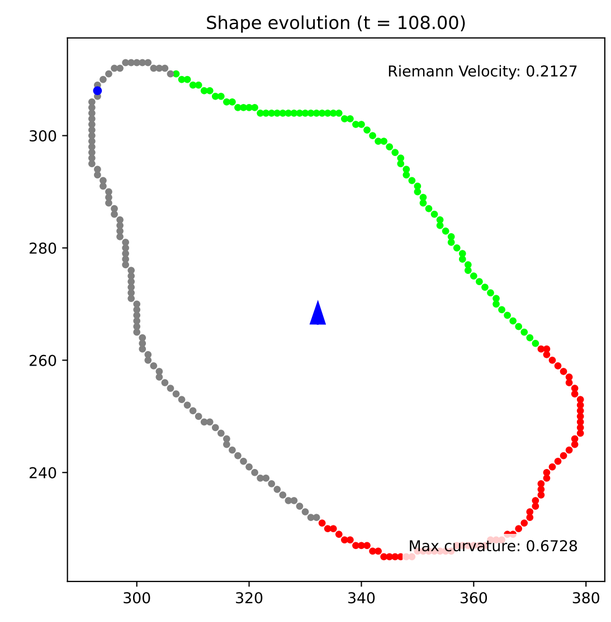

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

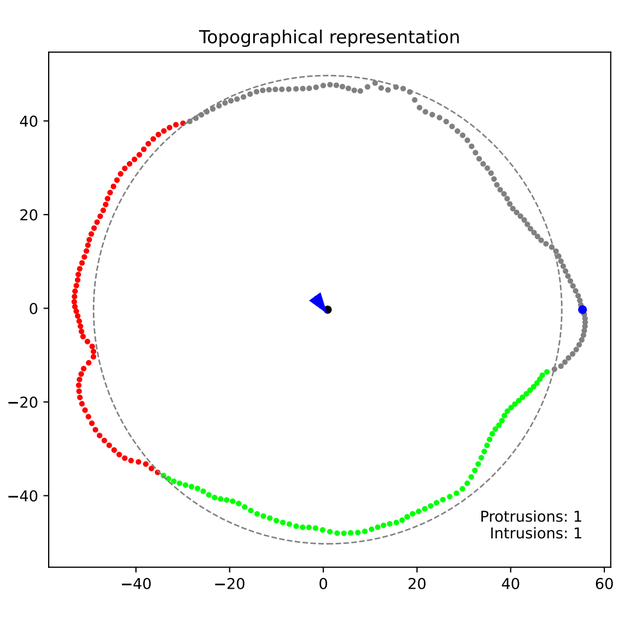

Shape evolution (t = 107.00)
Riemann Velocity: 0.1837
Max curvature: 0.0206
300
280
260
240
300
320
340
360
380

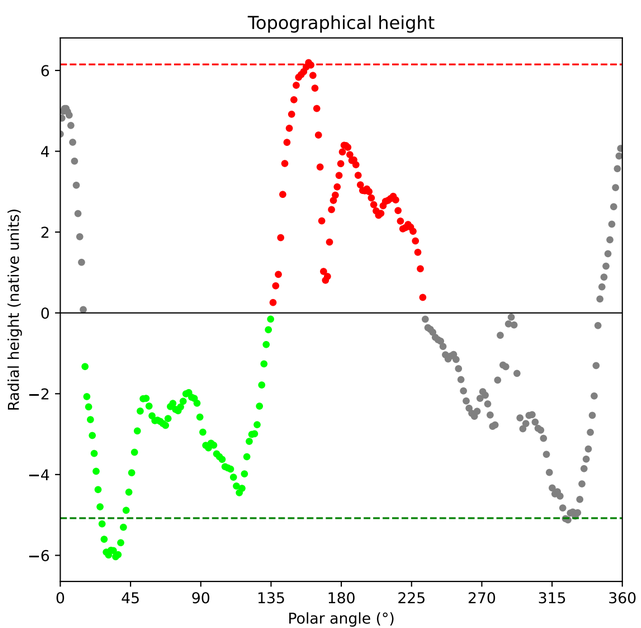

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

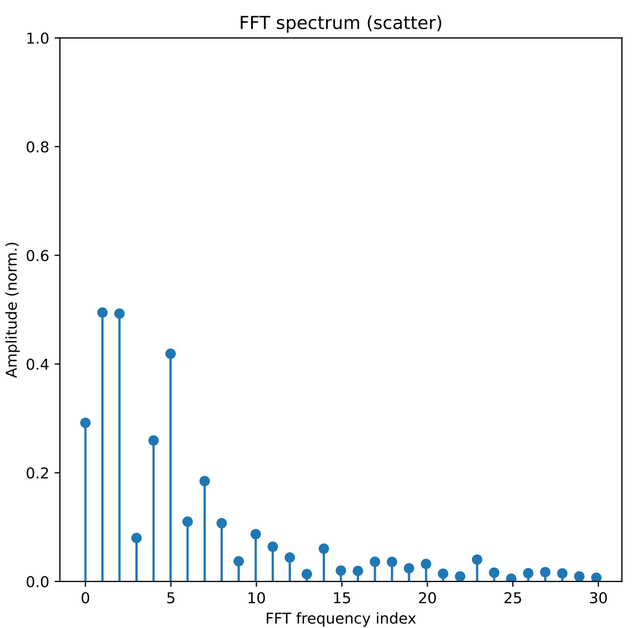

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

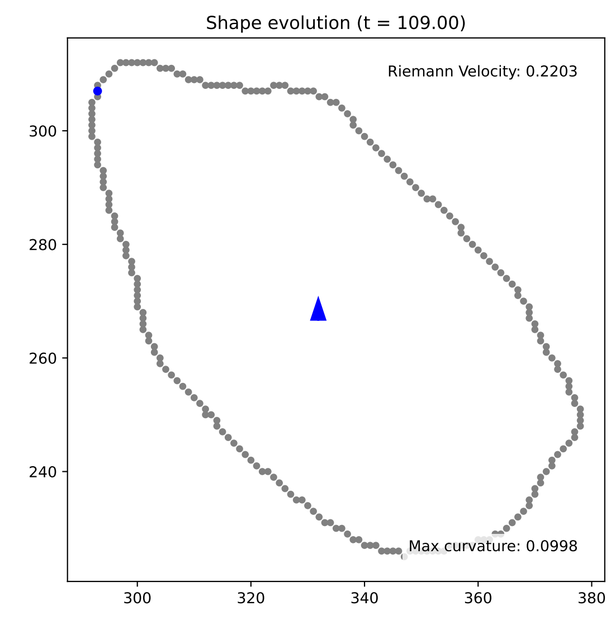

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

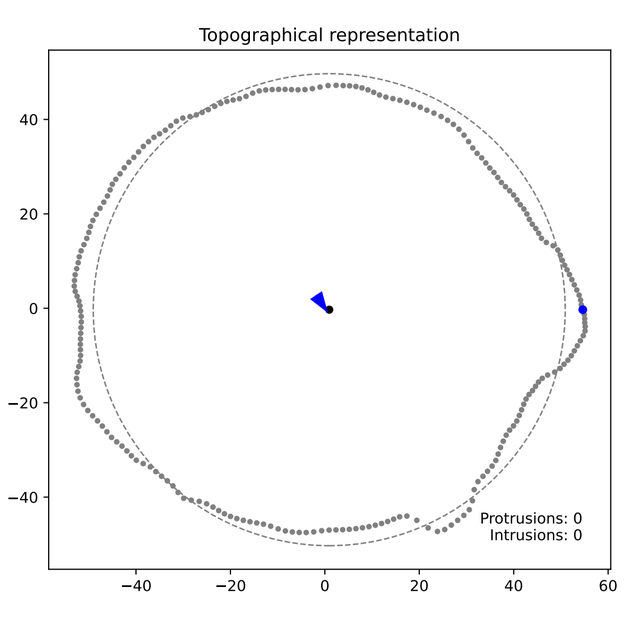

Shape evolution (t = 108.00)
Riemann Velocity: 0.2127
Max curvature: 0.6728
300
280
260
240
300
320
340
360
380

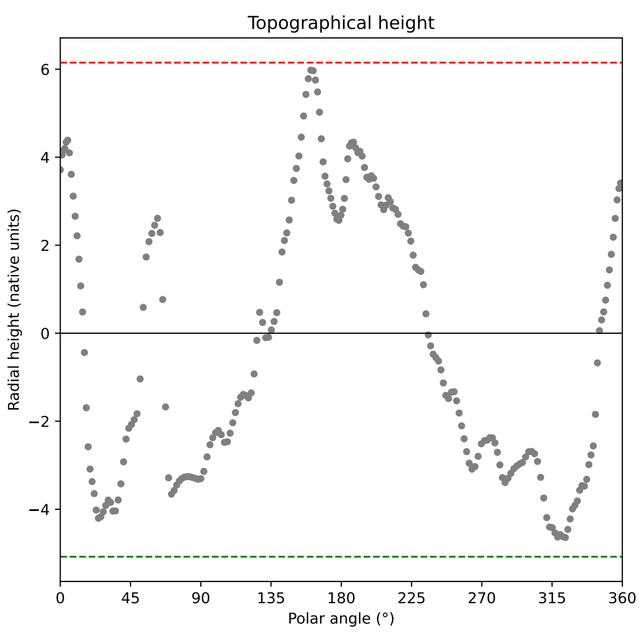

Topographical representation
Protrusions: 1
Intrusions: 1
40
20
0
−20
−40
−40
−20
0
20
40
60

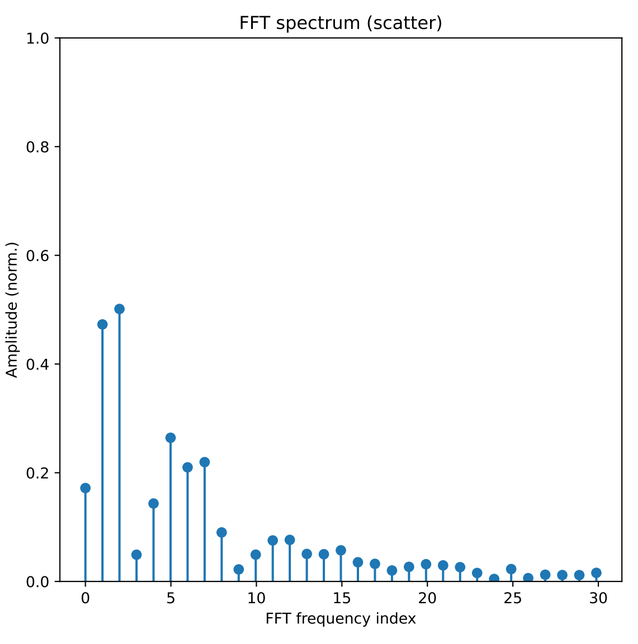

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

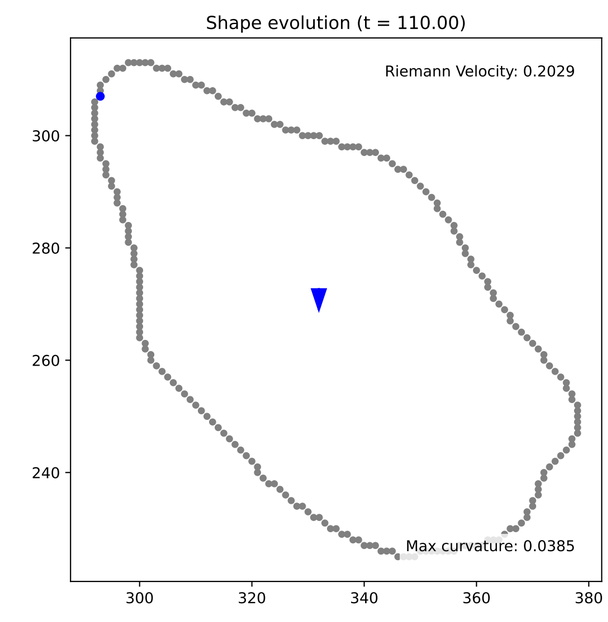

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

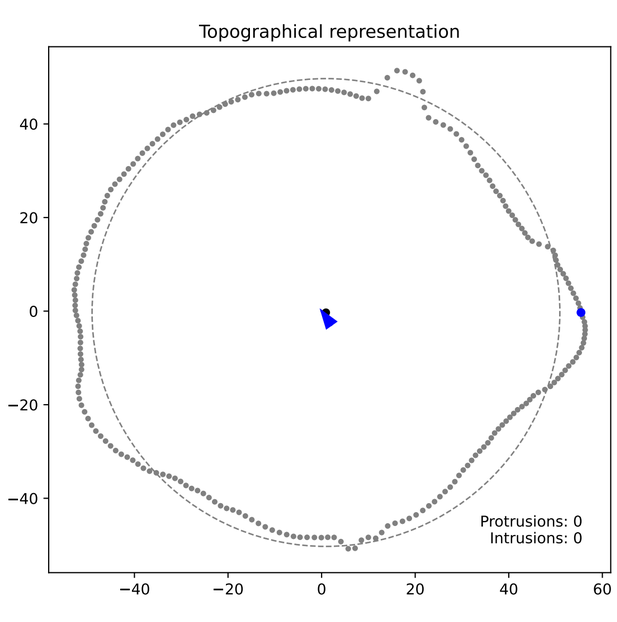

Shape evolution (t = 109.00)
Riemann Velocity: 0.2203
Max curvature: 0.0998
300
280
260
240
300
320
340
360
380

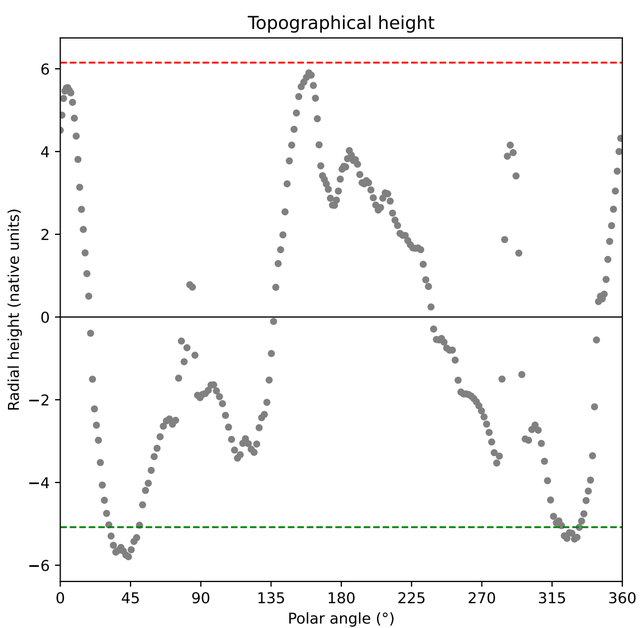

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

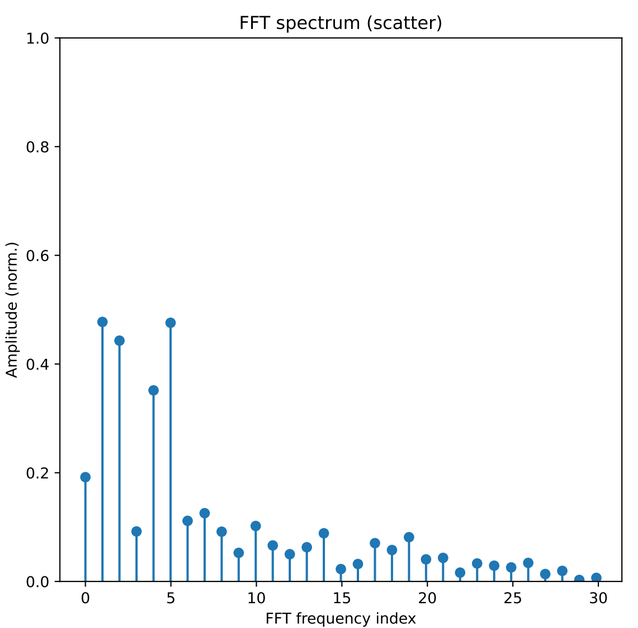

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
0
45
90
135
180
225
270
315
360

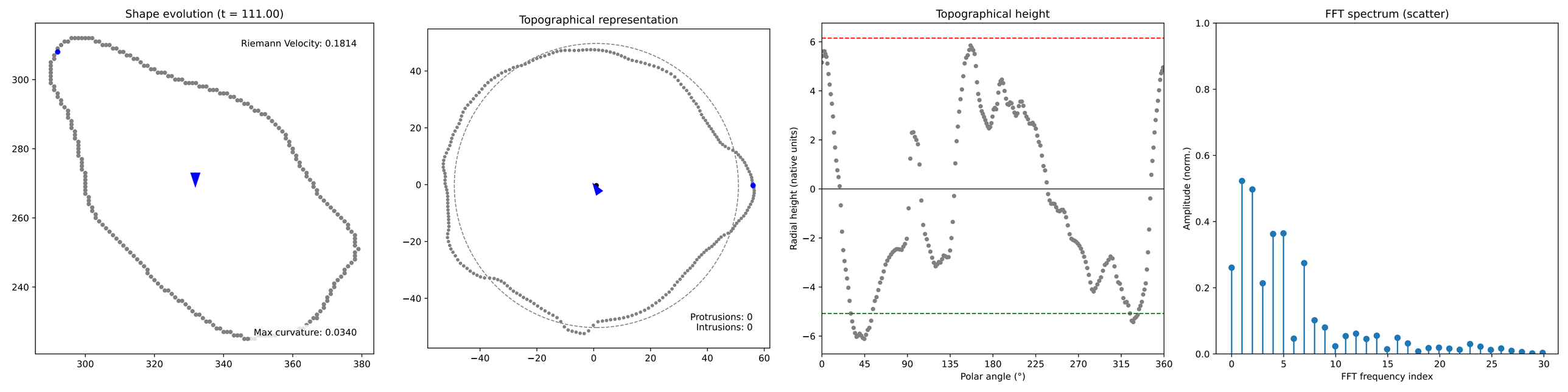

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

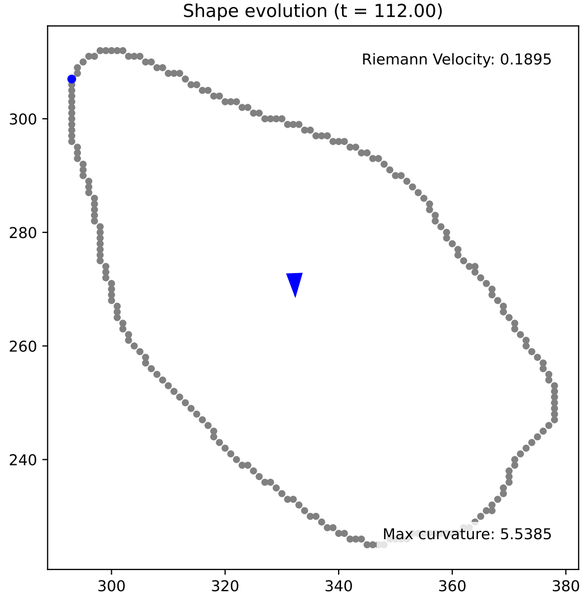

Shape evolution (t = 110.00)
Riemann Velocity: 0.2029
Max curvature: 0.0385
300
280
260
240
300
320
340
360
380

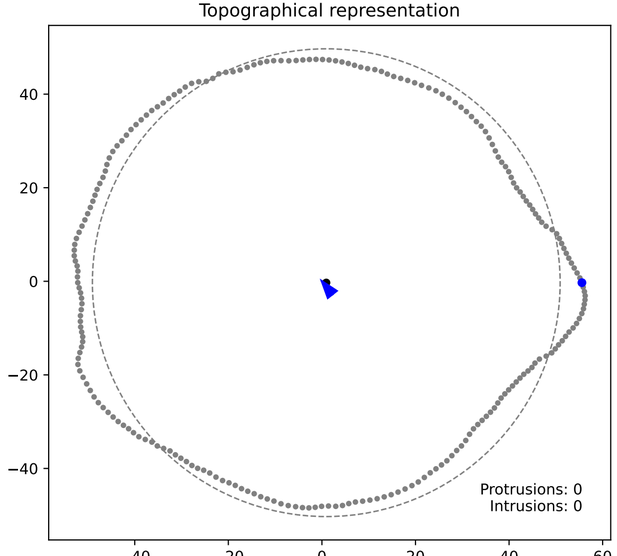

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

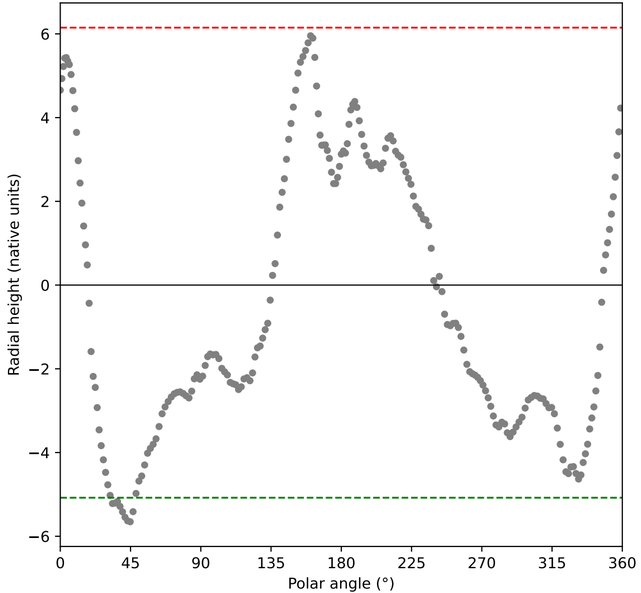

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360

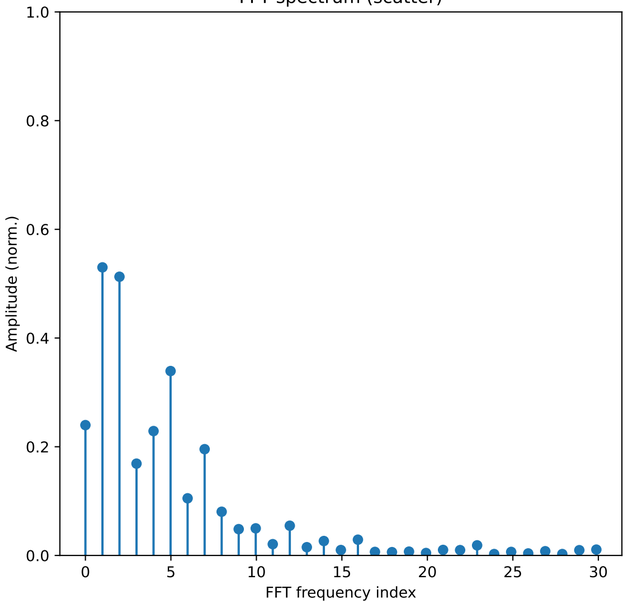

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30

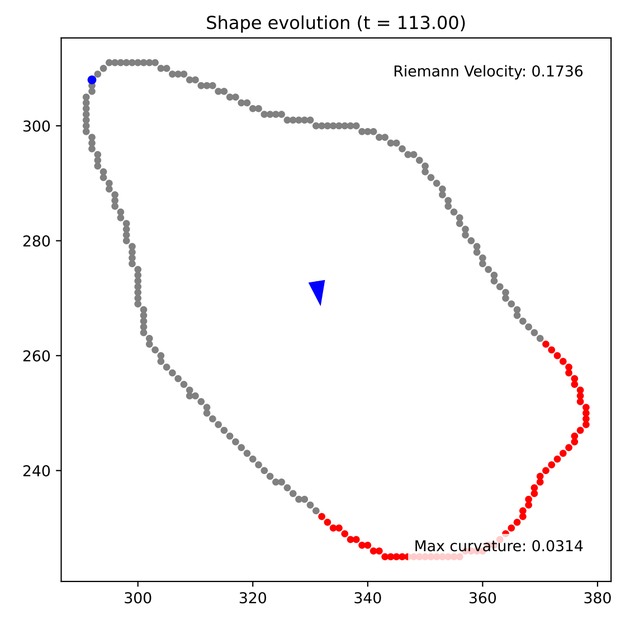

Shape evolution (t = 111.00)
Riemann Velocity: 0.1814
Max curvature: 0.0340
Topographical representation
Protrusions: 0
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

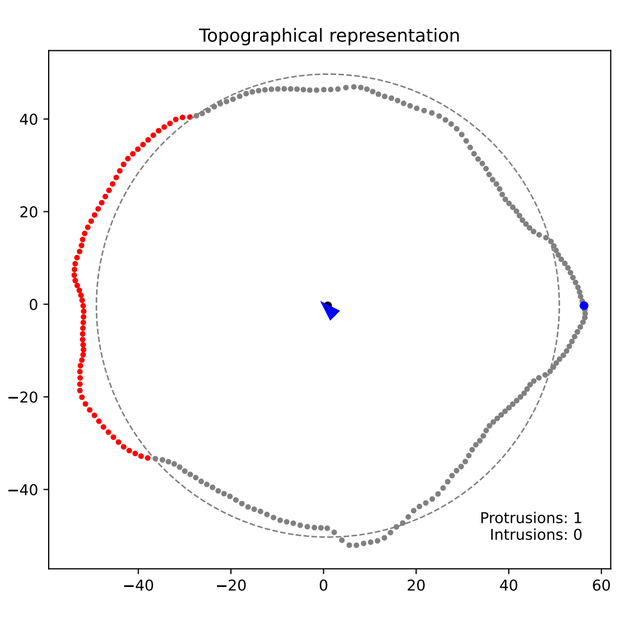

Shape evolution (t = 112.00)
Riemann Velocity: 0.1895
Max curvature: 5.5385

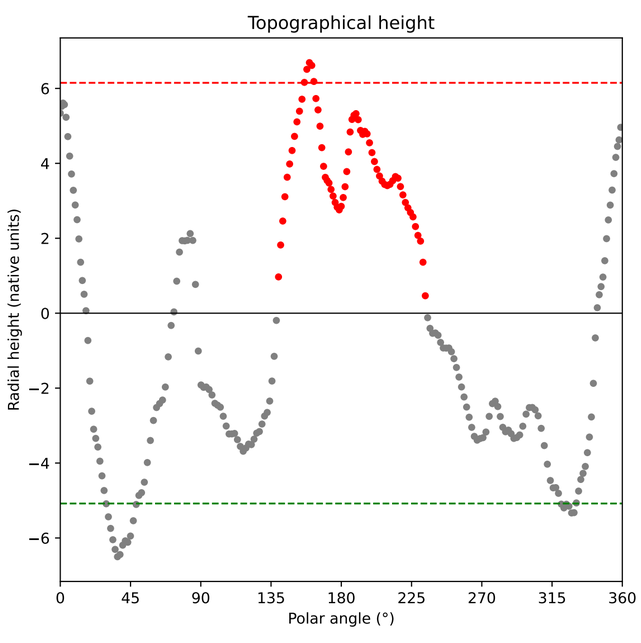

Topographical representation
Protrusions: 0
Intrusions: 0

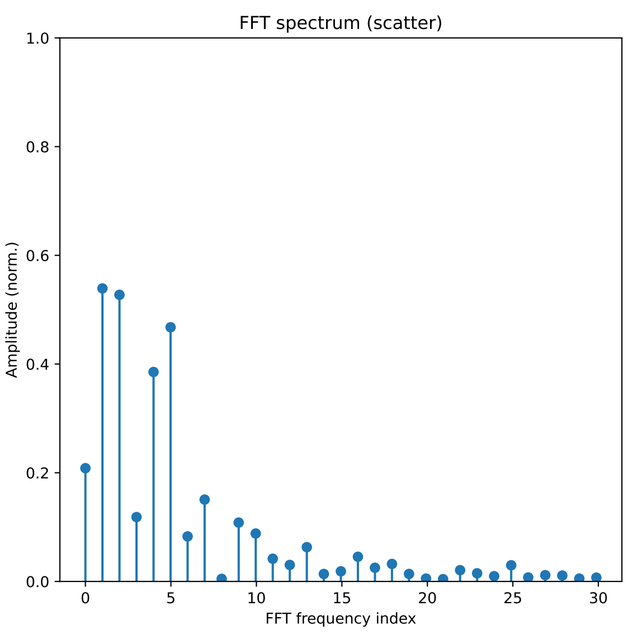

Topographical height
Radial height (native units)
Polar angle (°)

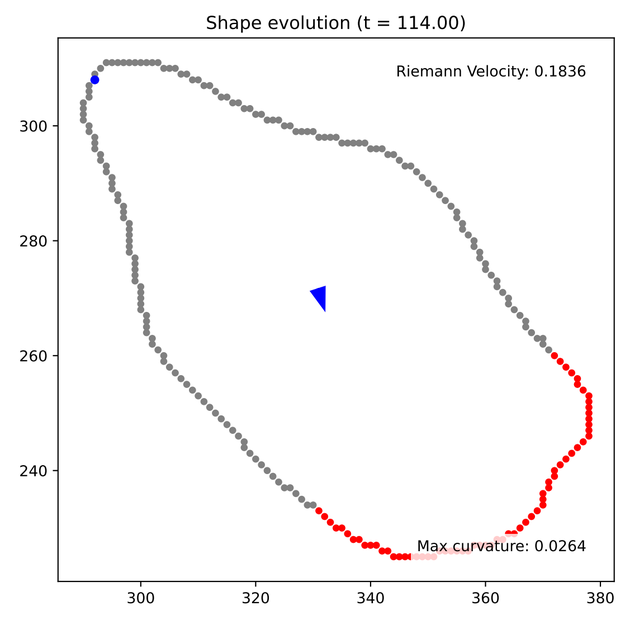

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

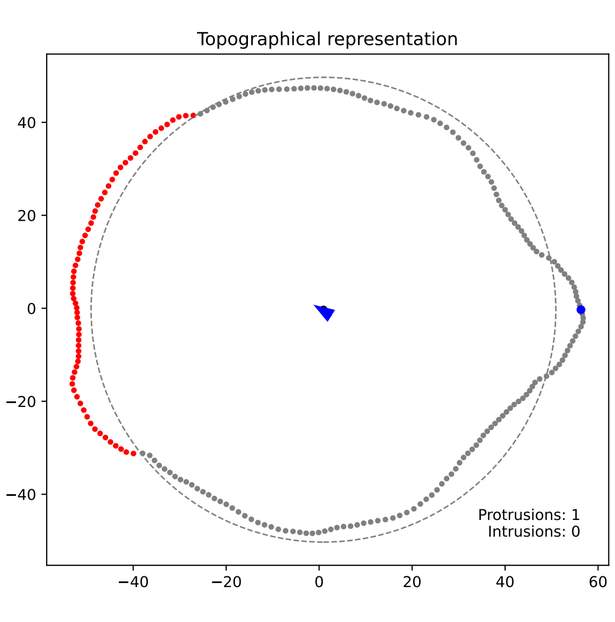

Shape evolution (t = 113.00)
Riemann Velocity: 0.1736
Max curvature: 0.0314

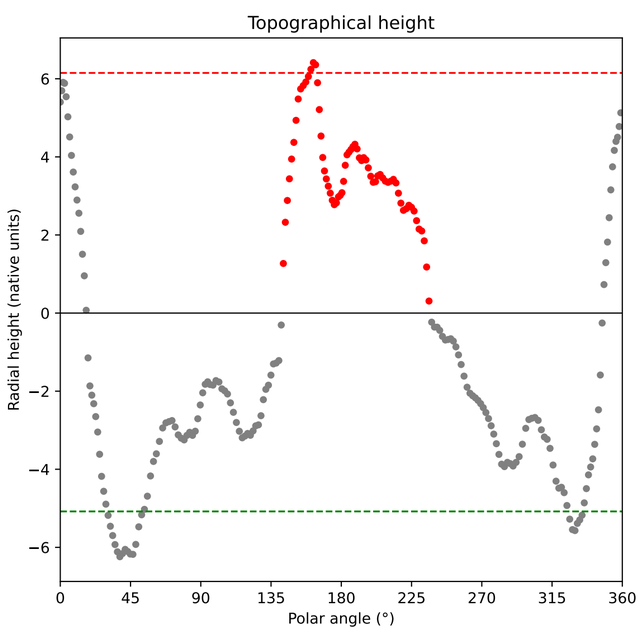

Topographical representation
Protrusions: 1
Intrusions: 0

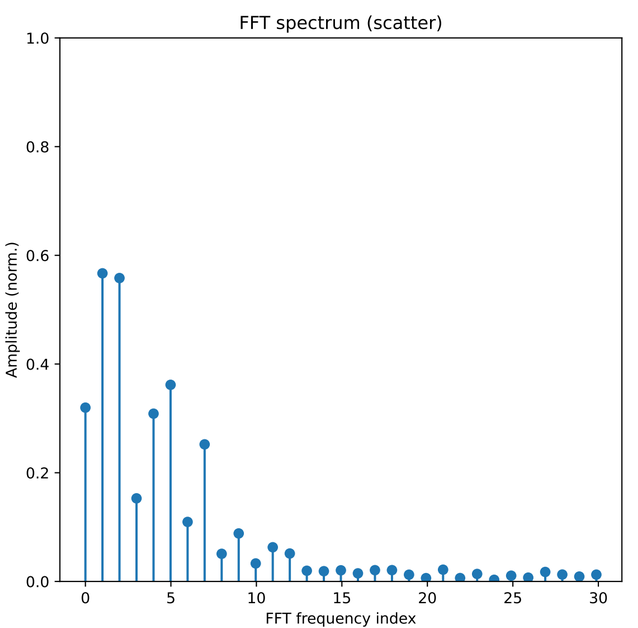

Topographical height
Radial height (native units)
Polar angle (°)

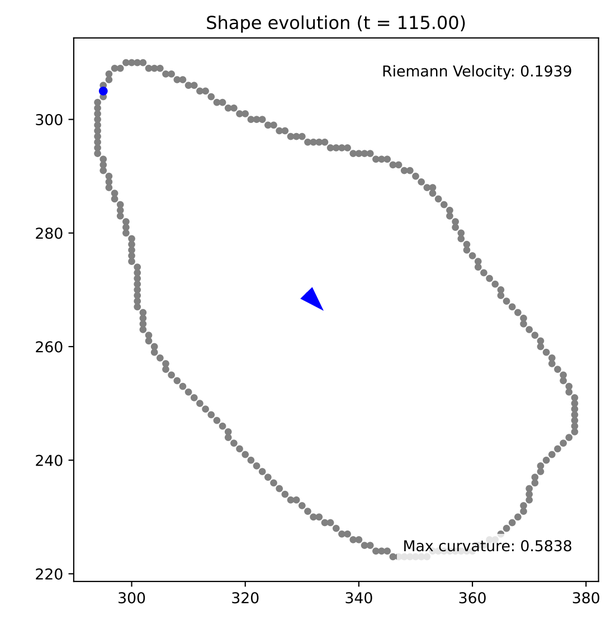

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

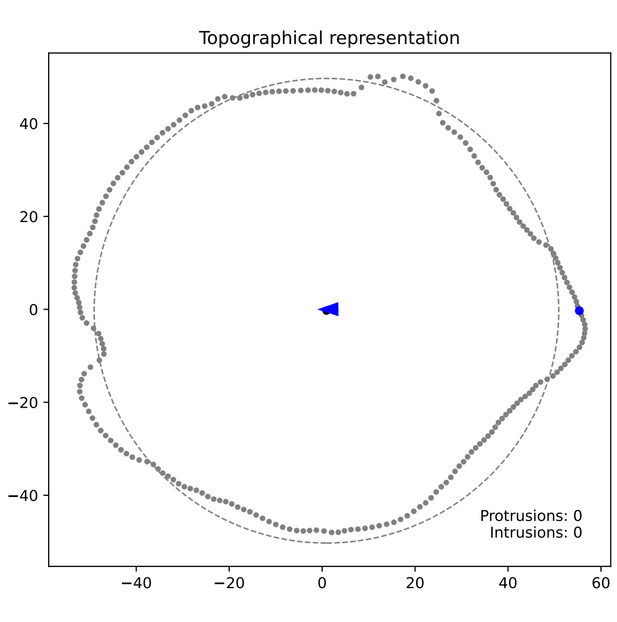

Shape evolution (t = 114.00)
Riemann Velocity: 0.1836
Max curvature: 0.0264

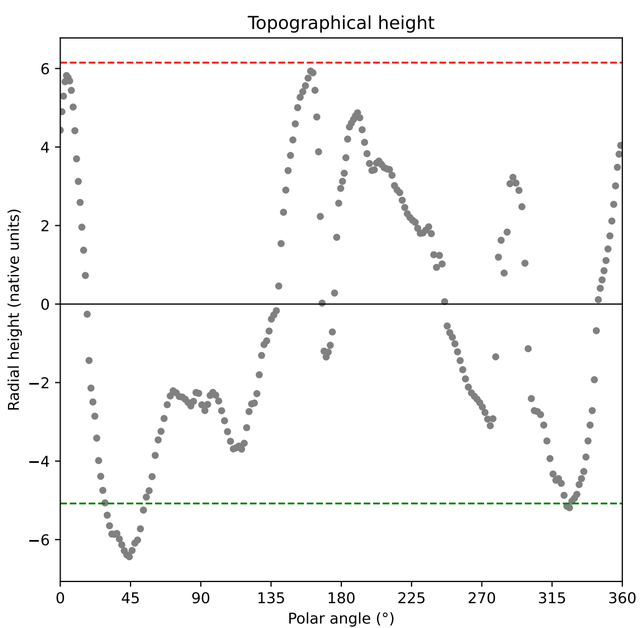

Topographical representation
Protrusions: 1
Intrusions: 0

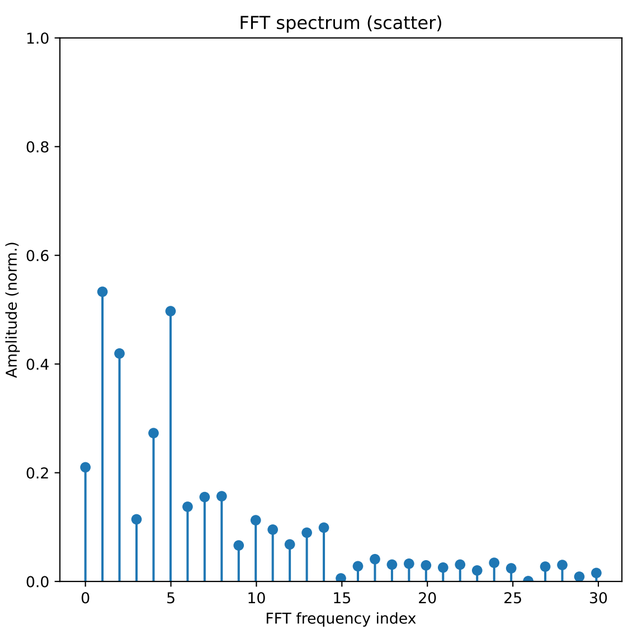

Topographical height
Radial height (native units)
Polar angle (°)

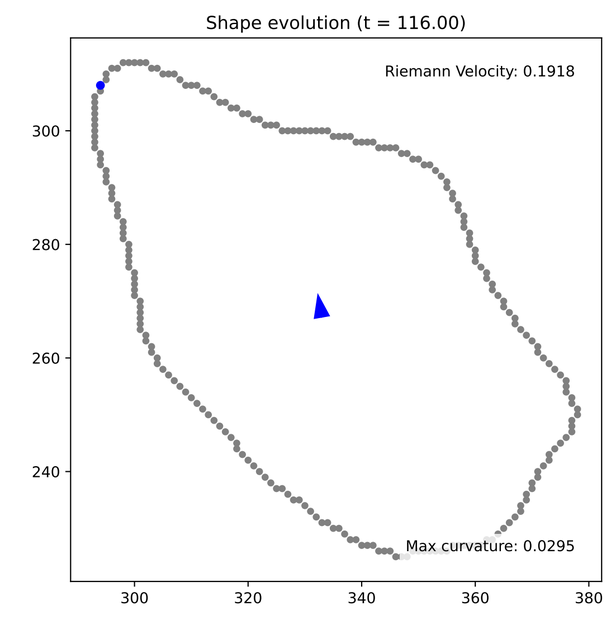

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

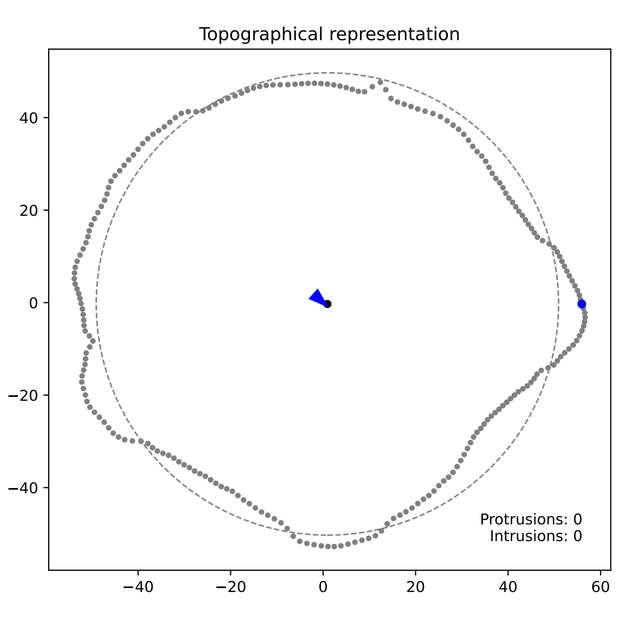

Shape evolution (t = 115.00)
Riemann Velocity: 0.1939
Max curvature: 0.5838

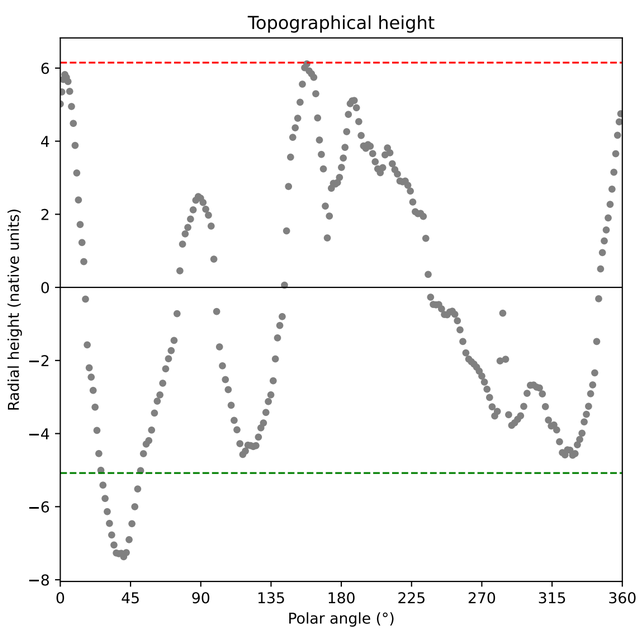

Topographical representation
Protrusions: 0
Intrusions: 0

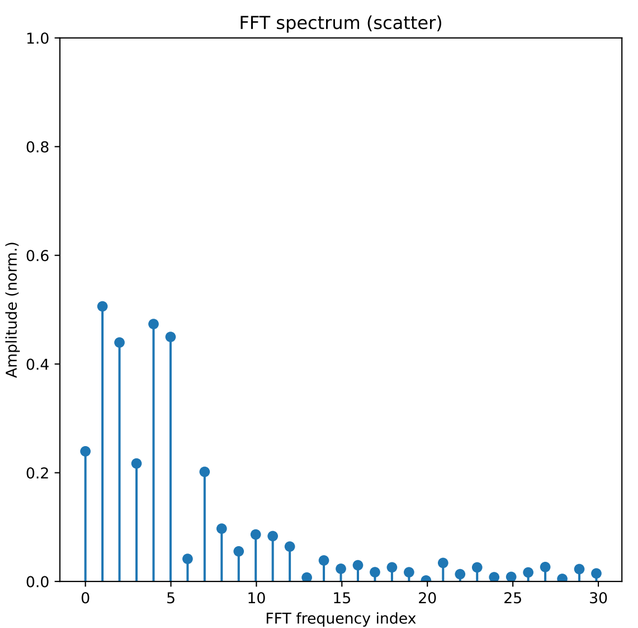

Topographical height
Radial height (native units)
Polar angle (°)

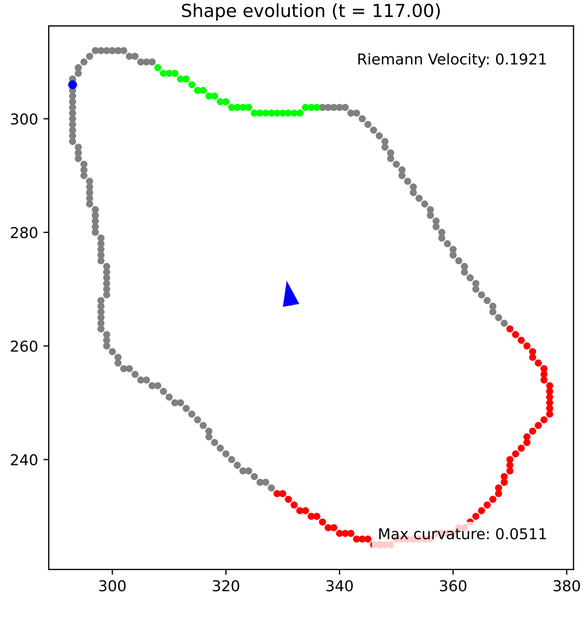

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index

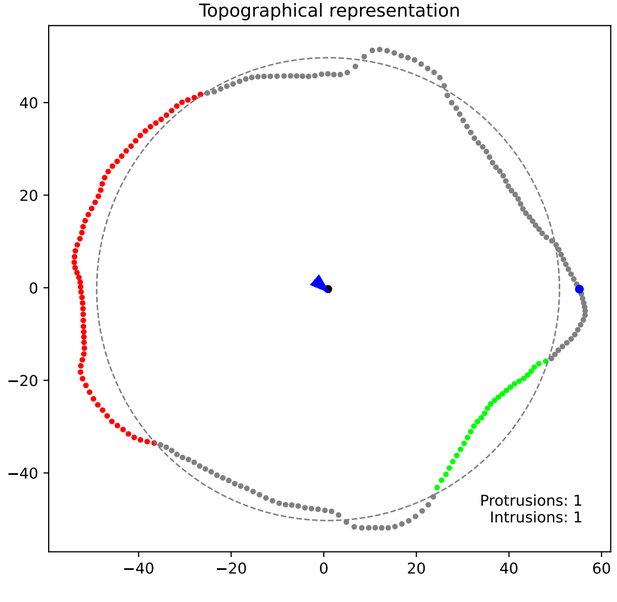

Shape evolution (t = 116.00)
Riemann Velocity: 0.1918
Max curvature: 0.0295
300
280
260
240
300
320
340
360
380

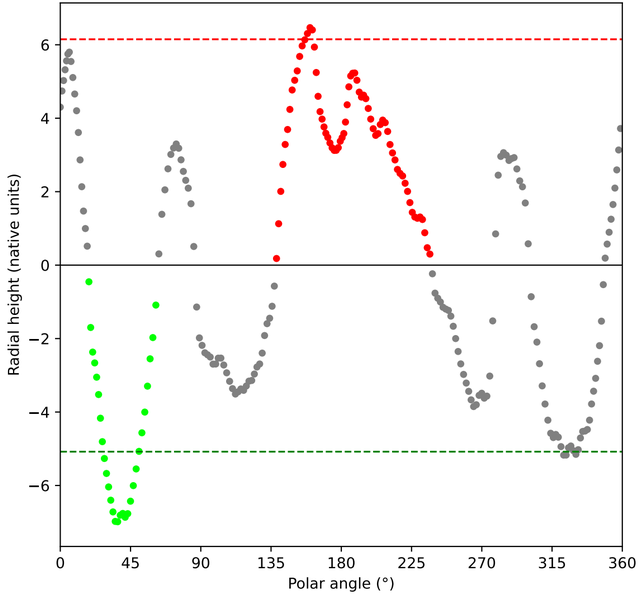

Topographical representation
Protrusions: 0
Intrusions: 0
40
20
0
−20
−40
−40
−20
0
20
40
60

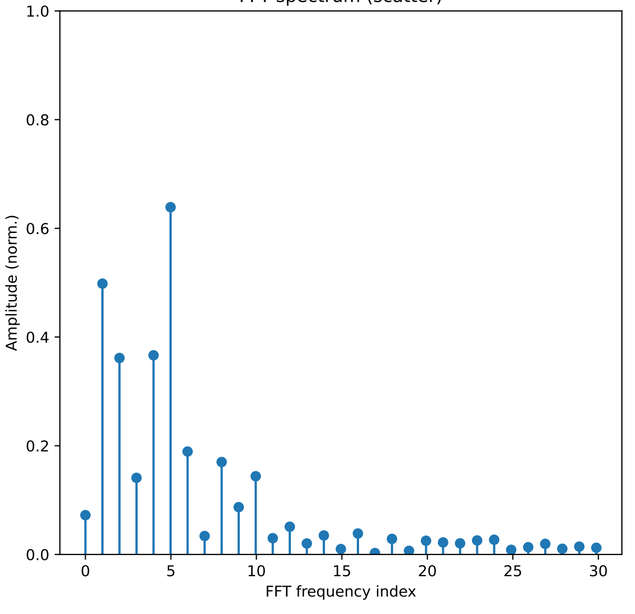

Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
−8
0
45
90
135
180
225
270
315
360

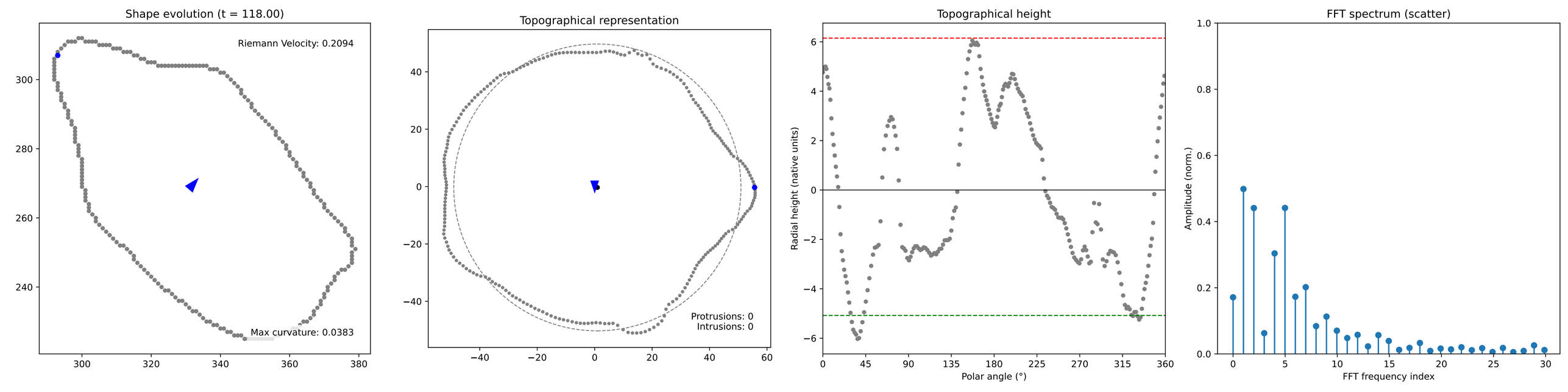

FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30


Shape evolution (t = 117.00)
Riemann Velocity: 0.1921
Max curvature: 0.0511
300
280
260
240
300
320
340
360
380


Topographical representation
Protrusions: 1
Intrusions: 1
40
20
0
−20
−40
−40
−20
0
20
40
60


Topographical height
Radial height (native units)
Polar angle (°)
6
4
2
0
−2
−4
−6
0
45
90
135
180
225
270
315
360


FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30


Shape evolution (t = 118.00)
Riemann Velocity: 0.2094
Max curvature: 0.0383
Topographical representation
Protrusions: 0
Intrusions: 0
Topographical height
Radial height (native units)
Polar angle (°)
FFT spectrum (scatter)
Amplitude (norm.)
FFT frequency index