Tugas 4 Komputasi Matematika

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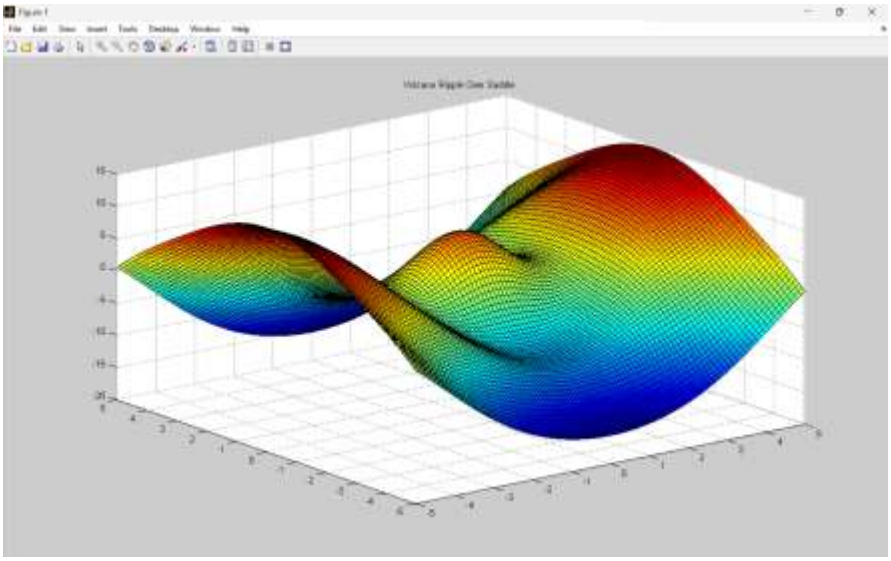
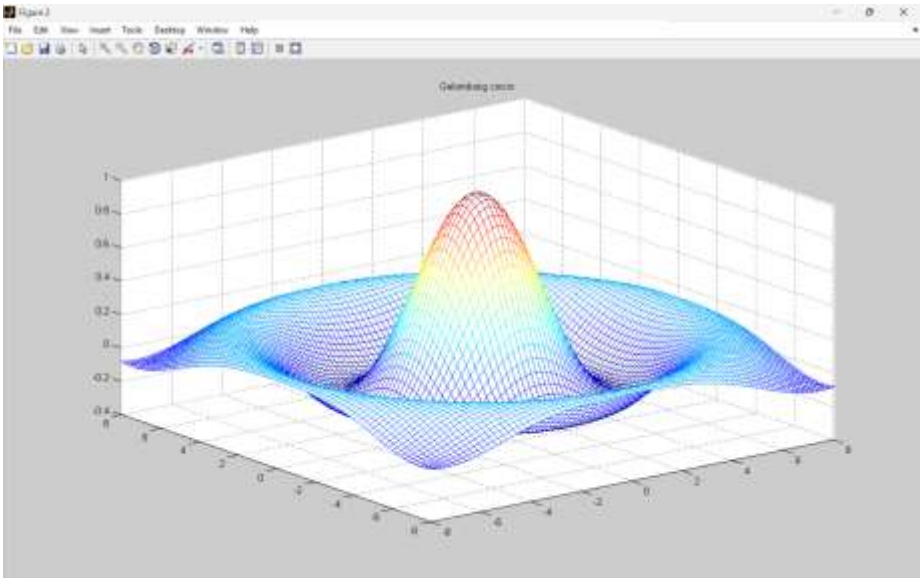
NIM : 662023001

Grafik 3D

1



2



3

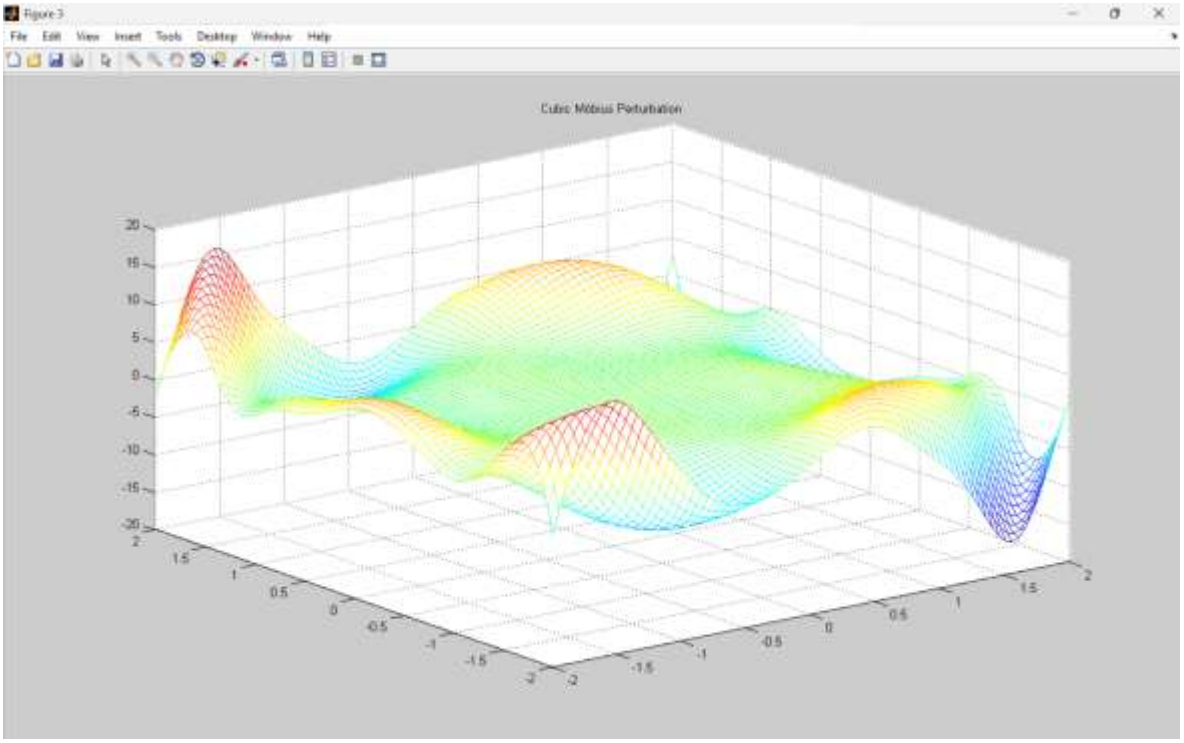


Figure 3
File Edit View Insert Tools Desktop Window Help
Cubic Möbius Perturbation

4

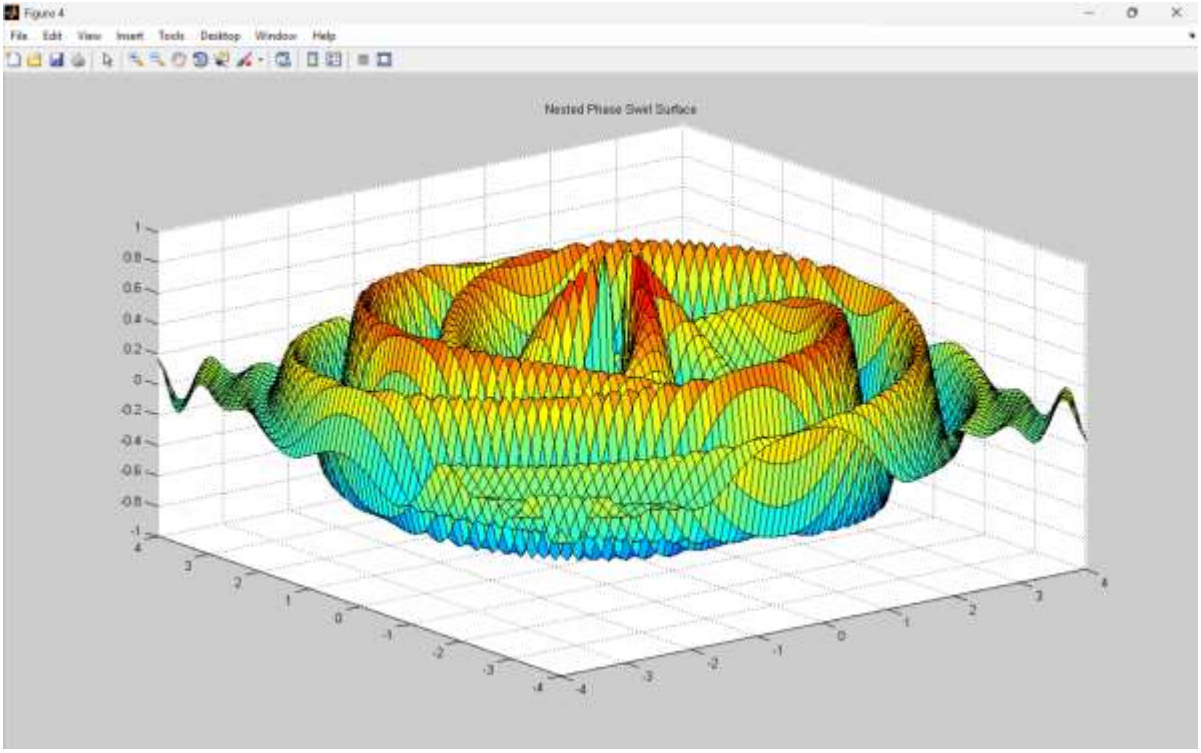


Figure 4
File Edit View Insert Tools Desktop Window Help
Nested Phase Swirl Surface

5

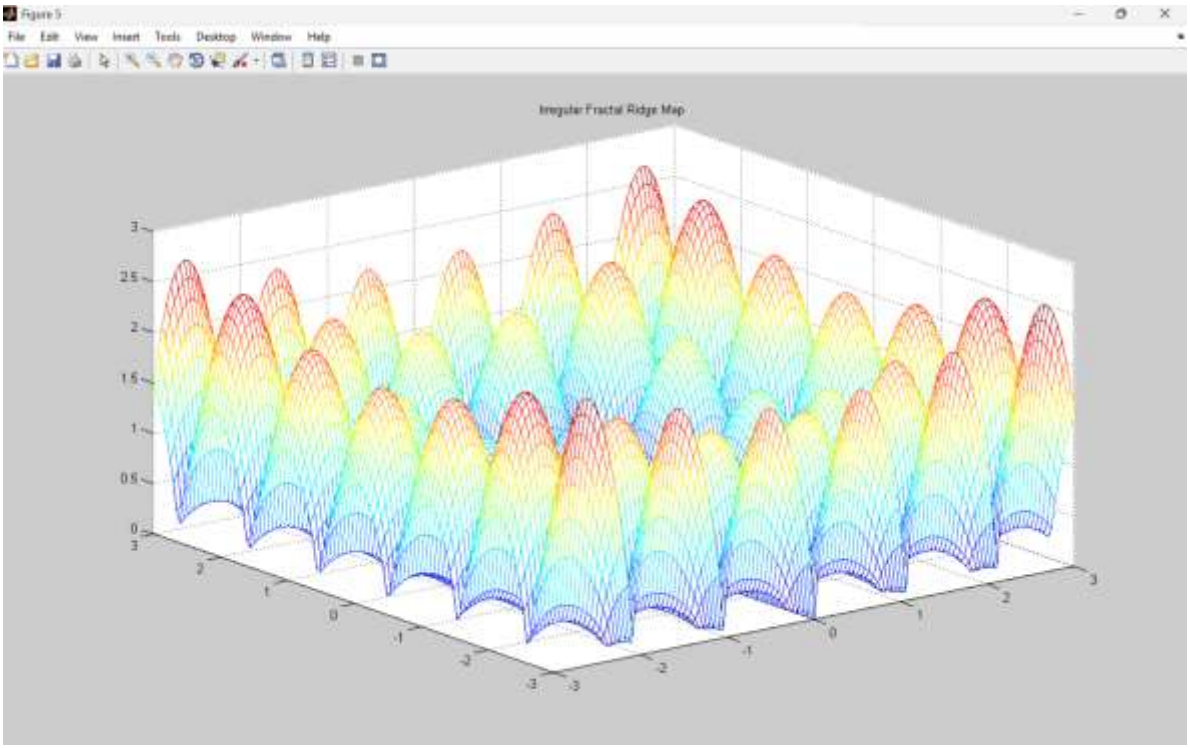


Figure 5
File Edit View Insert Tools Desktop Window Help
Irregular Fractal Ridge Map

6

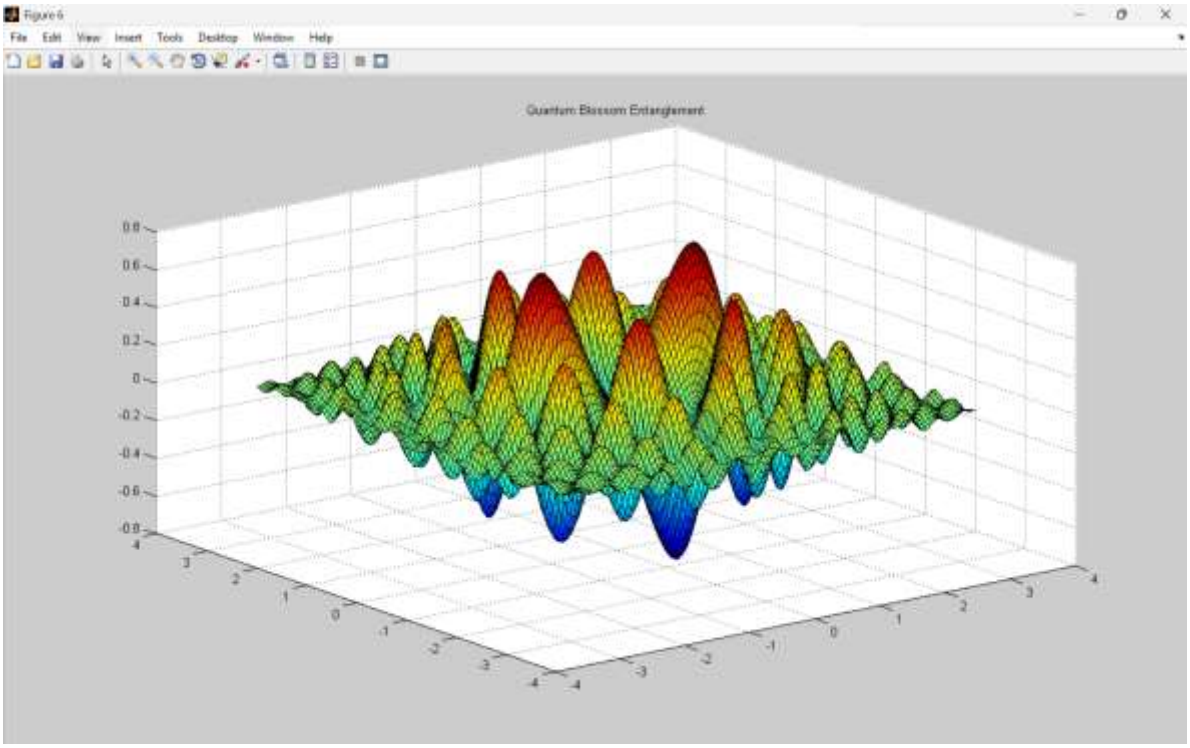


Figure 6
File Edit View Insert Tools Desktop Window Help
Quantum Blossom Entanglement

Kodingan Grafik 3D:

```
10
11      %  Grafik 3D
12
13      %  1 Volcano Ripple Over Saddle
14 -    x = -5:0.1:5;
15 -    y = -5:0.1:5;
16 -    [X,Y] = meshgrid(x,y);
17 -    R = sqrt(X.^2 + Y.^2) + eps;
18 -    Z = (X.^2 - Y.^2).*exp(-0.1*R) + 4*sin(2*R)./R;
19 -    figure(1)
20 -    surf(X,Y,Z)
21 -    title('Volcano Ripple Over Saddle')
22
23      % 2 Gelombang Cincin
24 -    x = -6:0.2:8;
25 -    y = -8:0.2:8;
26 -    [X,Y] = meshgrid(x,y);
27 -    R = sqrt(X.^2 + Y.^2) + eps;
28 -    Z = sin(R)./R;
29 -    figure(2)
30 -    mesh(X,Y,Z)
31 -    title('Gelombang cincin')
32
33      % 3 Cubic Möbius Perturbation
34 -    x = -2:0.05:2;
35 -    y = -2:0.05:2;
36 -    [X,Y] = meshgrid(x,y);
37 -    Z = (X.^3 - 3*X.*Y.^2) .* cos(X.^2 + Y.^2) + sin(X.*Y.^2 - Y.*X.^2);
38 -    figure(3)
39 -    mesh(X,Y,Z)
40 -    title('Cubic Möbius Perturbation')
```

```
2       % 4 Nested Phase Swirl Surface
3 -     x = -4:0.1:4;
4 -     y = -4:0.1:4;
5 -     [X,Y] = meshgrid(x,y);
6 -     theta = atan2(Y,X);
7 -     R = sqrt(X.^2 + Y.^2);
8 -     Z = sin(3*theta + R.^2).*cos(R).*exp(-0.05*R.^2);
9 -     figure(4)
0 -     surf(X,Y,Z)
1 -     title('Nested Phase Swirl Surface')
2
3       % 5 Irregular Fractal Ridge Map
4 -     x = -3:0.05:3;
5 -     y = -3:0.05:3;
6 -     [X,Y] = meshgrid(x,y);
7 -     Z = (abs(sin(3*X).*cos(3*Y))).^0.7 .* log(1 + X.^2 + Y.^2);
8 -     figure(5)
9 -     mesh(X,Y,Z)
0 -     title('Irregular Fractal Ridge Map')
1
2       % 6 Quantum Blossom Entanglemen
3 -     x = -pi:0.05:pi;
4 -     y = -pi:0.05:pi;
5 -     [X,Y] = meshgrid(x,y);
6 -     Z = cos(3*X.*Y) .* sin(X.^2 - Y.^2) .* exp(-0.2*(X.^2 + Y.^2));
7 -     figure(6)
8 -     surf(X,Y,Z)
9 -     title('Quantum Blossom Entanglement')
0
```

Grafik 2D

1

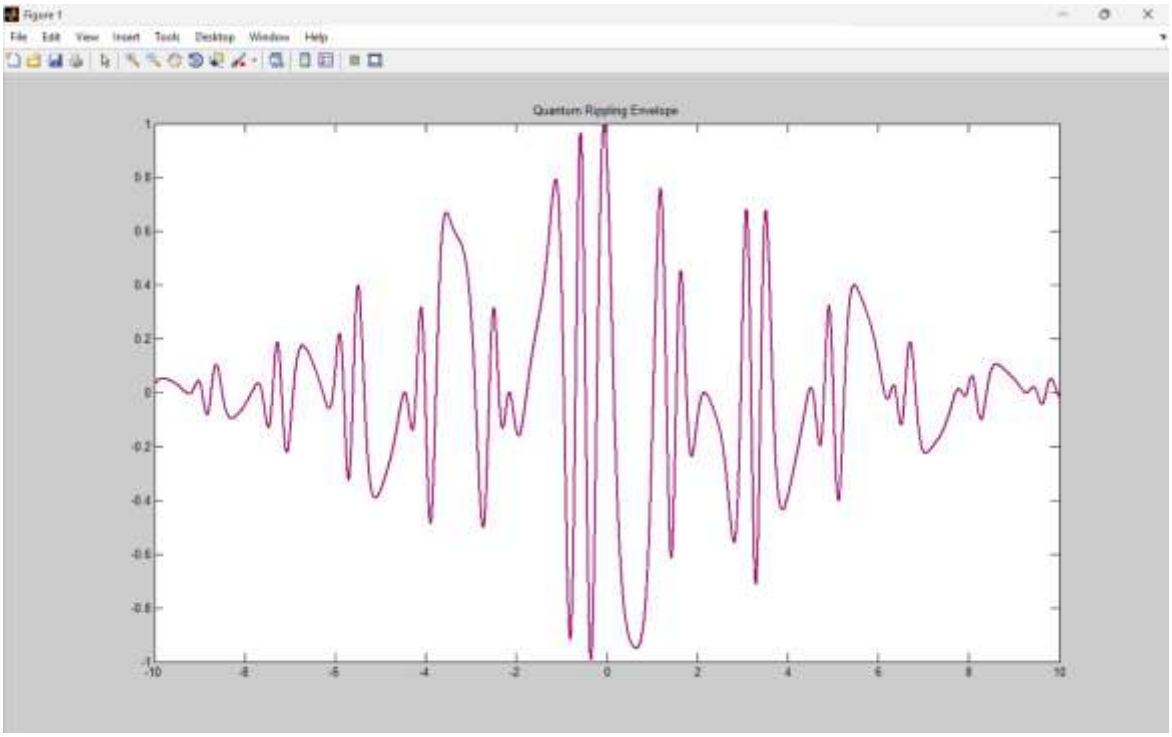


Figure 1
File Edit View Insert Tools Desktop Window Help
Quantum Rippling Envelope

2

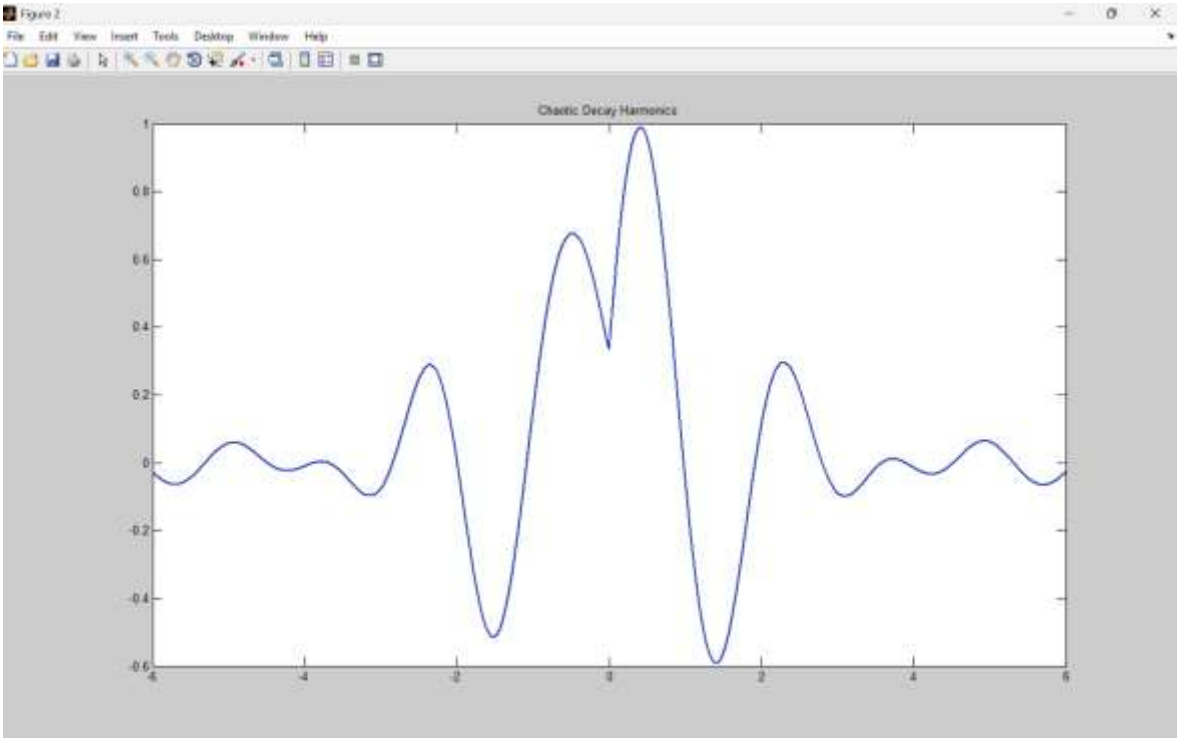


Figure 2
File Edit View Insert Tools Desktop Window Help
Chaotic Decay Harmonics

3

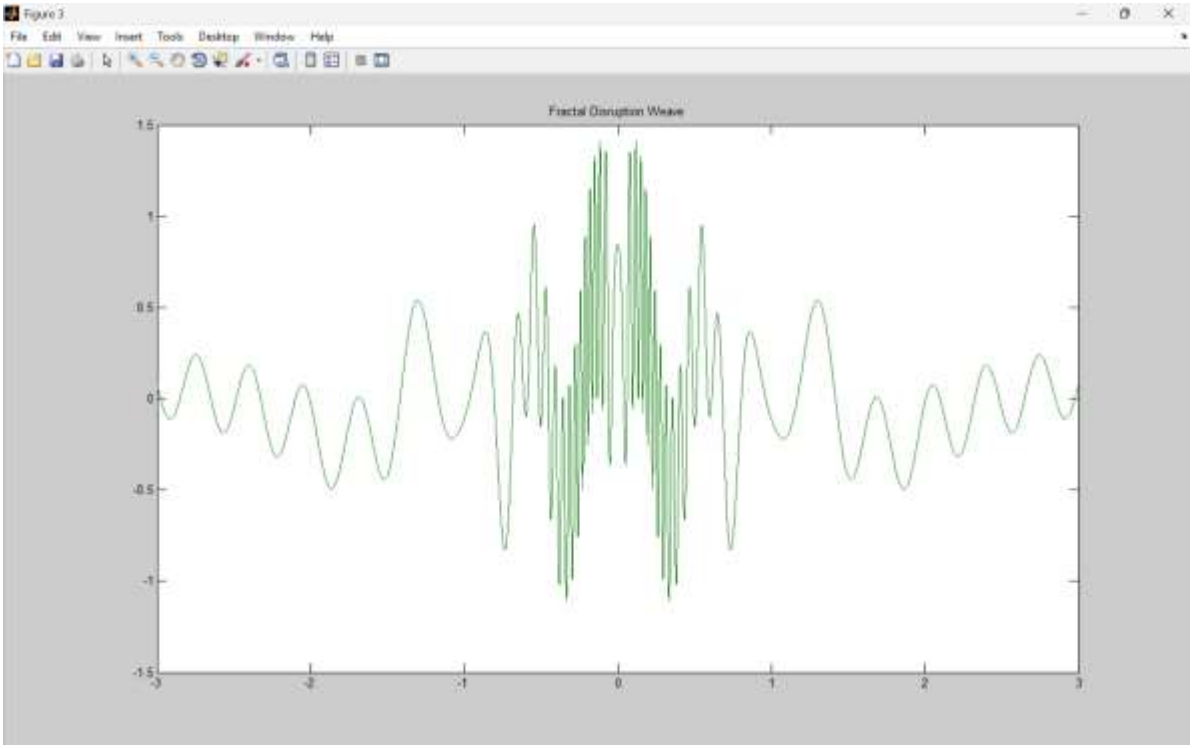


Figure 3
File Edit View Insert Tools Desktop Window Help
Fractal Disruption Weave
1.5
1
0.5
0
-0.5
-1
-1.5
-3
-2
-1
0
1
2
3

4

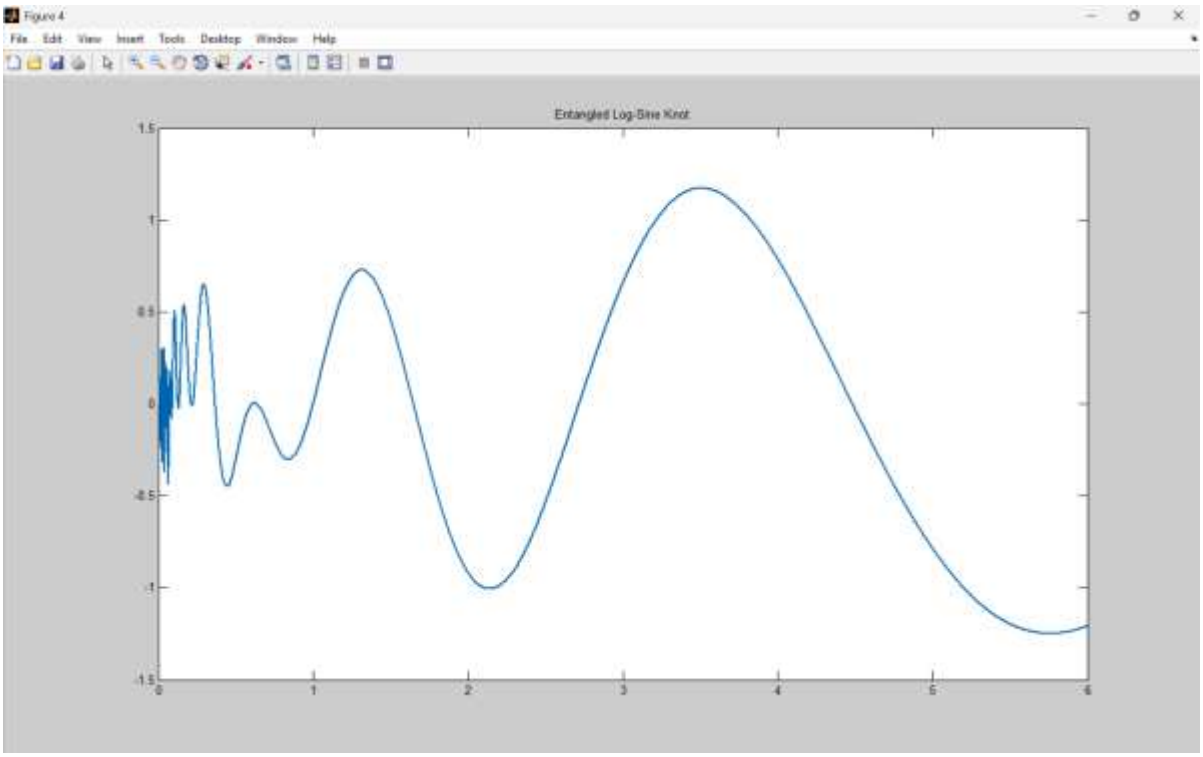
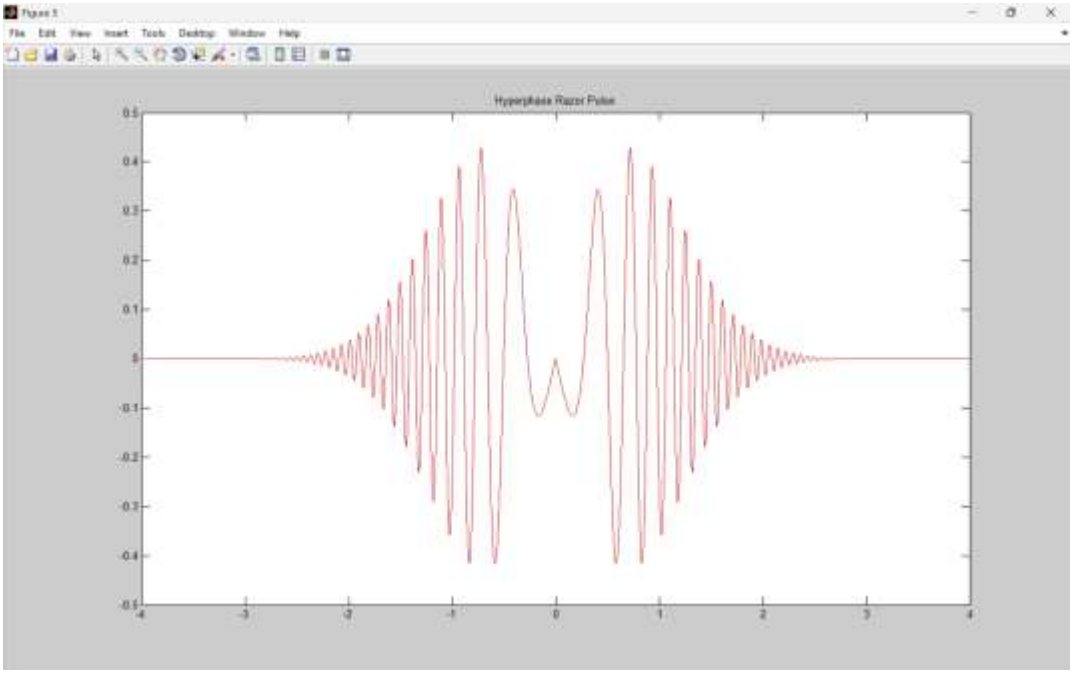


Figure 4
File Edit View Insert Tools Desktop Window Help
Entangled Log-Sine Knot
1.5
1
0.5
0
-0.5
-1
-1.5
0
1
2
3
4
5
6

5



Kodingan grafik 2D :

```
% Grafik 2D

%  1 Quantum Rippling Envelope
x = linspace(-10, 10, 10000);
x_abs = abs(x);  % jaga hasil tetap real
env = exp(-0.03*x.^2);
osc = sin(8*x + 2*cos(3*x_abs.^1.1)) .* cos(0.5*x_abs.^1.5);
y = env .* osc;
figure(1)
plot(x, y, 'Color', [0.6 0 0.4], 'LineWidth', 1.8)
title('Quantum Rippling Envelope')

% 2 Chaotic Decay Harmonics
x = linspace(-6, 6, 8000);
x_abs = abs(x);  % pastikan hasil selalu real
y = sin(3*x_abs.^1.1).*cos(log(x_abs + 1)).*exp(-0.05*x.^2) + ...
    0.4*sin(4*x + cos(x)).*exp(-x_abs);
figure(2)
plot(x, y, 'Color', [0.1 0.2 0.7], 'LineWidth', 1.6)
title('Chaotic Decay Harmonics')

% 3 Fractal Disruption Weave
x = linspace(-3, 3, 6000);
y = (sin(15*abs(x).^1.1) + cos(10./(x.^2+0.1))).*exp(-abs(x).^0.5);
figure(3)
plot(x, y, 'Color', [0.1 0.5 0.1], 'LineWidth', 1.4)
title('Fractal Disruption Weave')

```

```
100
101       % 4 Entangled Log-Sine Knot
102 -     x = linspace(0.01, 6, 10000);
103 -     y = sin(2*pi*log(x)) .* cos(1./x) .* x.^0.3 .* exp(-0.05*x);
104 -     figure(4)
105 -     plot(x, y, 'Color', [0 0.4 0.7], 'LineWidth', 1.5)
106 -     title('Entangled Log-Sine Knot')
107
108       % 5 Hyperphase Razor Pulse
109 -     x = linspace(-4, 4, 5000);
110 -     y = abs(x).*exp(-x.^2) .* sin(20*x.^2 + 5*cos(x));
111 -     figure(5)
112 -     plot(x, y, 'Color', [0.8 0.1 0.1], 'LineWidth', 1.3)
113 -     title('Hyperphase Razor Pulse')
114
115
116
```