

## Block of input data initialization. The Tamari Attractor

```
clear
clc
close

a = 1.013;
b = -0.011;
c = 0.02;
d = 0.96;
e = 0.0;
f = 0.01;
g = 1.0;
h = 0.05;
u = 0.05;

fun = @(t,x) [(x(1)-a*x(2))*cos(x(3))-b*x(2)*sin(x(3));
              (x(1)+c*x(2))*sin(x(3))+d*x(2)*cos(x(3));
              e+f*x(3)+g*atan((1-u)/(1-h)*x(1)*x(2))];

incond = [1 1 1];
timeint = [0 1000];
tau = 0.01;

s_stages = 7;
c_vector = [0 1/3 2/3 1/3 5/6 1/6 1]';
A_matrix = [zeros(1,s_stages);
            1/3 zeros(1,s_stages-1);
            0 2/3 zeros(1,s_stages-2);
            1/12 1/3 -1/12 zeros(1,s_stages-3);
            25/48 -55/24 35/48 15/8 zeros(1,s_stages-4);
            3/20 -11/24 -1/8 1/2 1/10 zeros(1,s_stages-5);
            -261/260 33/13 43/156 -118/39 32/195 80/39 zeros(1,s_stages-6)];
b_vector = [13/200 0 11/40 11/40 4/25 4/25 13/200]';
```

## Block of IVP solution

```
[t, xsol] = odeExplicitGeneral(c_vector,A_matrix,b_vector,fun,timeint,tau,incond)
```

```
t = 100001×1
103 ×

    0
    0.0000
    0.0000
    0.0000
    0.0000
    0.0001
    0.0001
    0.0001
    0.0001
    0.0001
```

```

      :
      :
xsol = 100001x3
      1.0000      1.0000      1.0000
      1.0000      1.0138      1.0080
      0.9999      1.0276      1.0160
      0.9997      1.0415      1.0242
      0.9995      1.0555      1.0324
      0.9992      1.0695      1.0406
      0.9989      1.0835      1.0489
      0.9985      1.0975      1.0573
      0.9980      1.1116      1.0658
      0.9974      1.1257      1.0743
      :
      :

```

## Block of visualization of the obtained results

```

set(groot,"defaultAxesTickLabelInterpreter","latex")
set(groot,"defaultTextInterpreter","latex")
set(groot,"defaultLegendInterpreter","latex")
set(groot, "defaultColorbarTickLabelInterpreter", "latex");

figure();
scatter3(xsol(:,1), xsol(:,2), xsol(:,3), 4,1:length(xsol(:,1)),'filled');
colormap gray;
colorbar;
axis tight;
grid on;
box on;
view([-227.35 19.42])
xlabel('$x$', 'FontSize',14 );
ylabel('$y$', 'FontSize',14 );
zlabel('$z$', 'FontSize',14 );
title('The Tamari Attractor', 'FontSize',16);
exportgraphics(gcf,"The Tamari Attractor.pdf")

```

# The Tamari Attractor

