

HW 7 Question 3

```
clear all
close all
clc
A = [1 1 0;
     0 0.9 1;
     0 0.2 0];
B = [0; 1; 0];
% computes a control invariant set for LTI system  $x^+ = A*x + B*u$ 
system = LTISystem('A', A, 'B', B);
system.x.min = [-5; -5; -5];
system.x.max = [5; 5; 5];
system.u.min = -0.5;
system.u.max = 0.5;
InvSet = system.invariantSet()
InvSet.plot()
xlabel('x1')
ylabel('x2')
zlabel('x3')
title('Invariant set')
```

```
Iteration 1...
Iteration 2...
Iteration 3...
Iteration 4...
Iteration 5...
Iteration 6...
Iteration 7...
Iteration 8...
Iteration 9...
Iteration 10...
Polyhedron in R^3 with representations:
  H-rep (irredundant) : Inequalities 24 | Equalities 0
  V-rep               : Unknown (call computeVRep() to compute)
Functions : none
```

