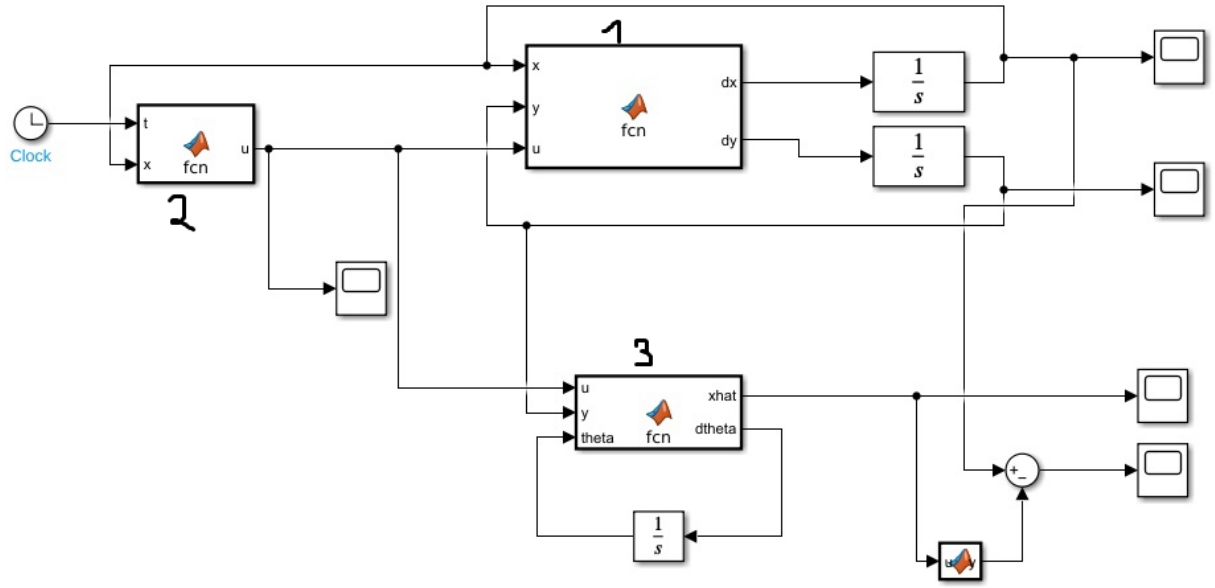
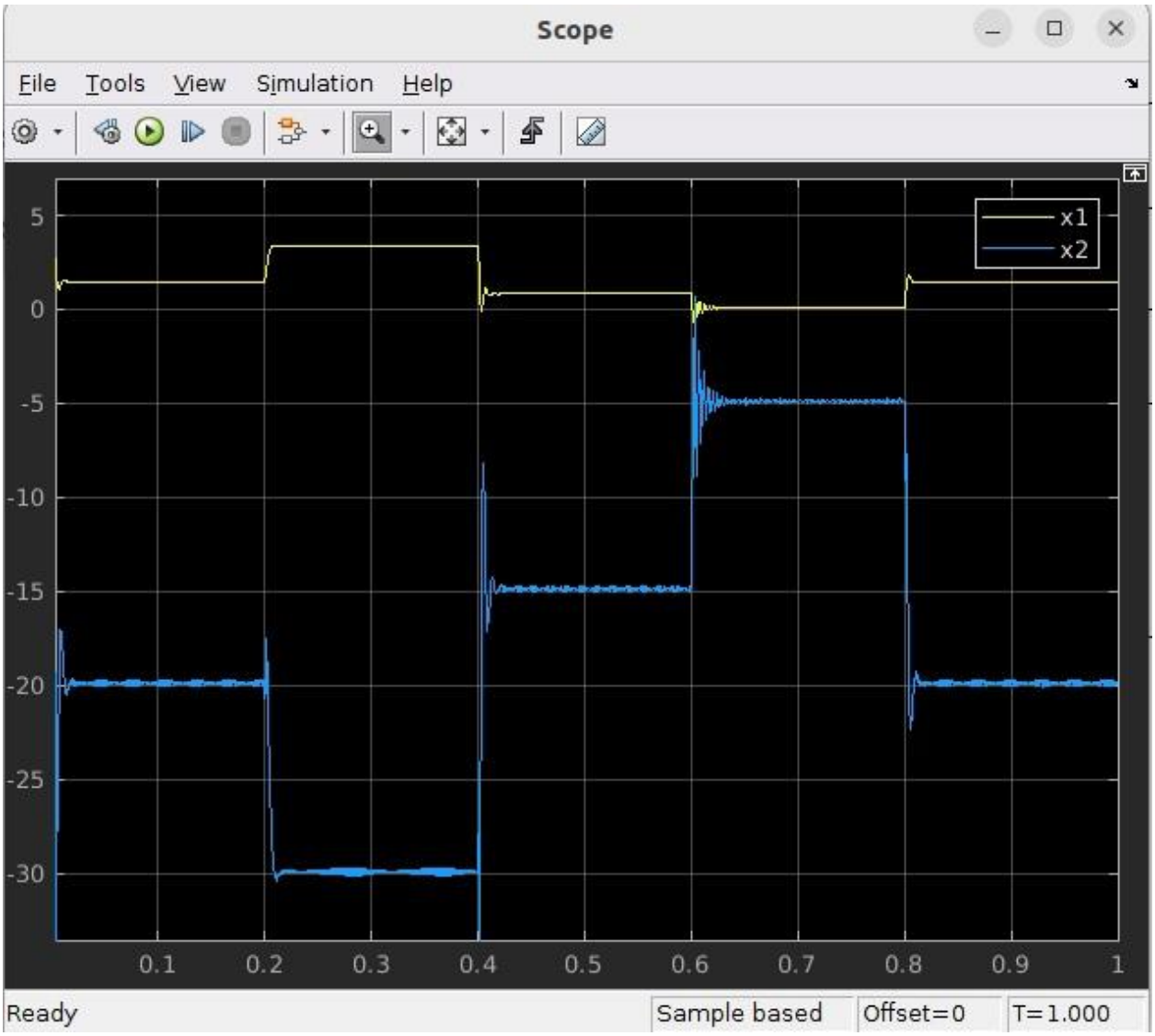
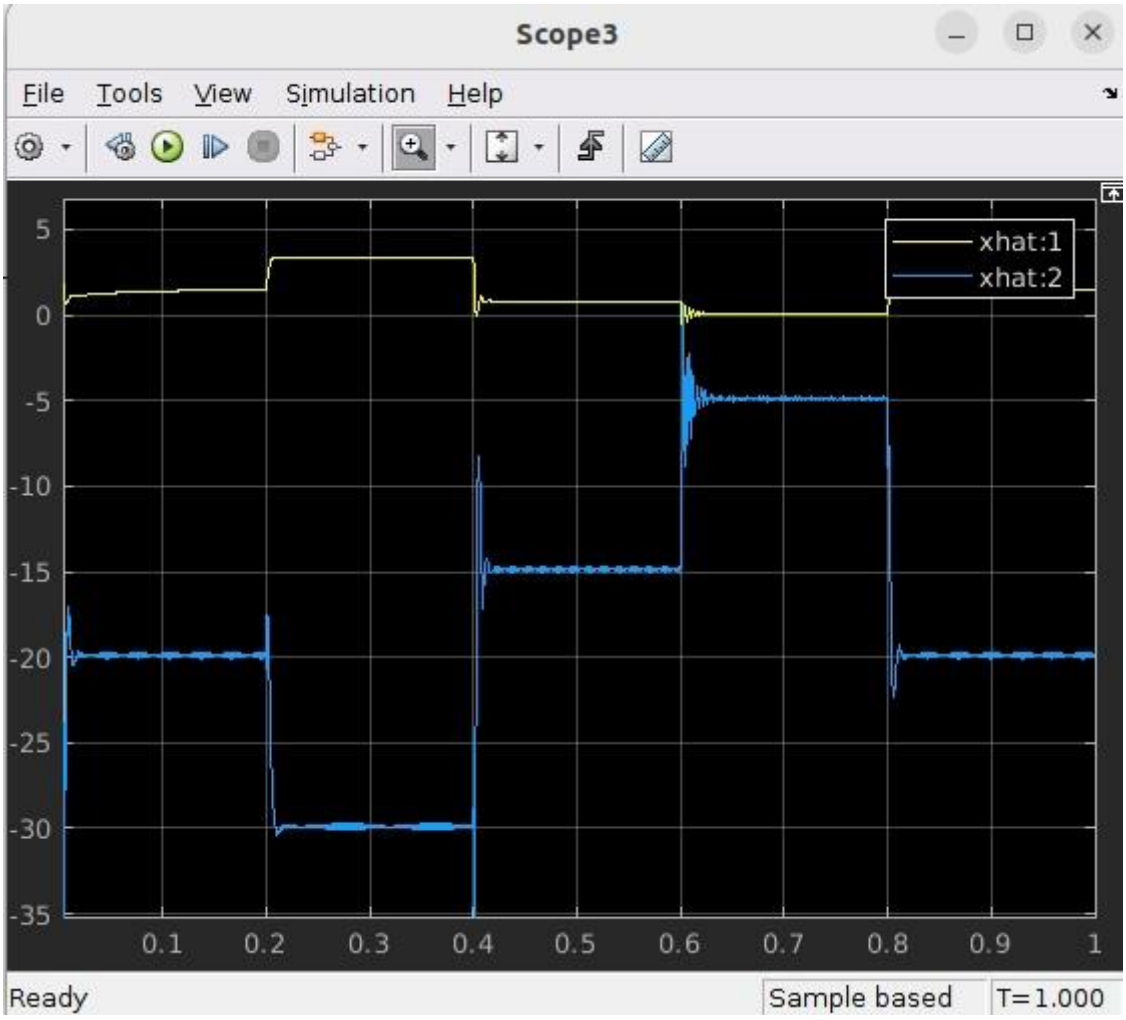
Модель Симулинк



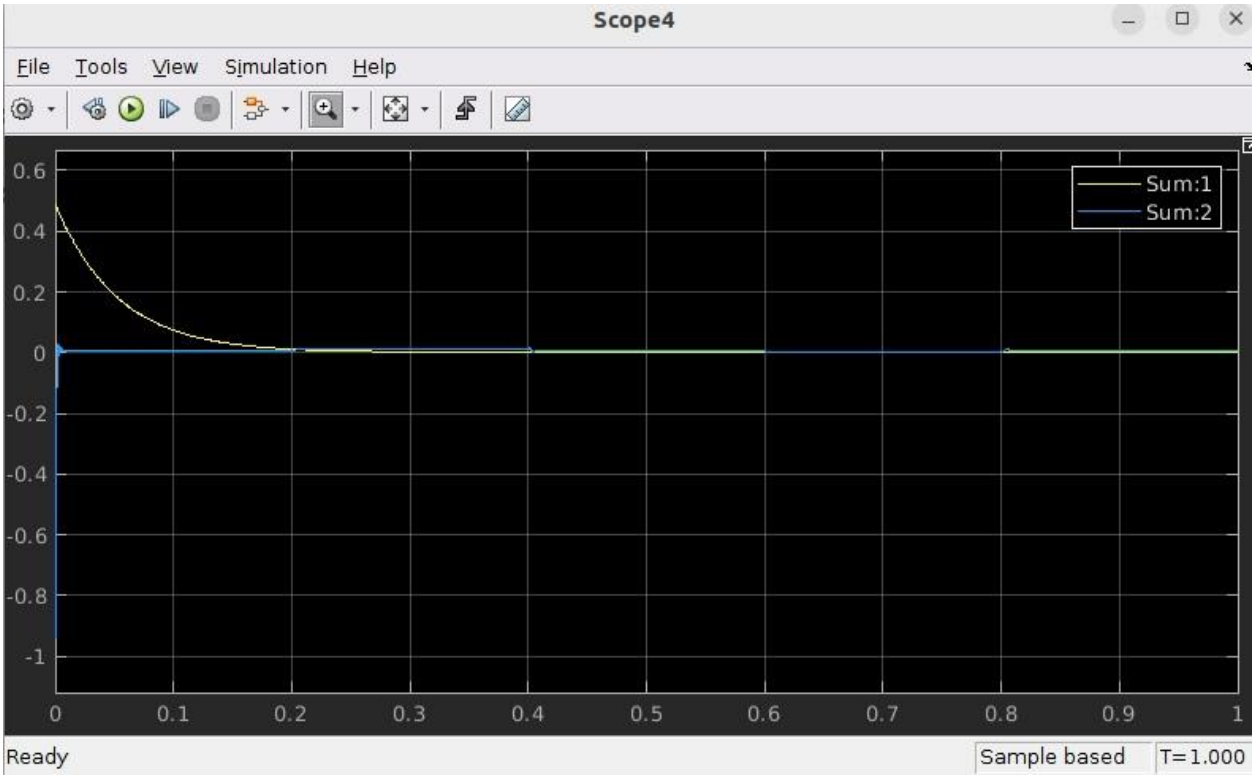
x1,x2 Системы 1

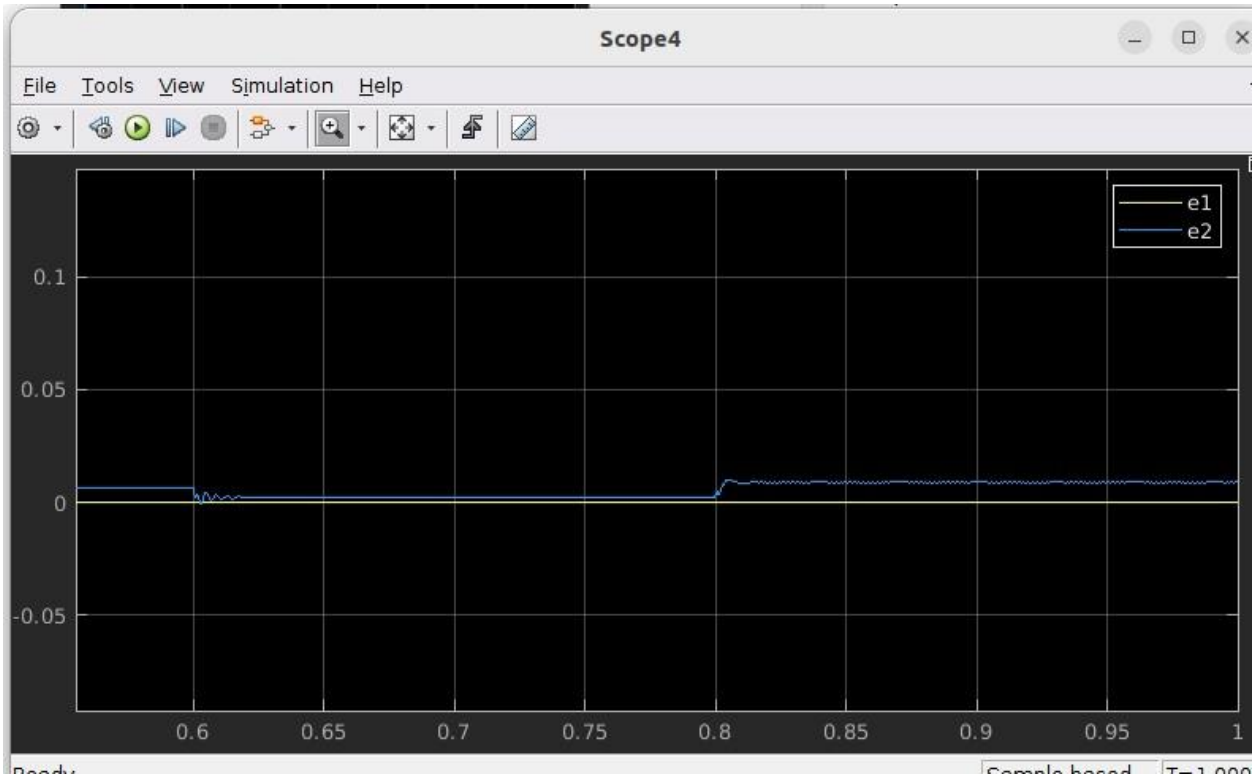


x1,2_hat наблюдателя



Графики ошибки




Scope4
File Tools View Simulation Help
e1
e2
0.1
0.05
0
-0.05
0.6 0.65 0.7 0.75 0.8 0.85 0.9 0.95 1

Код блока 1

HomeTaskModel ▸ MATLAB Function

```
function [dx, dy] = fcn(x, y, u)
L1 = 10 * 0.001;
L3 = 5 * 0.001;
C2 = 22 * 0.000001;
C4 = 22.9 * 0.000001;
G = 0.0447 ;
E = 12;

dx1 = -(1-u)*y(1) / L1 + E / L1;
dx2 = y(2)/C4 - G*x(2) / C4;
dy1 = (1-u)*x(1)/C2 + u*y(2) / C2;
dy2 = -u*y(1)/L3 - x(2)/L3;
dx = [dx1 dx2];
dy = [dy1 dy2];

```

Код блока 2

```
function u = fcn(t, x)
E = 12;
v2 = 10;
G = 0.0447;
lambda0 = 1;

Vd = 25;
if (t >= 0.2 && t < 0.4)
    Vd = 30;
elseif (t >= 0.4 && t < 0.6)
    Vd = 15;
elseif (t >= 0.6 && t < 0.8)
    Vd = 5;
else
    Vd = 20;
end

lambda = lambda0 * min(abs(Vd)/(abs(Vd) + E), E / (abs(Vd) + E) );
Vd = abs(Vd);
u = abs(Vd)/(abs(Vd) + E) + lambda * (G*Vd*v2 + E*(x(2)-x(1))) / (1 + (G*Vd*v2+E*(x(2)-x(1)))^2);
```

Код блока 3 (набл.)

HomeTaskModel ▸ MATLAB Function2

```
function [xhat, dtheta] = fcn(u, y, theta)
L1 = 10 * 0.001;
L3 = 5 * 0.001;
C2 = 22 * 0.000001;
C4 = 22.9 * 0.000001;
G = 0.0447 ;
E = 12;

gamma1 = 50; gamma2 = 1;

%dtheta1 = -gamma1*(1-u)*(theta(1) + C2*gamma1*y(1)) + gamma1*u*y(2) + (E-(1-u)*y(1))/L1;
dtheta1 = (E - (1-u)*y(1))/L1 - gamma1*((1-u)*(theta(1)+C2*gamma1*y(1)) + u*y(2));
dtheta2 = (y(2) - G*(theta(2)-L3*gamma2*y(2)))/C4 - gamma(2)*(u*y(1) + theta(2) - L3*gamma2*y(2));

xhat = theta + [C2*gamma1*y(1); L3*gamma2*y(2)];
dtheta = [dtheta1; dtheta2];

```