オブザーバ設計関数の実行例（MATLAB）

```
>>a = [-0.4000   0   -0.0100; 1.0000   0   0; -1.4000   9.8000   -0.0200];
>>b = [6.3; 0; 9.8];
>>c = [0   0   1];
>>d = 0;
>>cp = [-2   -1+j   -1-j];   %補償器（レギュレータ）の極
>>op = [-3+3j   -3-3j   -4];  %オブザーバの極
>>xo = [1 2 3];   %システムの初期値
>>xho = [-1   -2   -3];  %オブザーバの初期値
>>t = linspace(0,10,1000);
>>observer_design(a,b,c,d,cp,op,xo,xho,t)   %関数を実行
The compensator poles are
pK =
 -14.3751 + 0.0000i
   0.3975 + 4.0793i
   0.3975 - 4.0793i
```

the compensator zeroes are
zK =
   -0.6416 + 0.3658i
   -0.6416 - 0.3658i

the closed loop poles are
pT =
   -3.0000 + 3.0000i
   -3.0000 - 3.0000i
   -4.0000 + 0.0000i
   -2.0000 + 0.0000i
   -1.0000 + 1.0000i
   -1.0000 - 1.0000i

the closed loop zeroes are
zT =
    0.2500 + 2.4975i
    0.2500 - 2.4975i
  -14.3751 + 0.0000i
    0.3975 + 4.0793i

0.3975 - 4.0793i

Figure 6: Step response — $y(t)$ and $\hat{y}(t)$

Figure 2: x_1 — State $x_1(t)$ and observer estimate

Figure 4: x_3 — State $x_3(t)$ and observer estimate $\hat{x}_3(t)$

Figure 3: x_2 — State $x_2(t)$ and observer estimate $\hat{x}_2(t)$

Figure 1: Root locus — Root Locus

Figure 5: Bode plot — Bode Diagram