```matlab
syms R1 R2 R3 R4 C real   %x values

% Define system of equations (example with symbolic fractions)

dutyCycleLowerBoundary = 0.08;
dutyCycleHigherBoundary = 0.13;
```

$x^2 + e^{\pi i}$

```matlab
b1 = (1-dutyCycleLowerBoundary)*.02; %t1 lower bound
b2 = dutyCycleLowerBoundary*0.02; %t2 lower bound
b3 = (1-dutyCycleHigherBoundary)*0.02; %t1 upper bound
b4 = dutyCycleHigherBoundary*0.02; %t2 upper bound
b5 = 0.02; %period of PWM for Rpot = 0
b6 = 0.02; %period of PWM for Rpot = 5k

f1 = @(x) b1 - 0.693*((x(1)*x(2))/(x(1)+x(2))+(5000*x(3)+x(3)*x(4))/
(x(3)+x(4)+5000))*x(5);
f2 = @(x) b2 - 0.693*((5000*x(3)+x(3)*x(4))/(x(3)+x(4)+5000))*x(5);
f3 = @(x) b3 - 0.693*((x(1)*x(2)+5000*x(1))/(x(1)+x(2)+5000)+(x(3)*x(4))/
(x(3)+x(4)))*x(5);
f4 = @(x) b4 - 0.693*((x(3)*x(4))/(x(3)+x(4)))*x(5);
f5 = @(x) b5 - 0.693*((x(1)*x(2))/(x(1)+x(2))+2*(5000*x(3)+x(3)*x(4))/
(x(3)+x(4)+5000))*x(5);
f6 = @(x) b6 - 0.693*((x(1)*x(2)+5000*x(1))/(x(1)+x(2)+5000)+2*(x(3)*x(4))/
(x(3)+x(4)))*x(5);

fcon = @(x) f1(x)^2 + f2(x)^2 + f3(x)^2 + f4(x)^2 + f5(x)^2 + f6(x)^2;

%e1 = b1 - 0.693*((R1*R2)/(R1+R2)+(5000*R3+R3*R4)/(R3+R4+5000))*C;
%e2 = b2 - 0.693*((5000*R3+R3*R4)/(R3+R4+5000))*C;
%e3 = b3 - 0.693*((R1*R2+5000*R1)/(R1+R2+5000)+(R3*R4)/(R3+R4))*C;
%e4 = b4 - 0.693*((R3*R4)/(R3+R4))*C;
%e5 = b5 - 0.693*((R1*R2)/(R1+R2)+2*(5000*R3+R3*R4)/(R3+R4+5000))*C;
%e6 = b6 - 0.693*((R1*R2+5000*R1)/(R1+R2+5000)+2*(R3*R4)/(R3+R4))*C;
%fun = e1^2 + e2^2 + e3^2 + e4^2 + e5^2 + e6^2;

% Initial guess and constraints
x0 = [40000, 22000, 3000, 1000, 1.5e-6];
A = eye(5)*-1;
b = [20000, 20000, 2000, 800, 1.0e-7];


% Set optimization options
options = optimoptions('fmincon', 'Algorithm', 'interior-point');

% Run the optimization
[x_opt, fval] = fmincon(fcon, x0, A, b, [], [], [], [], [], options);

% Display results
disp('Optimal solution:'), disp(x_opt)
disp('Optimal cost function value:'), disp(fval)
```

Local minimum found that satisfies the constraints.

Optimization completed because the objective function is non-decreasing in feasible directions, to within the value of the optimality tolerance, and constraints are satisfied to within the value of the constraint tolerance.

Optimal solution:
1.0e+04 *

4.0000   2.2000   0.3000   0.1000   0.0000

Optimal cost function value:
5.5807e-06

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