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L = 1;
C = 1;
t0 = 2;
t = -3:0.1:10;
K = sqrt(L/C);
p = -1*(1/(C*K));

hold on
grid on
set(gca, 'XAxisLocation', 'origin');
set(gca, 'YAxisLocation', 'origin');

Il1 = (1/K)*(1-exp(p.*t));
Il1(1:30) = 0; %取 t0 = 0 的阶跃函数
Il2 = -1.*(1/K)*(1-exp(p.*(t-t0)));
Il2(1:51) = 0; %取 t0 = 2 的阶跃函数
Il = Il1+Il2;
% plot(t,Il1)
% plot(t,Il2)
plot(t,Il) %绘制 Il 图形

Ic1 = (1/K)*exp(p.*t);
Ic1(1:30) = 0; %取 t0 = 0 的阶跃函数
Ic2 = -1.*(1/K)*(exp(p.*(t-t0)));
Ic2(1:51) = 0; %取 t0 = 2 的阶跃函数
Ic = Ic1+Ic2;
plot(t,Ic) %绘制 Ic 图形
plot(t,Ic+Il) %验证 Is = Ic+Is

ylim([-0.9 1.1])
legend('$I_L(t)$', '$I_C(t)$', '$I_S(t)$', 'Interpreter', 'latex')

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