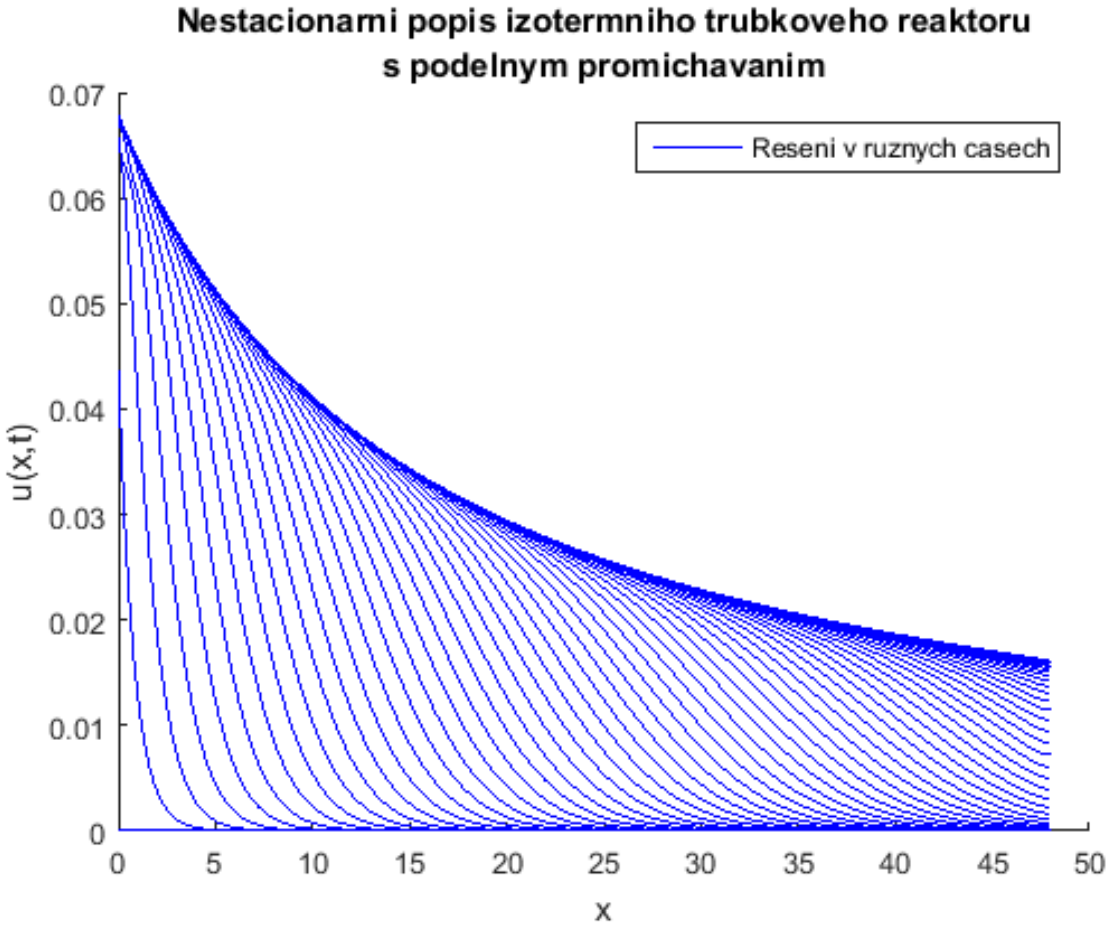
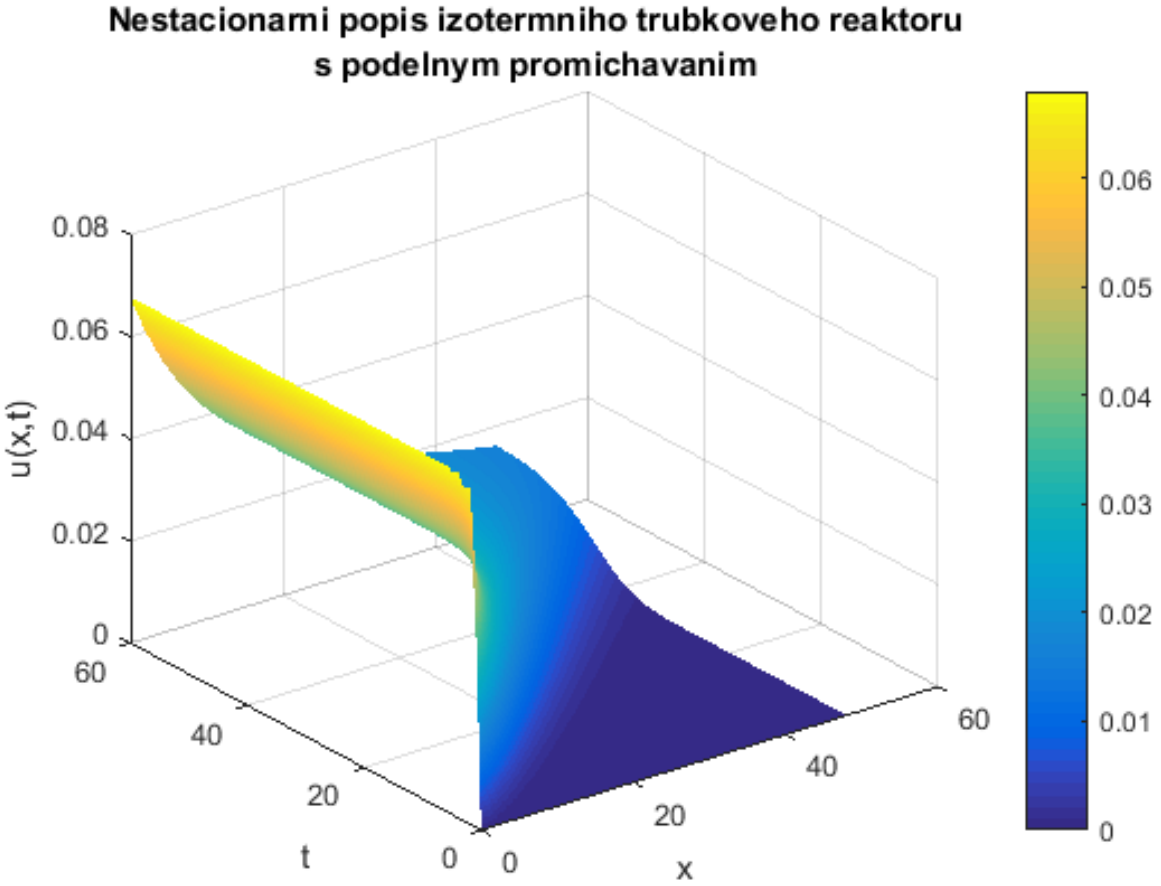
Aplikační příklad 2.4

```
% Nestacionarni popis izotermniho trubkoveho reaktoru s podelnym promichavanim,
% du/dt = 1/Pe * d2u/dx2 - du/dx - Da*u^2
% u(0,t) - 1/Pe*du/dx(0,t) = p, du/dx(X,t) = 0
% u(x,0) = 0
% X = 48 Pe = 2, Da = 1, p = 0.07

a = 0;
b = 48;
n = 240;
m = 60;
k = 1.0;
g = inline('1/2','x','t');
e = inline('-1','x','t');
f = inline('-1*(u^2)','x','t','u');
df = inline('-2*(u)','x','t','u');
alpha1 = 1;
beta1 = inline('-1/2','t');
gamma1 = inline('0.07','t');
alpha2 = 0;
beta2 = inline('1','t');
gamma2 = inline('0','t');
phi = inline('0','x');

u = PDEParabCN(n,m,k,a,b,g,e,f,df,alpha1,alpha2,beta1,beta2,gamma1,gamma2,phi);

h = (b-a)/n; x = a:h:b; t = (0:k:m*k)';
figure;
hold on;
for j = 1:m+1
  plot(x,u(j,:),'b');
end
title({'Nestacionarni popis izotermniho trubkoveho reaktoru';'s podelnym promichavanim'});
xlabel('x');
ylabel('u(x,t)');
legend('Reseni v ruznych casech');
hold off;

figure;
surf(x,t,u);
shading interp;
colorbar;
xlabel('x');
ylabel('t');
zlabel('u(x,t)');
title({'Nestacionarni popis izotermniho trubkoveho reaktoru';'s podelnym promichavanim'});
```


Nestacionarni popis izotermniho trubkoveho reaktoru
s podelnym promichavanim
Reseni v ruznych casech
u(x,t)
x
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
5
10
15
20
25
30
35
40
45
50


Nestacionarni popis izotermniho trubkoveho reaktoru
s podelnym promichavanim
u(x,t)
t
x
0.08
0.06
0.04
0.02
0
60
40
20
0
0
20
40
60
0.06
0.05
0.04
0.03
0.02
0.01
0