```matlab
nped = 0.7;
n0 = 1;
nsep = 0.5;
rped = 0.6;
rsep = 1;
m = (nsep - nped) / (rsep - rped);
b = nsep - m * rsep;
alphan = 1;
lambdan = 0.35;

x1 = 0:0.001:rped;
x2 = rped:0.001:rsep;
x3 = rsep:0.001:1.5;
y1 = nped + (n0 - nped)*(1-(x1/rped).^2).^alphan;
y2 = m * x2 + b;
y3 = nsep * exp(-(x3-rsep)/lambdan);
P11 = nsep * exp(-(1.35-rsep)/lambdan);


figure;
plot(x1,y1,'k','LineWidth', 2)
hold on
plot(x2,y2,'k','LineWidth', 2)
plot(x3,y3,'k','LineWidth', 2)

line([rped rped],[0 nped],'Color','k')
line([rsep rsep],[0 nsep],'Color','k')
line([0 rped],[nped nped],'Color','k')
line([0 rsep],[nsep nsep],'Color','k')
line([1.35 1.35],[0 n0],'Color','k', 'LineWidth', 2)
line([0 1.5],[P11 P11],'Color','k')

area([1.35:0.15:1.5],[0.999:0.001:1],'FaceAlpha',0.1,'FaceColor','black')

text(0.1, 0.8,'Core')
text(0.75, 0.68,'Pedestal')
text(1.15, 0.45, 'SOL')

xticks([0 rped rsep 1.35])
xticklabels({'0','r_{ped}','r_{sep}','Wall'})
yticks([0 P11 nsep nped n0])
yticklabels({'0','P_{min}','P_{sep}','P_{ped}','P_{max}'})
xlabel('Radius')
ylabel('Density/Temperature')
```
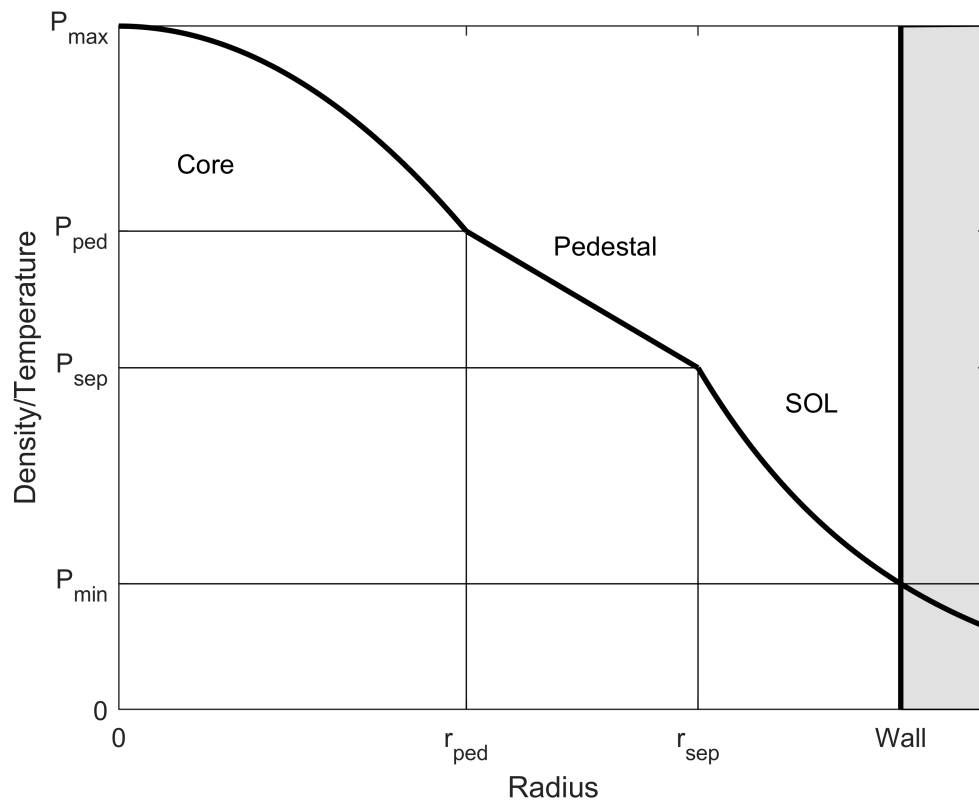
```
print(figure,'ParameterProfile','-dpdf')
```