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## Anexo 1

Programa computacional para resolver a equação auto-consistente do parâmetro de ordem S. O programa foi escrito utilizando MatLab e fornece os gráficos de S e da energia livre F em função de uma temperatura adimensional dada por  $t = KT/\rho U$ .

```

for r=-15:0.1:15
    x=linspace(-1,1,20000);
    inte=sum(exp(3/2*r*x.^2)*0.0001);
    s=exp(3/2*r)/(r*inte)-0.5-0.5/r;
    t=s/r;
    f=s^2/2+s/2-t*log(1/2*inte);

    hold on
    subplot(2,2,1), plot(t,s,'bo')
    xlabel('Temperatura')
    ylabel('Parâmetro de ordem')
    axis([0,0.25,-0.5,1])
    hold on
    subplot(2,2,2),plot(t,f,'rx')
    xlabel('Temperatura ')
    ylabel('Energia Livre')
    hold on
    subplot(2,2,3), plot(t,f,'k+')
    xlabel('Temperatura ')
    label('Energia Livre')
    axis([0.15,0.23,-0.002,0.001])
end
hold off
hold off

```