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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/ρU.

```
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