
```

close all
clc

m=0.911e-30;
k=0.8617e-4;
hbar=1.0546e-34;
eV2J=1.6e-19;

T = 0;
dn=2;
n = [1e22, 2e22, 5e22]*1e6;

Ef=@(n) (3*pi^2*hbar^3*n).^(2/3)/(2*m);
dE=@(n) (dn*pi^(4/3)*hbar^2/(3^(1/3)*m))*n.^(-1/3);
%DE=dE(n);

figure('Units', 'normalized', 'OuterPosition', [1/4 0 1/2 1])
subplot(2,1,2)
plot(log(linspace(n(1), n(3)))./log(10), Ef(linspace(n(1), n(3)))/
eV2J)
grid on
xlabel('$\log_{10}(n), m^{-3}$', 'Interpreter', 'latex')
ylabel('$E_f(0), eV$', 'Interpreter', 'latex')
title('##### ##### T=0')

subplot(2,1,1)
plot(log(n)./log(10), log(dE(n)/eV2J)./log(10), '-
or', 'MarkerFaceColor', 'b')
grid on
xlabel('$\log_{10}(n), m^{-3}$', 'Interpreter', 'latex')
ylabel('$\log_{10}(E_f(0)), eV$', 'Interpreter', 'latex')
title('##### #####')

[x,y]=ginput(1);
%msgbox('n = ', string(x), 'E_0 = ', string(Ef(x)), 'dE = ',
string(dE(x)))

h = msgbox(sprintf('n      = %.2g cm^-3 \nE_0 = %.2g eV\ndE      = %.2g
eV', [10^x, Ef(10^x)/eV2J, dE(10^x)/eV2J]), 'Point cheker');

subplot(2,1,2)
hold on
plot(x, Ef(10^x)/eV2J, 'H', 'MarkerFaceColor', 'k', ...
'MarkerSize', 10, ...
'MarkerEdgeColor', 'k')

subplot(2,1,1)
hold on
plot(x, log(dE(10^x)/eV2J)/log(10), 'H', 'MarkerFaceColor', 'k', ...
'MarkerSize', 10, ...
'MarkerEdgeColor', 'k')

for i = 1:3

```

```

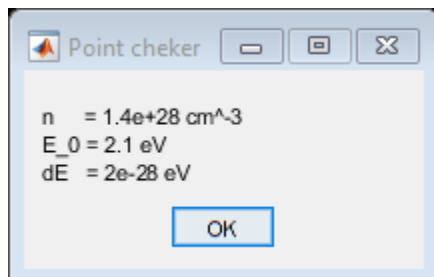
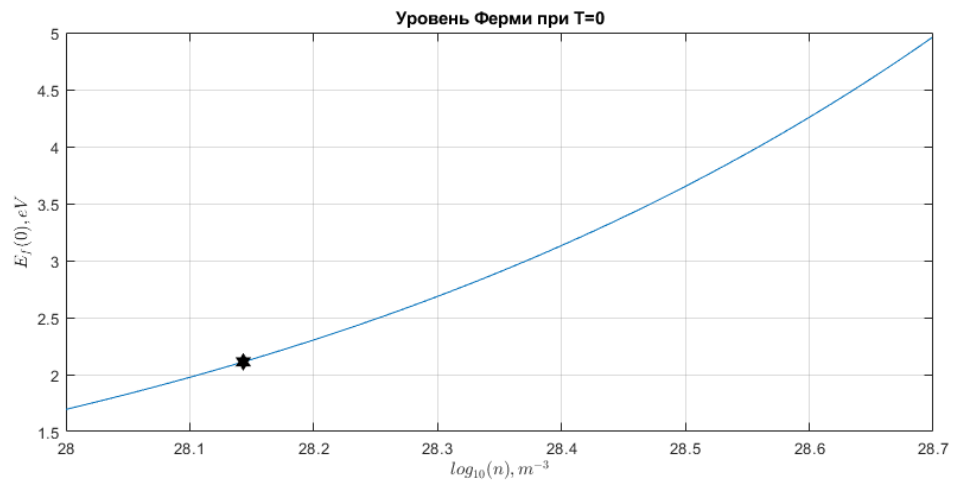
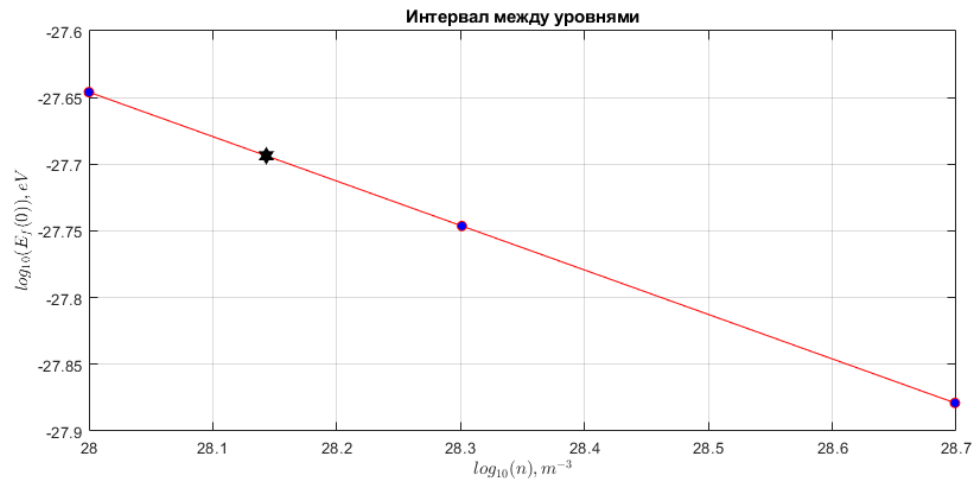
fprintf('n = %g cm^-3 E_0 = %.2g eV dE = %.2g eV\n', [n(i),
Ef(n(i))./eV2J, dE(n(i))./eV2J])
end

```

```

n = 1e+28 cm^-3 E_0 = 1.7 eV dE = 2.3e-28 eV
n = 2e+28 cm^-3 E_0 = 2.7 eV dE = 1.8e-28 eV
n = 5e+28 cm^-3 E_0 = 5 eV dE = 1.3e-28 eV

```



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