HW #11

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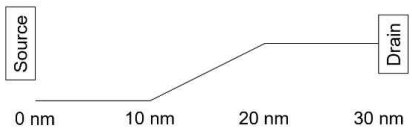
BTE simulator

1. Environment setting

The some constants for determining f1 value are below. (GaAs condition)

- From 0 nm to 10 nm, V vanishes.
- From 10 nm to 20 nm, V increases linearly.
- From 20 nm to 30 nm, $V = V_D > 0$.
- The potential profile looks like:

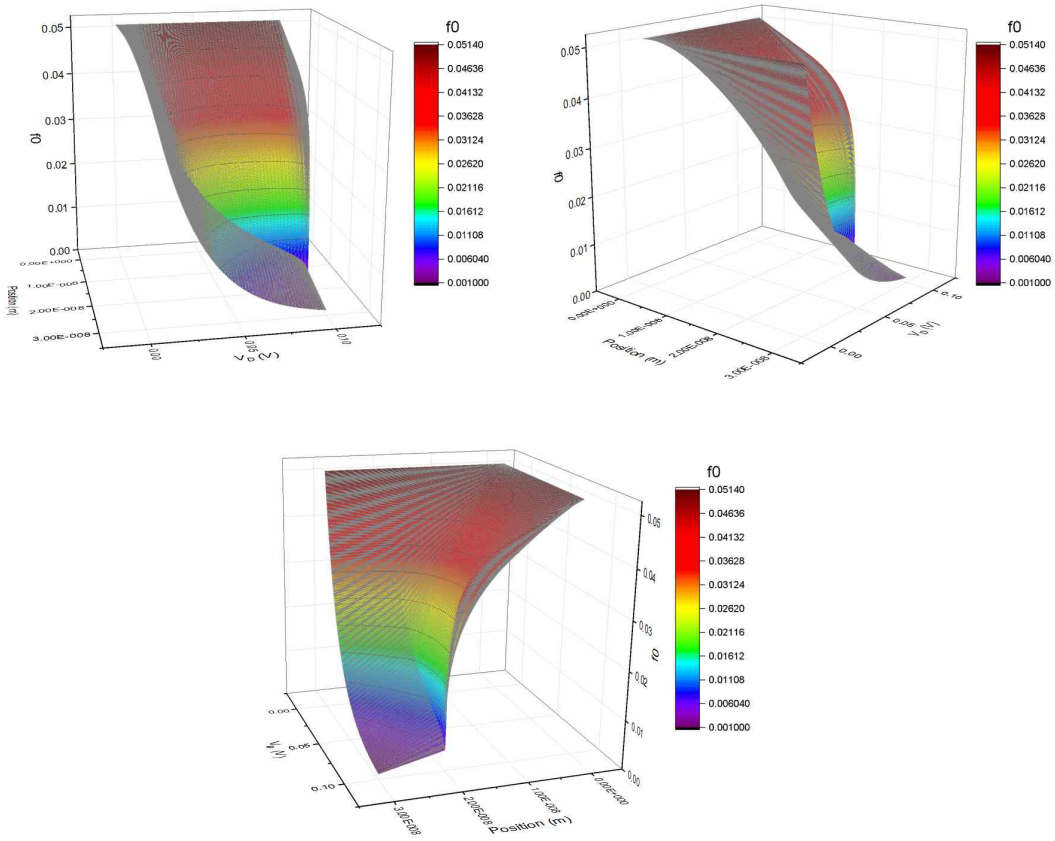


$\tau = 0.34\mathrm{ps}$
$v_{ave} = 10^7 \mathrm{cm/s}$
$(length) = 30\,\mathrm{nm}$
$H = 0.1e\,V$

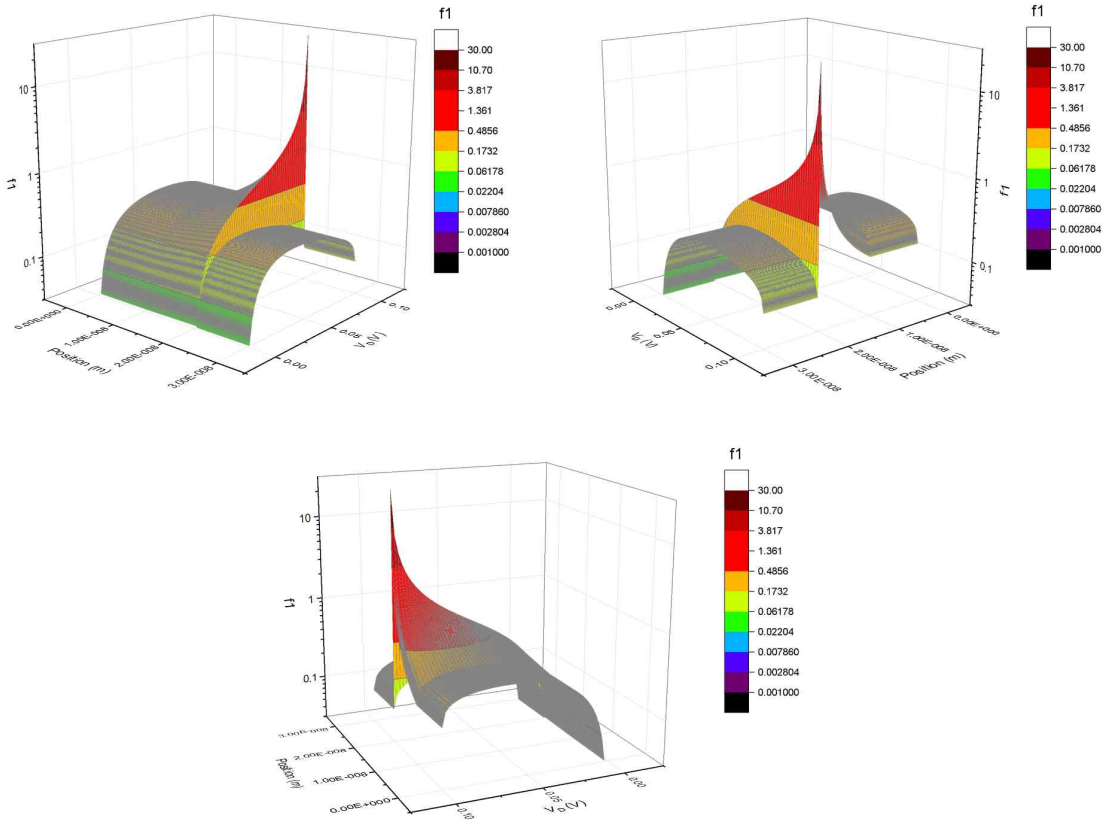
Also V_D is from 0V to 0.1V.

2. Result

1) f0 case.



2) f1 case.


f1
30.00
10.70
3.817
1.361
0.4856
0.1732
0.06178
0.02204
0.007860
0.002804
0.001000
f1
Position (m)
V G (V)
V S (V)