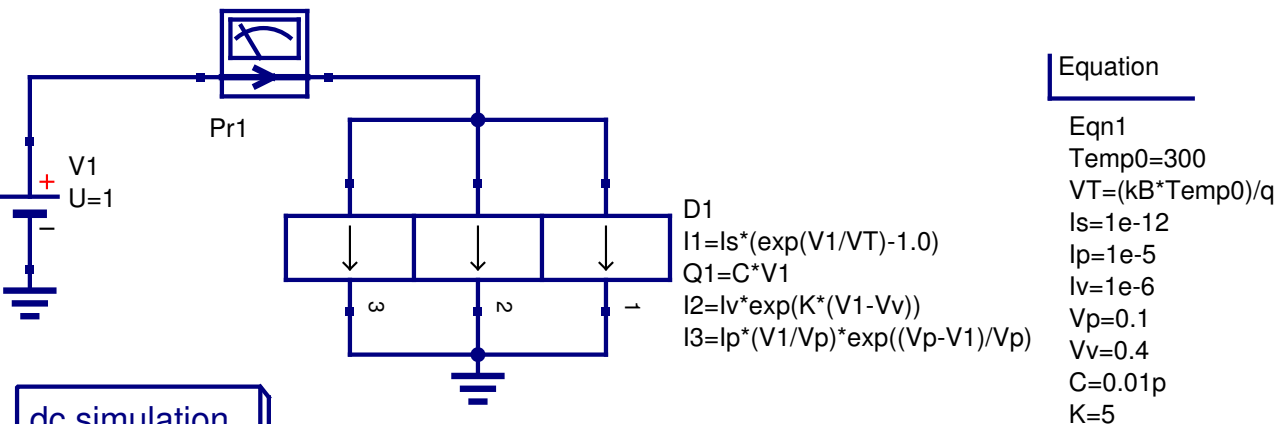


# Spice Netlist

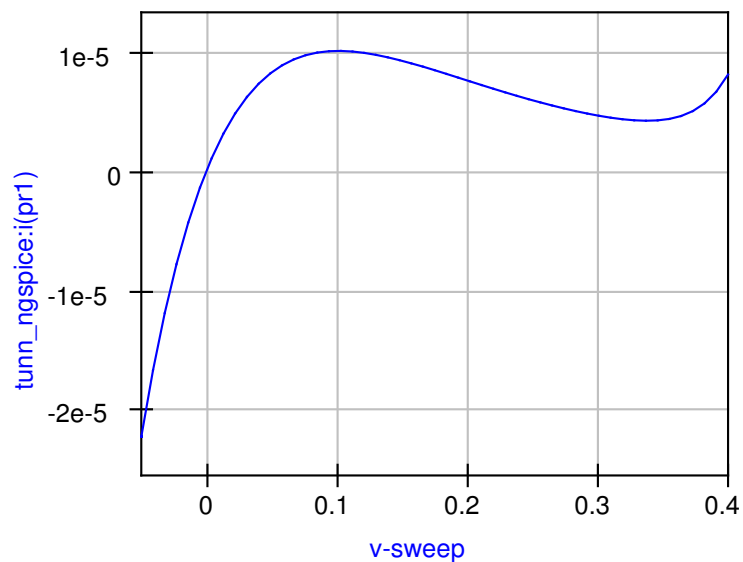


dc simulation

DC1

Parameter sweep

SW1  
 Sim=DC1  
 Type=lin  
 Param=V1  
 Start=-0.05  
 Stop=0.4  
 Points=50



```
* Qucs 0.0.19 /home/vvk/.qucs/tunn.sch
.PARAM Temp0=300
.PARAM VT={(1.38065e-23*Temp0)/1.6021765e-19}
.PARAM Is=1e-12
.PARAM Ip=1e-5
.PARAM Iv=1e-6
.PARAM Vp=0.1
.PARAM Vv=0.4
.PARAM C={0.01p}
.PARAM K=5
VPr1 _net0 _net1 DC 0 AC 0
* EDD begin
BD1I0 _net1 0 I=Is*(exp((V(_net1)-V(0))/VT)-1.0)
GD1Q0 _net1 0 nD1Q0 0 1.0
LD1Q0 nD1Q0 0 1.0
BD1Q0 nD1Q0 0 I=-(C*(V(_net1)-V(0)))
BD1I1 _net1 0 I=Iv*exp(K*((V(_net1)-V(0))-Vv))
BD1I2 _net1 0 I=Ip*((V(_net1)-V(0))/Vp)*exp((Vp-(V(_net1)-V(0)))/Vp)
* EDD end
V1 _net0 0 DC 1
.control
set filetype=ascii
DC V1 -0.05 0.4 0.009
write tunn_dc.txt VPr1#branch
destroy all
reset

exit
.endc
.END
```