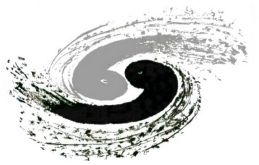
# Sensor Simulation Update



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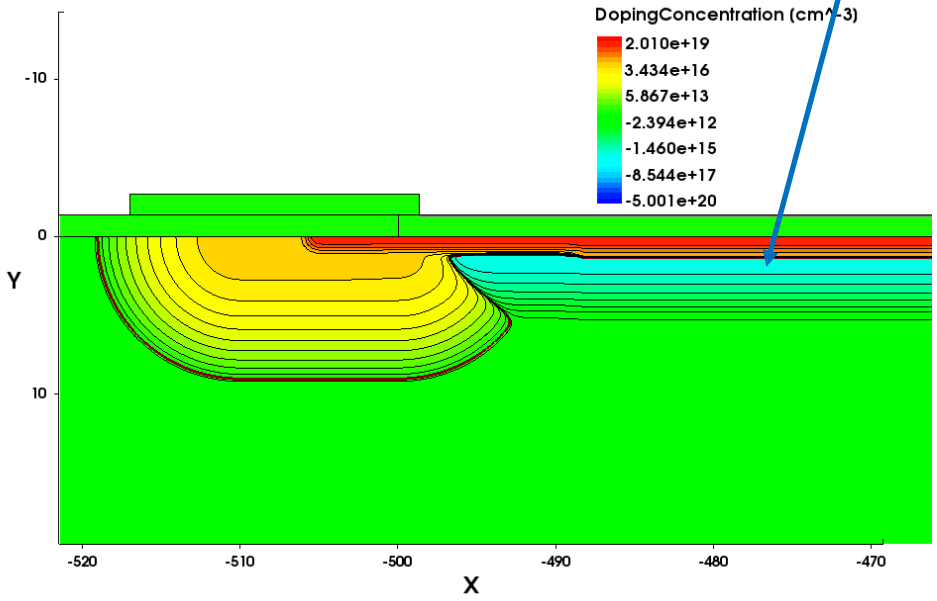
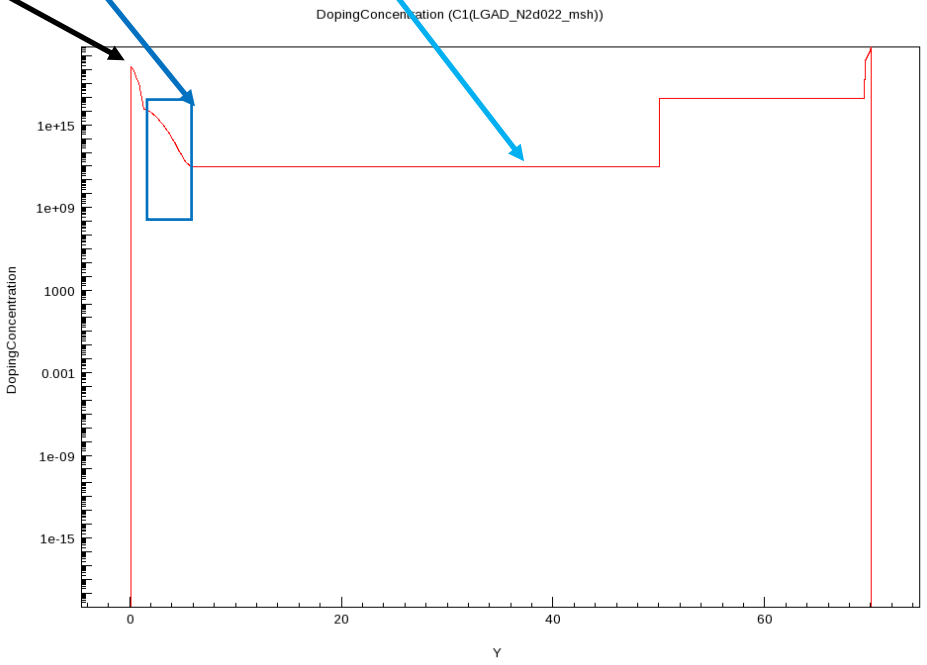
2019/03/21

# IHEP Baseline Doping Profile

Baseline doping N++, P+, R, P- substrate

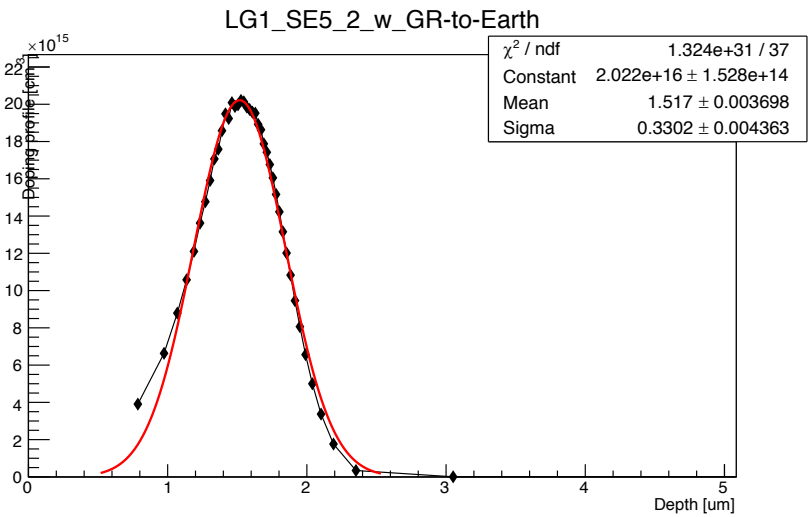
BDV = -410V, Gain@-320V = 10.45



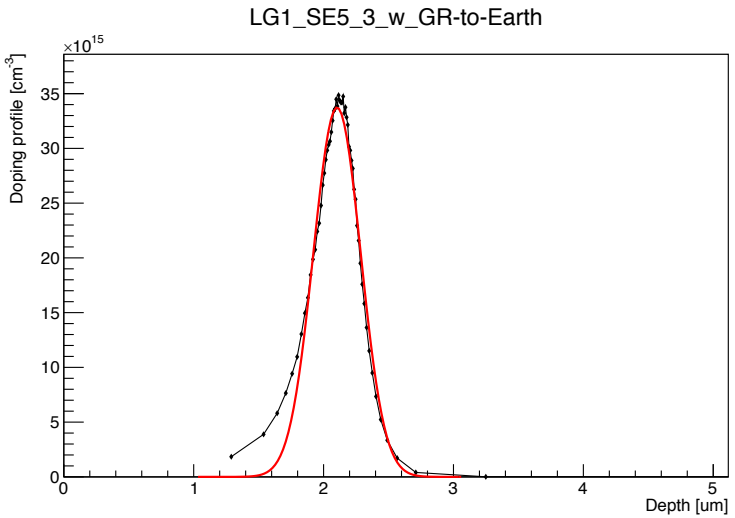



# HPK Doping Profile

W8 doping profile




W18 doping profile




Single P layer 2e16:
BDV = -417V, Gain@-320V = 2.5, Gain@-400V =???
Single P layer 2.5e16:
BDV = -310V, Gain@-300V = 9.9
Double P layer P+ and 2e16:
BDV = -421V, Gain@-320V = 1.6

Single P layer 3.37e16:
BDV = -408V, Gain@-380V = 1.58

# Thanks for your listening!

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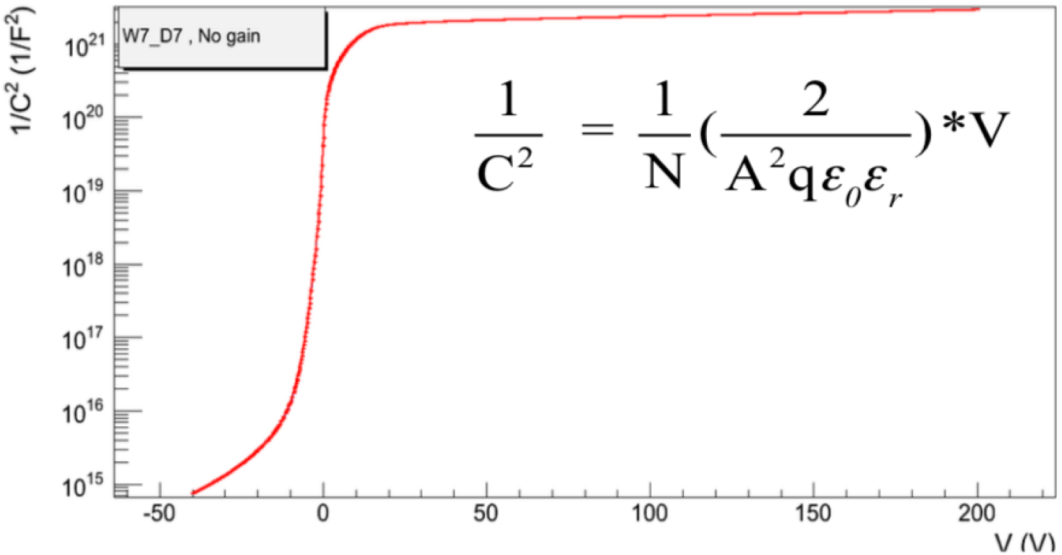
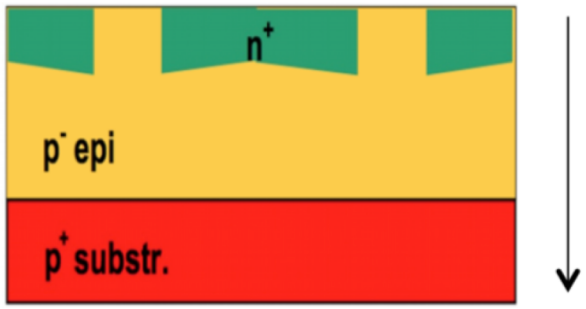
# Doping profile from CV measurement - I




$$\frac{1}{C^2} = \frac{1}{N}\left(\frac{2}{A^2 q \varepsilon_0 \varepsilon_r}\right) * V$$

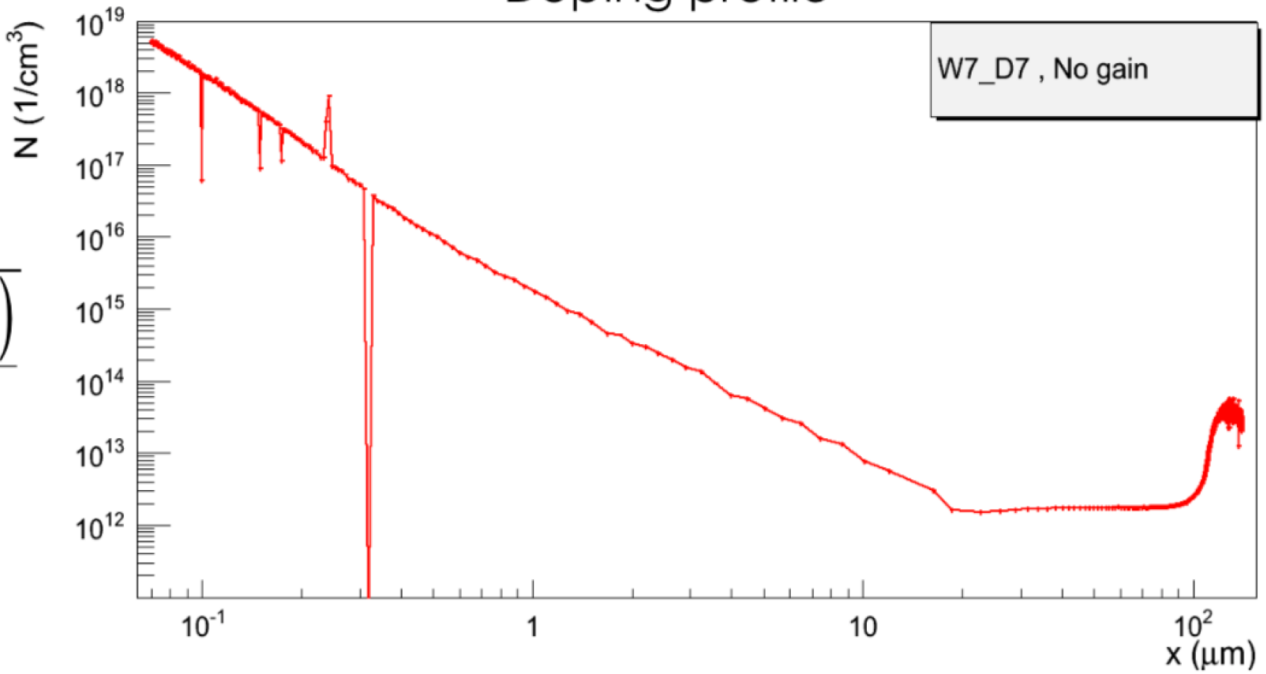
**No-gain sensor**




Doping profile

$$N = \frac{2}{q \varepsilon_0 \varepsilon_r A^2 \dfrac{d\left(1/C^2\right)}{dV}}$$

Doping



# CV Measurement

Anybody want to learn more could click the link below:

Doping->Gain:
https://indico.cern.ch/event/468478/contributions/2135146/attachments/1290321/1921375/LGA_Signal_Cartiglia.pdf

CV->Doping:
https://ecee.colorado.edu/~bart/book/book/chapter4/ch4_3.htm#fig4_3_3