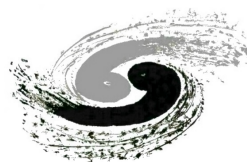
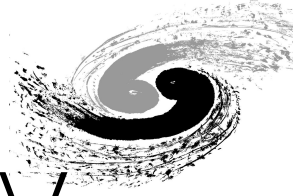


Field Plate Simulation



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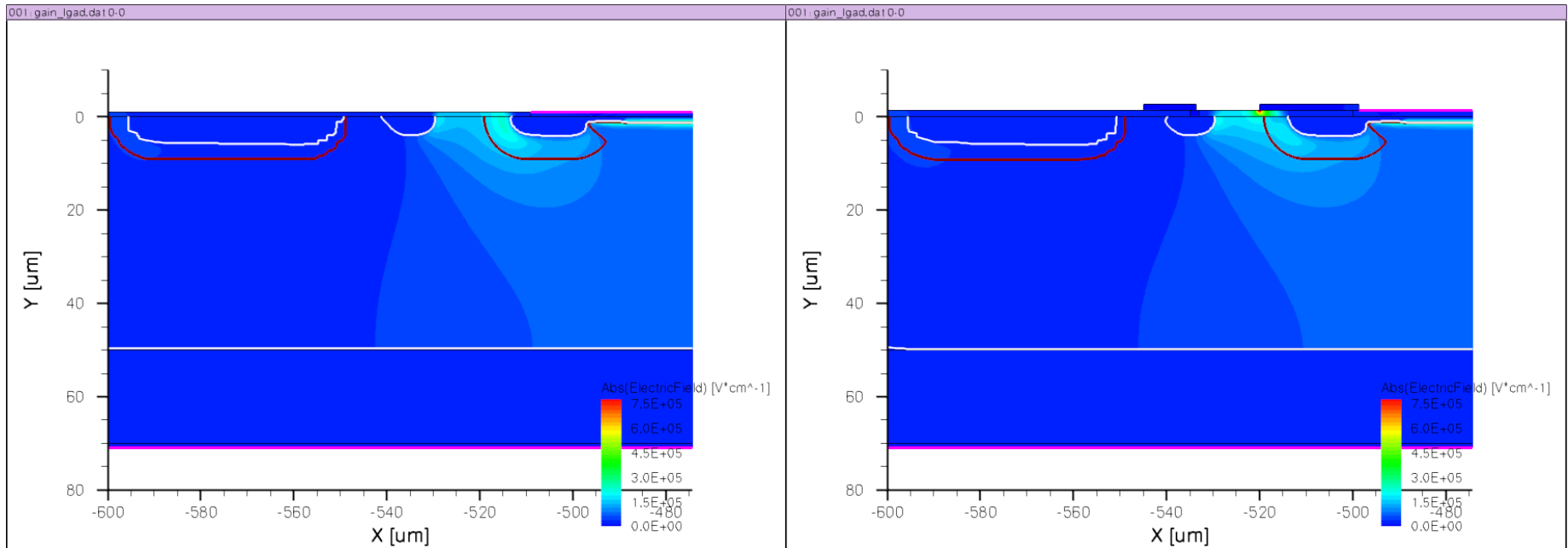
WU Kewei
2019/02/28

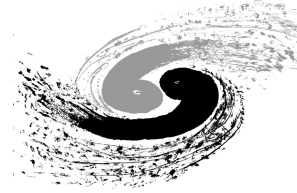


With(out) Electric Field @ -320V

Without field plate

With field plate (520)

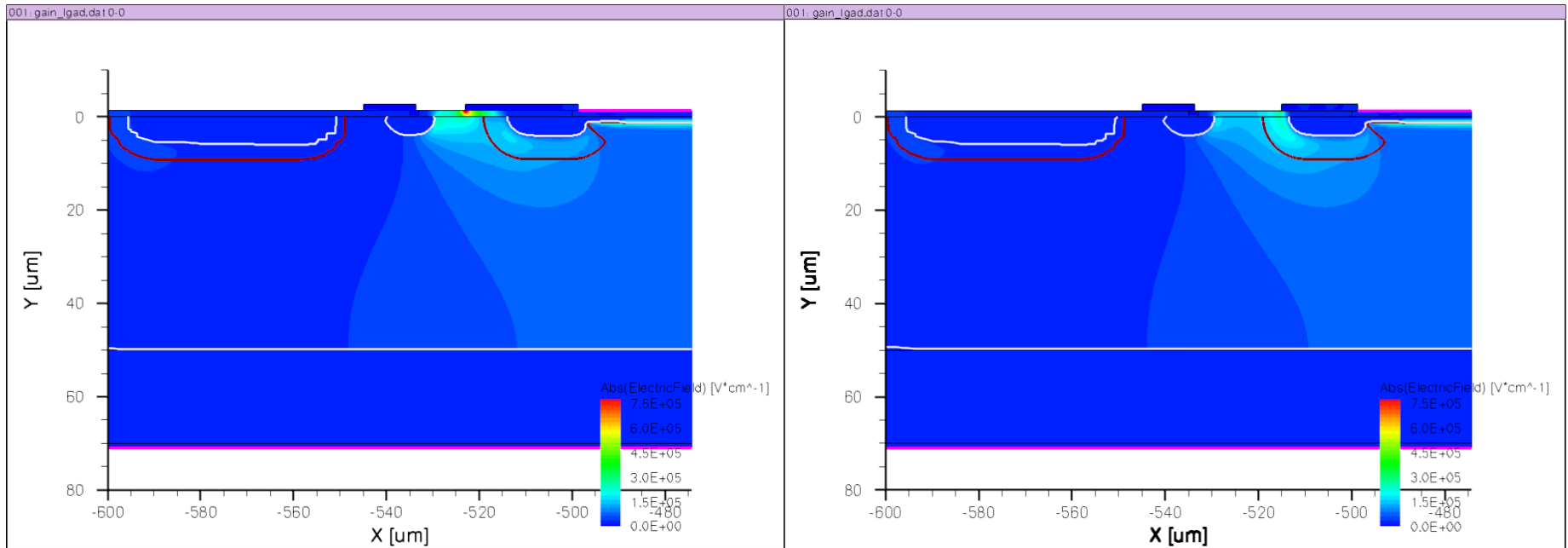




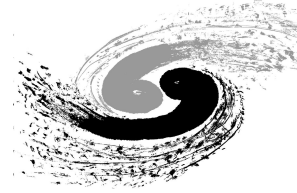
Field Plate (@-320V) end in

523

515

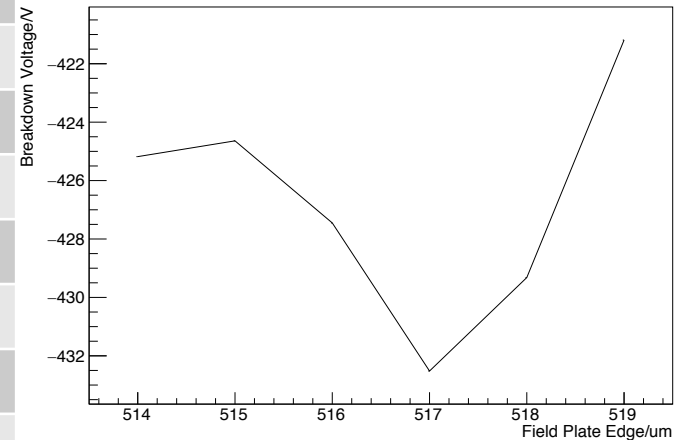


Quickly go through from Slide 9 to slide 16 like a comic book.

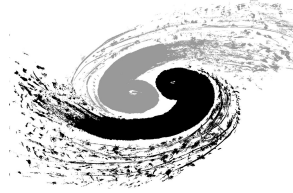


Different Field Plate Edge

Field Plate Edge	Breakdown Voltage (V)	Gain@-320V	High Electric Field (10^6 V/cm)@-320V
±514	-425.18	7.108	0.205
±515	-424.64	7.108	0.303
±516	-427.45	7.108	0.320
±517	-432.52	7.108	0.570
±518	-429.32	7.108	0.739
±519	-421.19	7.108	1.382
±520	-409.65	7.108	0.780
±523	-347.87	7.108	1.091
No Field Plate	-410.41	10.45	0.204



Best field plate for breakdown voltage end around 517μm.



Speed up simulation

Multithreading Code:

Math {

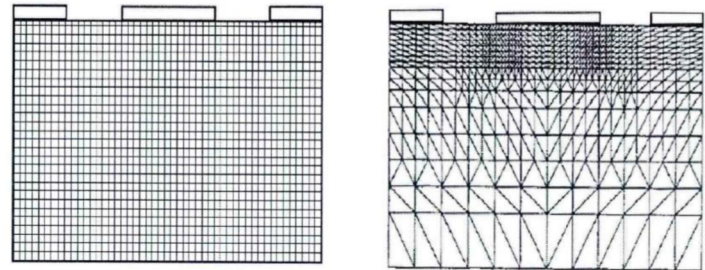
 Number_Of_Threads = 2 # or maximum

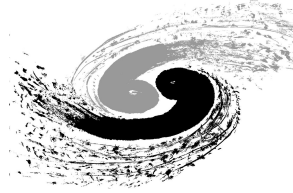
 StackSize = 20000000 # increase to 20 MB

}

Upgrade Zhijun' s computer (16 cores and 2 RAM Slot)
with 32GB(16GB *2, 1.2V) Memory.

Search for better mesh strategy.

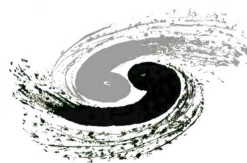




Summary

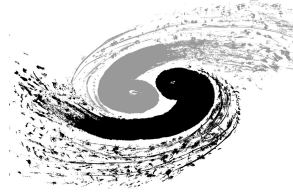
1. Field plate size (517) defined. Change field plate together with N-JTE and p-stop. Enlarge active area.
2. Oxide layer thickness simulation didn't converge (1.33- $\rightarrow$ 2.33). I tried smaller change(1.33- $\rightarrow$ 1.66) but only 2 groups finished.
3. Drawing independent bias field plate.
4. Speed up simulation.

Thanks for your listening!

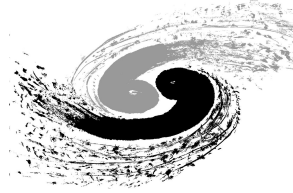


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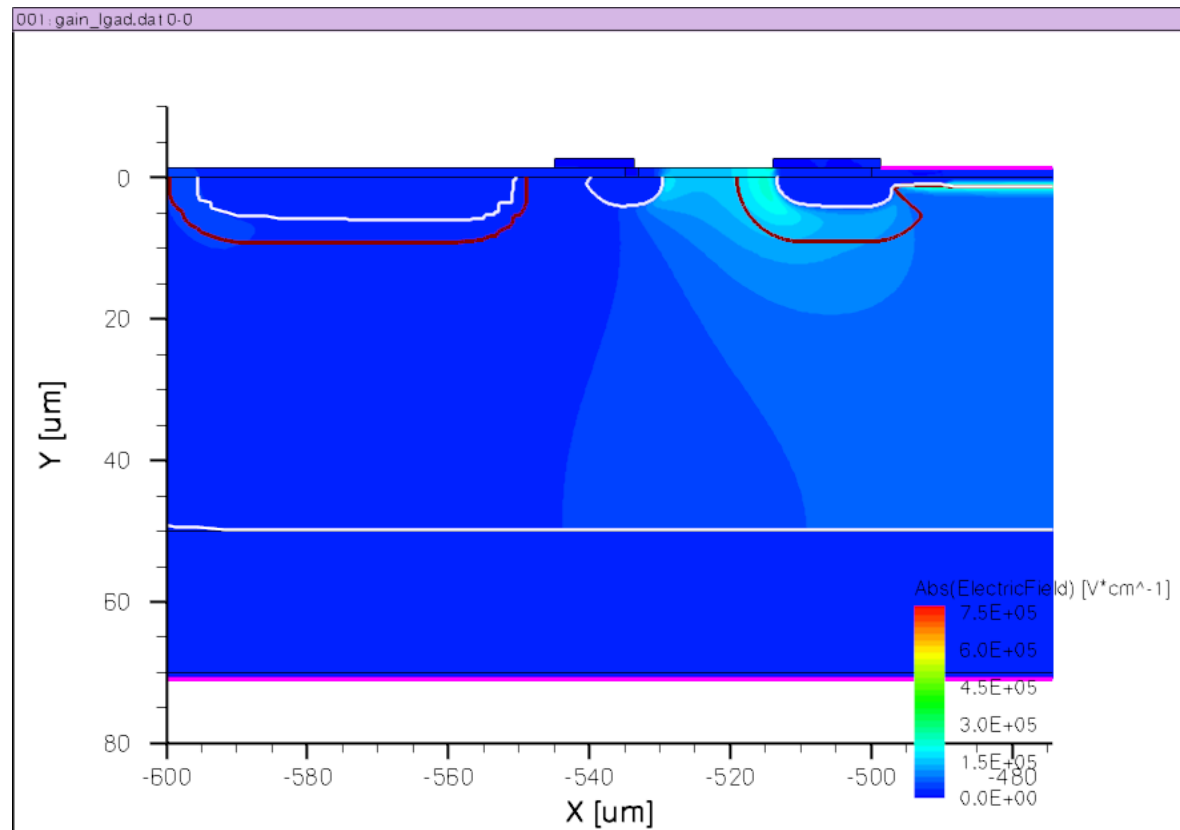
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2019/02/28

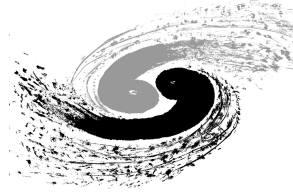


Backup

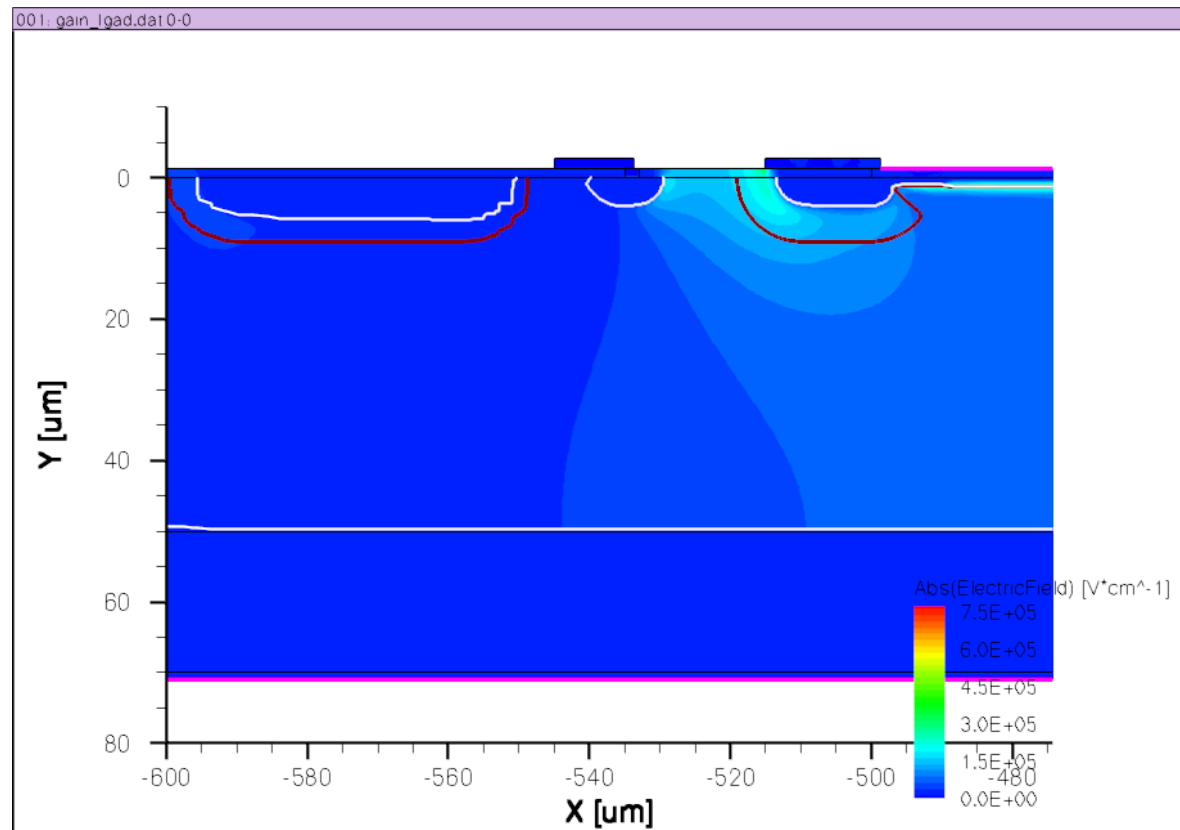


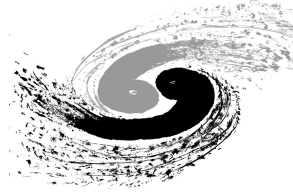
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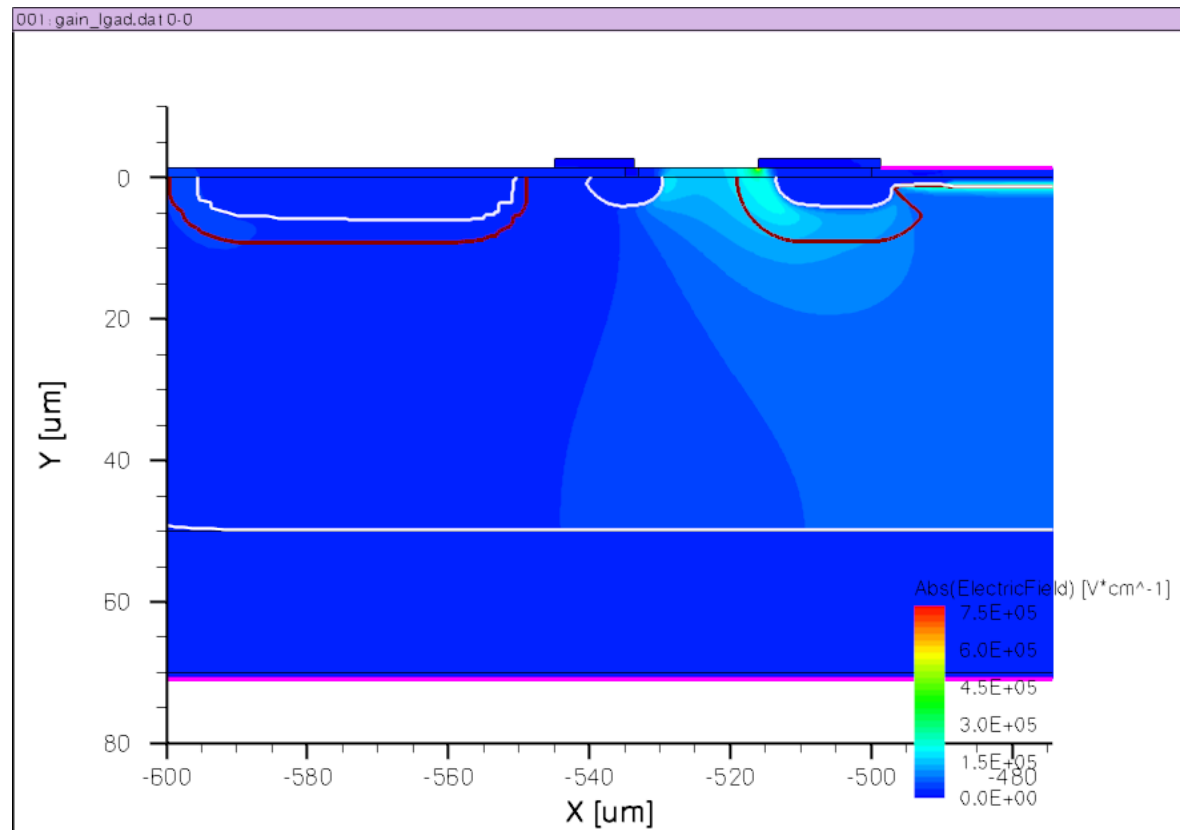


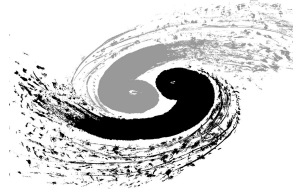
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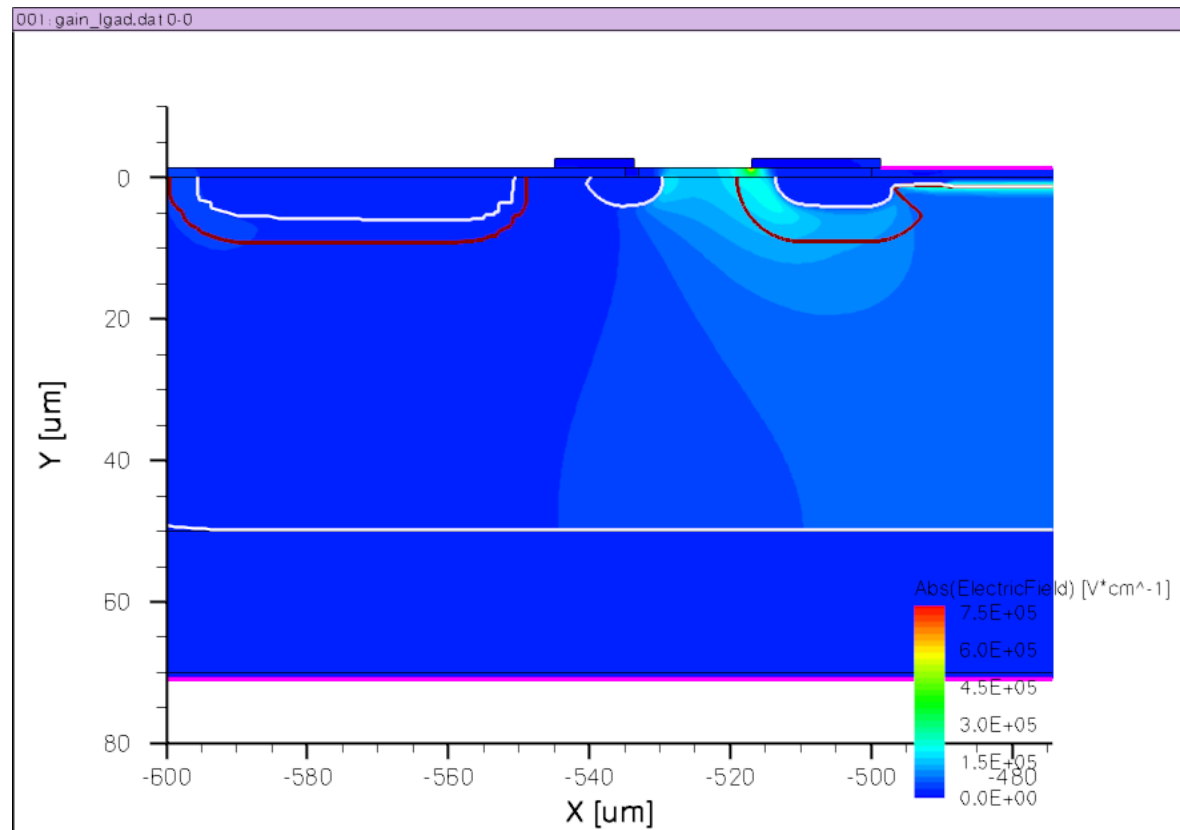


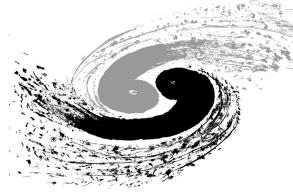
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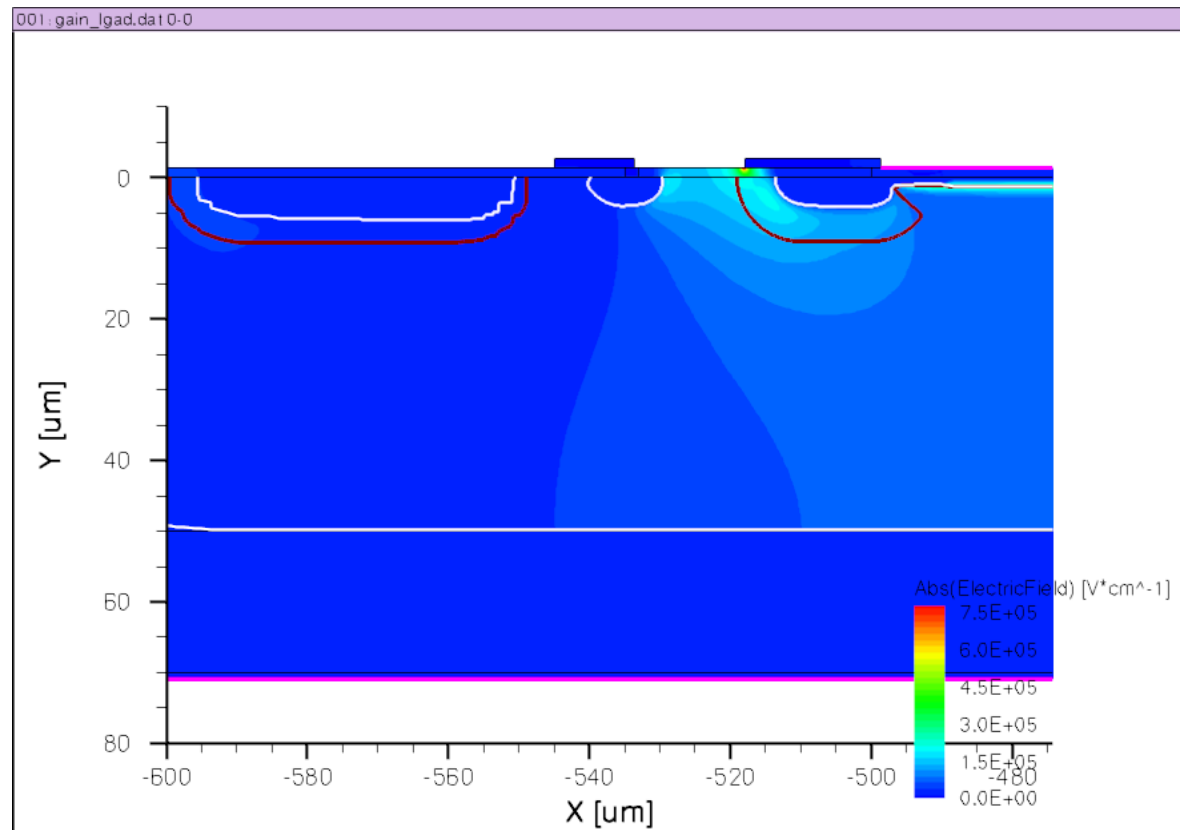


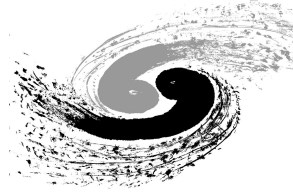
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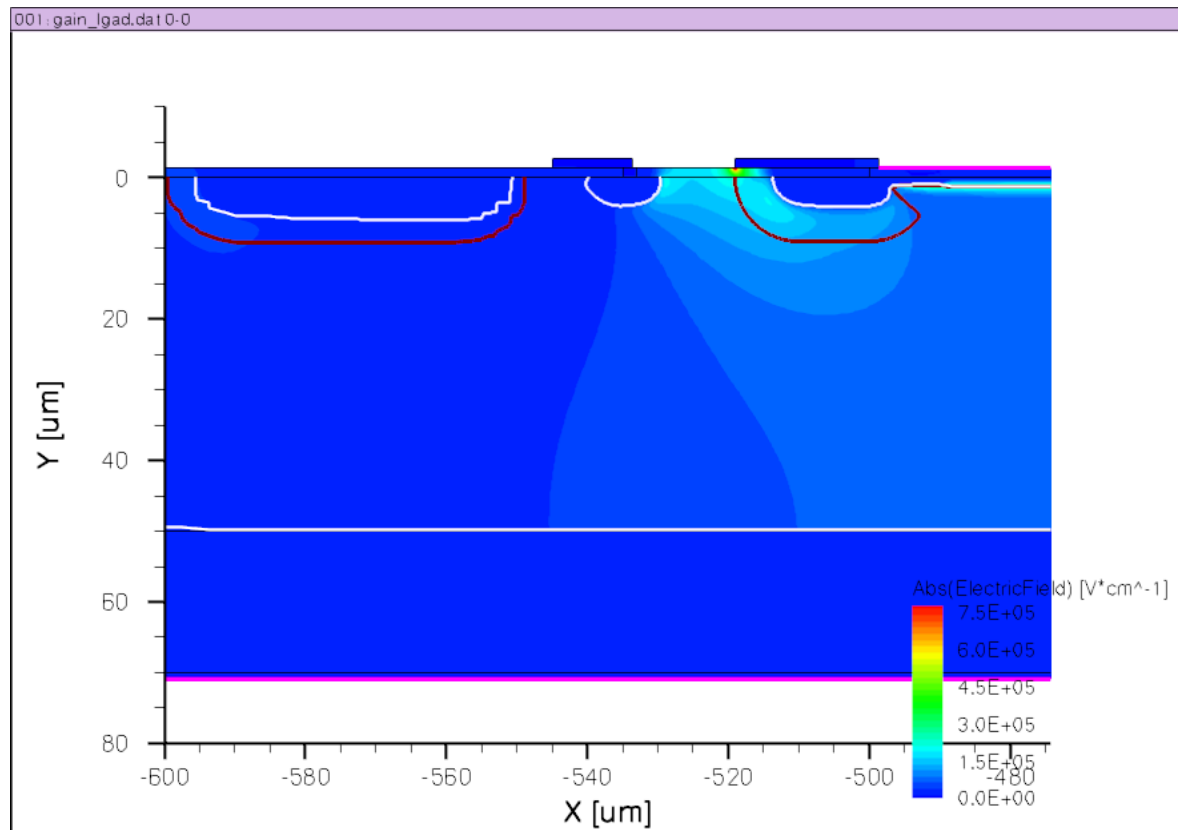


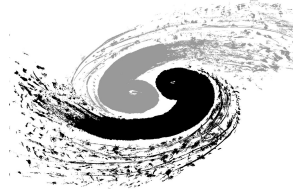
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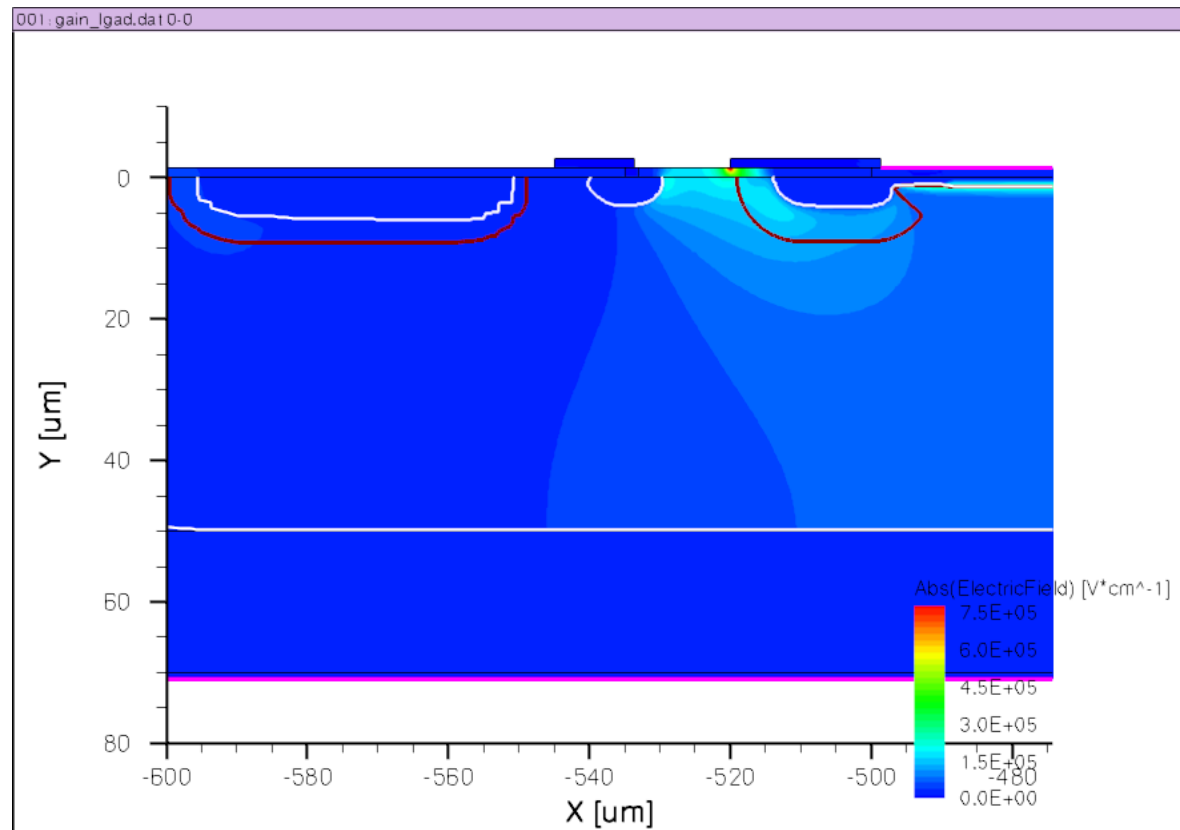


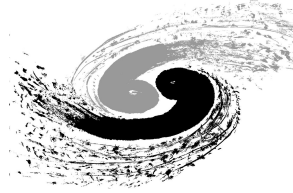
519





520





523

