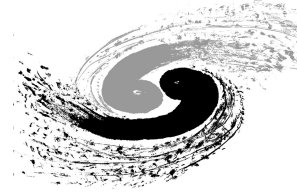


LGAD Sensor Design



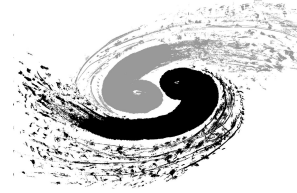
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Simulation results

Sensor Size	1.1mm	2mm	1.1mm	2mm	1.1mm	2mm
Gain Layer Doping	$3.0 \times 10^{16} \text{cm}^{-3}$	$3.0 \times 10^{16} \text{cm}^{-3}$	$3.3 \times 10^{16} \text{cm}^{-3}$	$3.3 \times 10^{16} \text{cm}^{-3}$	$3.5 \times 10^{16} \text{cm}^{-3}$	$3.5 \times 10^{16} \text{cm}^{-3}$
Breakdown Voltage	$\approx -330\text{V}$	$\approx -330\text{V}$	$\approx -280\text{V}$	$\approx -280\text{V}$	$\approx -100\text{V}$	$\approx -100\text{V}$
Gain @Voltage	8.587@-320V	10.45@-320V	6.867@-260V	7.888@-260V	7.588@-80V	8.864@-80V
Leakage Current @Voltage	175.5pA @-320V	176.7pA @-320V	63.6pA@-260V	64.5pA@-260V	81.2pA@-80V	81.9pA@-80V



Conclusion

1. Looking for best gain layer doping concentration with high breakdown voltage and moderate gain(10-20).

2. Learning field plate and field ring design from textbook which can help us increase breakdown voltage.

Thanks for your listening!



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