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A Theoretical Investigation of the Influence of High Irradiation on Signal to Noise Resolution (S/N) of Different Types of APS (Full Depleted FDAPS, MAPS and Hybrid Technology HPD)

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We use a simplified model for the pixel diode based on the differential equation to describe a process of diffusion and drift.
This model allows to estimate the S/N resolution depended on the radiation absorbed dose. The estimations were done for the HPD, FDAPS, MAPS.

We also studied the dependence the S/N resolution on the geometrical proportions of the diode's area. The results can be useful for developing of new PD with high radiation hardness.

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