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# Ionizing Radiation Dose Sensor Based on n-channel MOSFET

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We investigated the radiation sensitivity of dose-metrical sensors based on  $n$ -channel MOSFETs taking into account the effects of temperature and electrical modes. There were measured the output voltages  $V$  being equal to the gate voltage  $V_G$  of MOSFET-based dosimeter as function of the radiation doses at const values of the drain current  $I_D$  and the drain – source voltage  $V_D$  (conversion functions), as well as the  $(I_D-V_G)$  characteristics before, during and after irradiations at different temperatures. It was shown how the conversion functions and the radiation sensitivities are depending on the temperature and electrical modes. It is found that the conversion functions  $V(D)$  have two characteristic regions for low and high doses (with negative and with positive radiation sensitivities). To interpret experimental data there were proposed the models of conversion function and its components taking into account the separate contributions of charges in the dielectric and in  $\text{SiO}_2$ -Si interface.