Dataset: Total Ionizing Dose TCAD simulation of 400 nm SiO_2 capacitor

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Abstract

Total Ionizing Dose is simulated using the gamma radiation model in a metal-oxide-semiconductor capacitor using Synopsys Sentaurus Technology Computer Aided Design. Charge transport and trapping is activated in the oxide. The pre- and post- irradiation characteristics are calibrated to experimental measurements and the model parameters are extracted using a step-by-step calibration procedure.

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The dataset is available under the terms described by CC BY 4.0.

Description

'PreRad_Not_pt_PostRad_IntCh.zip' contains pre-irradiation calibration of doping density, fixed oxide charge and interface traps.

'PostRad_Transient_20krad_ManyEt.zip' contains post-irradiation calibration for the effective energy of the traps.

'PostRad_Transient_20kRad_RadQuasist.zip' contains post-irradiation calibration of C-V characteristics of the capacitors at total dose of 20 KRad(Si).

Usage Notes

The dataset includes the Sentaurus Workbench code created in version H-2013.03. The files can be loaded in a new workbench project.

Citing

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