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Ion beam induced charge analysis of radiation damage in silicon photodiodes

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Abstract

abstract

The ion beam induced charge (IBIC) technique is a valuable technique to study the degradation of the charge collection efficiency (CCE) induced by radiation damage in semiconductor devices. It offers the advantage of providing a wide range of damage levels generated by ions with different masses and energies in different regions of the same sample, and of using the same or different ions to probe the CCE degradation. This paper describes an experimental protocol based on IBIC and the relevant interpretative model, which includes the displacement damage dose approach as a special case and provides a general method to evaluate the effective radiation hardness of a material. © (2013) COPYRIGHT Society of Photo-Optical Instrumentation Engineers (SPIE). Downloading of the abstract is permitted for personal use only.

Topics

Ion beams ; Photodiodes ; Radiation ; Silicon ; Ions ; Semiconductors

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