Verification of Two-Parametric Fitting Method for Determination of Electron Beam Characteristics

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Computer simulation of radiation processing allows correctly to schedule and control the performance of work on radiation processing installations. In particular, for radiation technology using electron beams (EBs) in the calculations it is required the values of energy characteristics of the electron irradiation. The paper [1] describes a method for the two-parametric fitting of semi-empirical model (PFSEM method) to the results of measuring the depth dependence of the absorbed dose for electron radiation performed by dosimetric wedge.

Presented results of the method approbation on data specially performed in series of measurements indicate the prospects of using the method for determining the energy characteristics of EBs in the practice of radiation-technological centers.

In this report, verification of PFSEM method based on measurements results was performed on the radiation facility with EB accelerator into INCT, Warsaw, Poland [2]. The measurements results were processing for several years, and for a variety of irradiation modes.

Using a large set of measurements results allowed perform the statistical evaluation of several important characteristics PFSEM method, such as uncertainty, the refusal probability and the range of the method applicability.

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