

Statistical Evaluation Method of Irradiated Materials Properties by Nano-Indentation Method

V. P. Alekin¹, I. S. Cho, Y. S. Pyun², C. H. Hahn² and Y. Choi²

¹DesignMeca, ²Sunmoon University

Abstract

A statistical evaluation method was proposed to evaluate mechanical properties by using small specimens and nano-indentation for irradiation study. The method is empirically based on nano-indentation which values are statistically treated. The nano-indentation in function of indentation depth (h) is expressed using the variation factor $V(h)$. Statistical parameters of the indentation are given by histograms. Analytical and experimental relation between histograms of phase dimension distribution and parameters $V(h)$ and $G(h)$ is considered using the condition of additivity of phases' microhardness. The method is applied to estimate mechanical properties of irradiated materials.