Influence of the ion fluences to transition layers in SiO_2/TiO_2 multilayer samples implanted Kr^+ ions

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Abstract

$(SiO_2/TiO_2)_2$ with Si substrate was implanted with 250 keV Kr^+ ions with different ion fluence. The atomic mixing was formed and growing between SiO_2 layers and TiO_2 layers in ion implantation process. The thicknesses of these layers in the samples before and after ion irradiation were investigated by Rutherford Backscattering Spectroscopy (RBS). The thickness of transition layers increases when the ion fluence is increased. Using spectroscopy ellisometric (SE) method, the ellipsometic angles Ψ and Δ were determined. The SE and MAIE methods were used in the study of pseudo dielectric function <ε> of the samples.

Keywords: ion implantation, multilayer structures, transition layer, spectroscopy ellisometric, RBS

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