**ABSTRACT**

This research focuses on the impact of native SiO2 layer evolution, occurring on the surfaces of Si(111) substrates on the morphological and structural properties of self-assisted GaAs nanowires. GaAs nanowires growth were grown on Si(111) substrates, already covered with native SiO2 developing in different states with identical growth parameters including growth temperature, growth time, and Ga and As flux, using self-assisted VLS process by MBE technique. Results from nanowire samples and substrates were compared to understand the correlation between the changes in appearance of native SiO2 layer and the changes in the growth pattern of the nanowires.