

SOME OPTICAL PROPERTIES AND IV CHARACTERISTICS OF NANOMETRIC FILM BASED ON TRANSITIONAL METALOXIDES

The nanometric film based on iron and chromium oxides combination ((Fe₂O₃-Y(0≤x≤1)/Cr₃-XO₃-Y (0≤x≤2; 0≤y≤2) /Fe₂O₃-Y/Cr₃-XO₃-Y)) with thickness near 10 nm was synthesized using ultraviolet photons of KrF-laser (248 nm) on the silicon substrate Si <100> at the substrate's temperature TS = 800°K. This hybrid system of the alternate layers has two differently colored areas. In this work the optical properties and IV-characteristics of the specimen were obtained. The SEM of the specimen shows the homogeneity of the observable film but also reveals inclusions on the substrate surface under the film each near 0.1-0.3 μm in diameter. The straightness of IV characteristic confirms that the contacts were ohmic and shows the resistance of investigated specimen in the darkness, are different for differ areas of the film. The averaged value of the film's resistance is near 48MΩ.

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Track Classification: Surface Physics, Nano- and Microelectronics