

INVESTIGATING EFFECTS OF Sr/Ag CO-IMPLANTATION ON GLASSY CARBON.

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This paper investigates some of the effects of ion implantation and heat treatment on glassy carbon (GC). GC substrates were co-implanted with 200 keV Sr and Ag ions at room temperature (RT) to a fluence of 1.0×10^{16} ions/cm². The samples were then annealed isochronally at temperatures ranging from 300 °C – 1000 °C for 1h. Rutherford Backscattering Spectroscopy (RBS) was used to investigate the diffusion behaviour of Sr and Ag in the GC substrate after annealing. There was no noticeable diffusion of Ag and Sr at low annealing temperatures. However, at high annealing temperatures, a significant loss of Ag through evaporation was observed. Migration and subsequent segregation of Sr was observed after the evaporation of the implanted Ag. This showed that the implanted Ag acted as a diffusion barrier for the Sr. The co-implantation of Sr and Ag also resulted in drastic changes in the reflectivity and hardness of the GC substrate. The changes in the reflectivity and hardness improved slightly after annealing the implanted samples at 1000 °C.