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## Abstract

The purpose of this research is to synthesize Niobium carbide thin films and study for structural and mechanical properties. XRD results confirms the formation of Niobium Carbide thin films with increased peak intensities at initial focus shots which decreases eventually due to amorphization. Scanning electron microscopy revealed the surface morphology of the sample exposed to 5 focus shots which shows absence of cavities or cracks owing to a smooth surface. Whereas on increasing the number of focus shots from 5 to 10, the surface become rough owing to the generation of cavities and grains which is due to the ablation of the target. Hardness test has concluded that there is a prominent increase in the surface hardness. It is examined that the degree of hardness has increased approximately 2.5 times of the untreated sample i.e. from 290.5 HV to 770.9 HV.