

Abstract Submitted
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Parameter manipulation in the Synthesis of Ti-Cd-C Films via Reactive Sputtering in a Magnetized Sheet Plasma Facility¹ MATTHEW BRYAN VILLANUEVA, HENRY RAMOS, Plasma Physics Laboratory, National Institute of Physics, University of the Philippines-Diliman — Titanium-cadmium-carbon (Ti-Cd-C) deposits were achieved through reactive sputtering in a magnetized sheet plasma facility (MSPF). Titanium and cadmium metals (99.9% purity) were used as sputter targets, and high purity methane as the reactive gas. Parameters investigated were target bias, deposition duration, filling pressure, gas ratio, gas type such as acetylene, and magnetic configuration. Through X-ray diffractometry, peak signals at $2\theta = 23.3^\circ$ for the treatment which implemented an independent sputtering step at -200 V target bias, and $2\theta = 12.34^\circ$ for direct reactive sputtering only with -800 V target bias were recorded. Both XRD results are indicative of the formation of Ti_2CdC , a theorized solid solution of $\text{M}_{n+1}\text{AX}_n$ phase variety.

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