

Abstract Submitted  
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**Measuring glow discharge polymerization coating rates with a quartz crystal monitor**<sup>1</sup> E.T. OSTROWSKI, Case Western Reserve University, M. SCHOFF, A. GREENWOOD, E. CASTILLO, N. RAVELO, General Atomics — Glow discharge polymerization (GDP) is a well-established method for fabricating the thin-walled polymer shells of targets used in laser-driven inertial confinement fusion. The GDP coating rate is slow, maxing out at approximately  $0.5 \mu\text{m/hr}$ , and varies in time and with changes in system parameters. A quartz crystal monitor (QCM) was installed into a GDP coating apparatus in order to measure the coating rate and thickness in situ by relating shifts in quartz oscillation frequency to changes in mass on the quartz crystals surface, namely the GDP coating. Further investigation of the quartz crystal surface, post-GDP treatment, revealed that coating thickness was also radially dependent. Subsequent modelling of the thickness and coating rate was performed. The QCM was able to measure and quantify the effects of various system parameters on the GDP coating rate such that optimal coating conditions could be suggested to minimize coating times.

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