Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Physical Vapor Deposition Chamber for Coating Microchannel Plates in X-Ray Radiography[1] S.L. PERRY, R.P. DRAKE, A.D. SWAIN, N.C. CORNWALL, M.A. FORSYTH, E.C. HARDING, C.M. HUNTINGTON, University of Michigan — Experiments to characterize microchannel plates (MCPs) at the University of Michigan aim to maximize the quantum efficiency of our detector by coating the layers of a photocathode directly on a bare MCP. These experiments can be improved with more control over the processing of coating MCPs, parts often used in diagnosing high-energy-density laser experiments. Process control will allow us to alter factors that influence photocathode quantum efficiency, such as film thickness, coating angle, and substrate baking. This should ultimately reduce costs of characterizing MCPs and improve our x-ray radiography data. A thin film deposition chamber was designed and built, achieving high vacuum pressures of 1E-7 torr and temperatures of 1800 C to vaporize coating materials. A rotating substrate platform and a quartz crystal microbalance help achieve precise, even coatings. A design overview of this system is presented, with a discussion of most recent coating results.

[1]Funded by the NNSA-DS and SC-OFES Joint Prog. in High-Energy-Density Lab. Plasmas, under grant number DE-FG52-09NA29548.

S.L. Perry
University of Michigan

Date submitted: 15 Jul 2010 Electronic form version 1.4