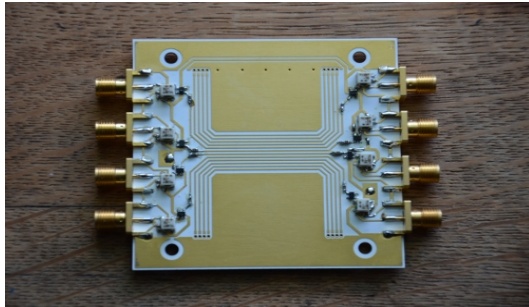


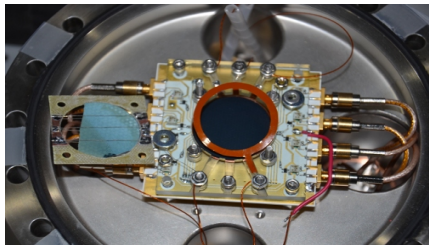
overall goal: make LAPPD technology available for x-ray detection

Achieved to date: demonstrated MCP with ALD coating of  $WO_3$  works as grazing-incidence x-ray photocathode  
demonstrated static gating of x-ray photoelectron emission from this photocathode with  $\sim 400V$   
designed and tested microwave taper to achieve 400V gating pulse from microwave amplifier  
tested broadband (0.02..2.5 GHz) microwave power amplifiers to be used for gate pulses  
demonstrated detection rates of 6.5 MHz (APS in 24-bunch mode) using readout anode with amplifiers  
demonstrated 60 ps time resolution (with laser within LAPPD project)

For next FY: demonstrate 100-ps gating to block-out APS bunches, but see delayed photons (nuclear resonance)  
demonstrate x-ray imaging with mm spatial and 50-ps time resolution in APS 24-bunch mode



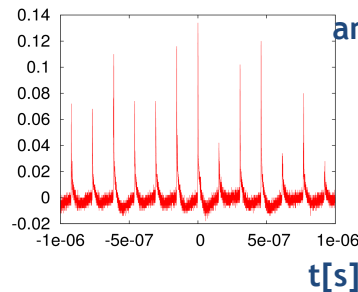
Anode with amplifiers to minimize MCP saturation in high-rate imaging



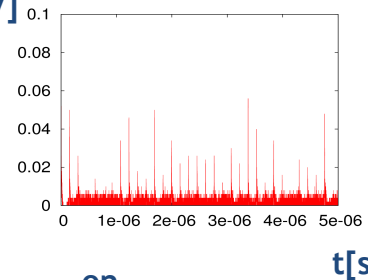
detector test assembly



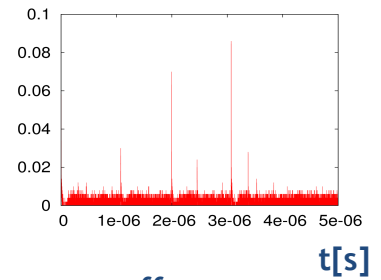
microwave taper 50  $\rightarrow$  150 Ohm to triple pulse amplitude 70V  $\rightarrow$  210V



pulses in APS 24-bunch mode



on



off

gated