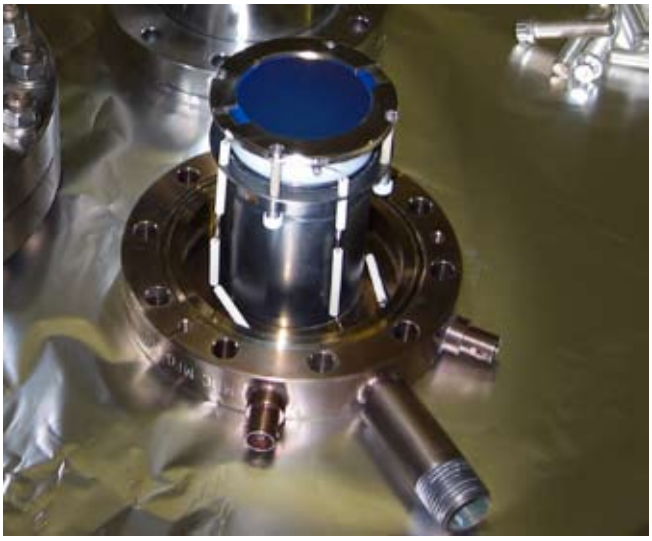

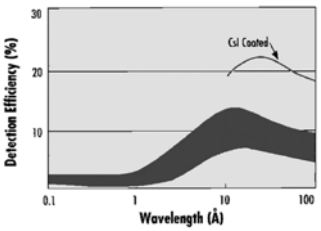

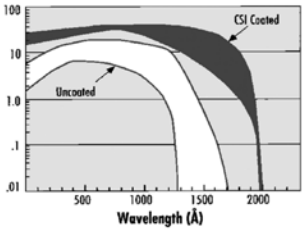

MICROCHANNEL PLATE INTENSIFIER

Operating in the Soft X-ray Extreme UV or Vacuum UV requires specialized detection systems. Difficulties with conventional detection schemes in this wavelength range include window transmittance, vacuum sealing and photocathode materials sensitivity.

In order to operate a multichannel or array based detection system in the vacuum ultraviolet, one method is to use an open, windowless microchannel plate (MCP) as an intensifier. MCP intensifiers are most frequently employed when direct detection charge coupled detectors (CCDs) cannot be implemented due to geometry or packaging (e.g. at grazing angles) or when shutter, or gating is required.

The MCP converts invisible vacuum UV radiation into a visible phosphor emission easily detected by photodiode array (PDA) or charge coupled device (CCD). Coupling the phosphor emission to the CCD is by direct fiber-to-fiber coupling, or by lens relay.

Safe operation of open microchannel plates requires a vacuum of at least mid 10E-6 torr.

Property	Options	Specification
Microchannel Plate Diameter	40 25	40mm diameter active area, image grade 25mm diameter available as option
Pore / Space	-	10 / 12 microns
MCP Stages	Standard Chevron	1 plate, single stage (gain ~10E3) 2 stage available as option (gain ~10E6)
Mounting	-	Photocathode 2.75" ahead of DN80CF flange
Photocathode	CsI MgF2 Au	~1 to 200nm ~1 to 120nm ~20 to 120nm
Phosphor	P43 P11	green, several msec decay blue, tenths of msec decay
Image Transfer	Standard -	Fiber Optic, coherent, tapered 40mm to 25mm at CCD Fiber Optic, coherent, 25mm straight
Gating	Standard Gated	DC, use with Model 735 power supply variable gate width, 60nsec to DC, with suitable pulser
Baking	Standard High Temp	80deg C 250deg C
Grazing Angles	-	cut-away retainer for grazing angle access
Power	Ground front Ground rear Ground phos.	no HV danger to user vacuum system independent power supplies, safest pulse counting with Vis images