

Conferenze / workshop 2024

RIPTIDE

1. 16th Pisa Meeting on Advanced Detectors <https://www.pi.infn.it/pm/>
2. 12th RAD Conference (Montenegro) <http://www.rad2024.rad-conference.org/>
3. Int. Workshop on Radiation Imaging Detectors **iWoRiD2024**, (Lisbona) <https://indico.cern.ch/event/1284854/>
4. Applied Nuclear Physics Conference 2024 (Salonicco) <https://radium.phys.uoa.gr/ANP2024/>

16 Maggio

Ridolfi

17 Giugno
abstract 31 marzo

?

30 Giugno
abstract 19 Aprile

?

22 Settembre
abstract 15 maggio

?

Massimi
n_TOF

Pisanti, Mengarelli, Console Camprini

Prestiti

RIPTIDE

Image Intensifiers

Amplify low light levels



Key Attributes

- > 18, 25, 40 and 75 mm active areas available as standard, other sizes available upon request
- > Can be customised for specific applications
- > Wide range of photocathodes including UV, solar blind, visible and NIR response
- > Proximity focussed providing low distortion
- > Fast gating to <200 ps
- > Able to function in high magnetic field environments

- MPC225
- Bi-alkali photocathode
- active area 25 mm (~ 5 cm²)
- phosphor p43.

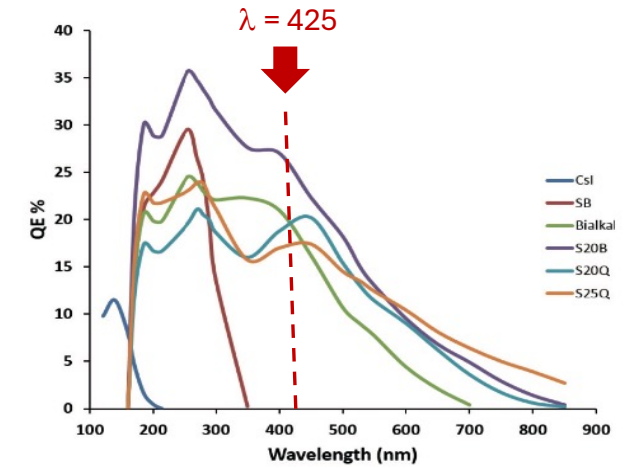


Figure 3: Spectral response of available photocathodes. Note that the underlay on the cathode can affect the QE.

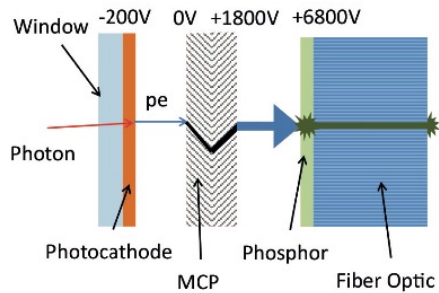


Figure 1: Cross-section of an Image Intensifier and sketch of its operational.

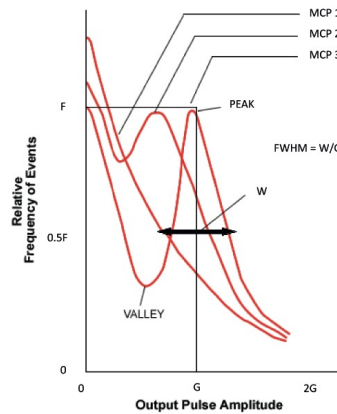


Figure 4: Single photoelectron pulse height distribution for different MCP configurations.

Table 4: Typical Performance

Photocathode	Spectral Range ¹ (nm)	Peak Wavelength (nm)	QE Quantum Efficiency ² (%)	Gy Photon Gain ³ (ph/ph)		EBI ⁴ (typical max)	
						ph/cm²s	lux
S20	175 - 800	440	20	1 MCP	1 x 10 ⁴	2000	2 x 10 ⁻⁷
				2 MCP	2 x 10 ⁶		
S20B	175 - 800	260	35	1 MCP	2 x 10 ⁴	5000	2 x 10 ⁻⁷
				2 MCP	4 x 10 ⁶		
Bi-alkali	175 - 700	350	22	1 MCP	1 x 10 ⁴	50	2 x 10 ⁻⁷
				2 MCP	3 x 10 ⁶		
S25	175 - 950	460	17	1 MCP	1 x 10 ⁴	20,000	2 x 10 ⁻⁶
				2 MCP	2 x 10 ⁶		
Solar Blind	175 - 340	260	30	1 MCP	2 x 10 ⁴	5	n/a
				2 MCP	3 x 10 ⁶		
CsI	115 - 200	130	10	1 MCP	7 x 10 ³	5	n/a
				2 MCP	1 x 10 ⁶		



ORCA[®]-Quest

qCMOS[®] camera

C15550-20UP

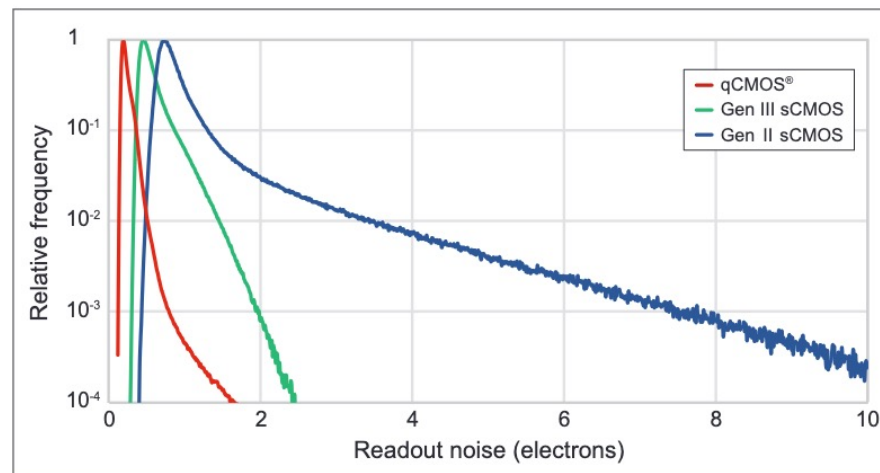


Fig. 1-1. Typical pixel readout noise distributions

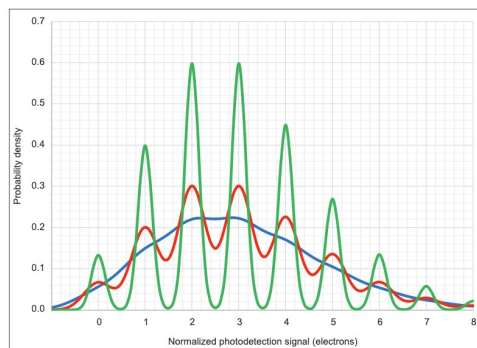


Fig. 1-3. Probability distribution of the observed photoelectrons for a Poissonian distribution $P3(k)$ with a mean of $N=3$ photoelectrons, and three different values of the readout noise: $\sigma R=0.5$ electrons (blue curve), $\sigma R=0.3$ electrons (red curve), and $\sigma R=0.15$ electrons (green curve).

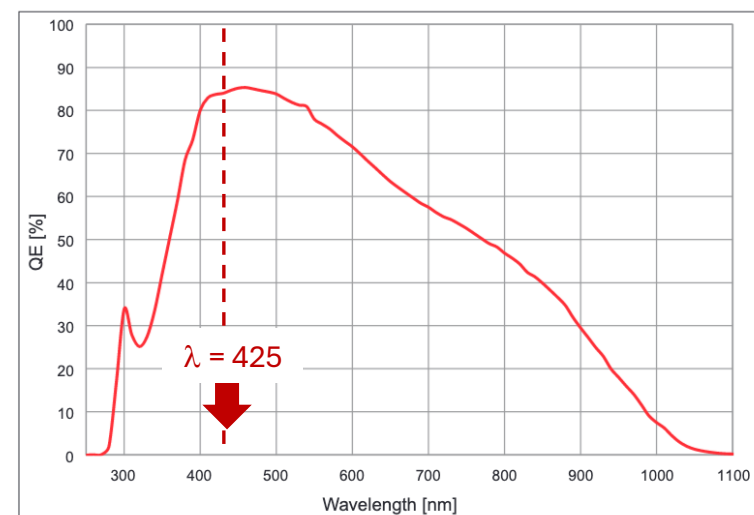


Fig. 2-3. QE curve