

Large Area and High Resolution CCDs

iKon-L, iKon XL and Apogee range

- 16.8 Megapixel back-illuminated
- TE cooling to -100 °C – No LN or cryo-cooling
- NIR optimization
- 18-bit Extended Dynamic Range
- 12-15 μm pixel size
- 3-4 e- @100 KHz
- Up to 4 MHz with 4 outputs

iKon-XL **Future Options**

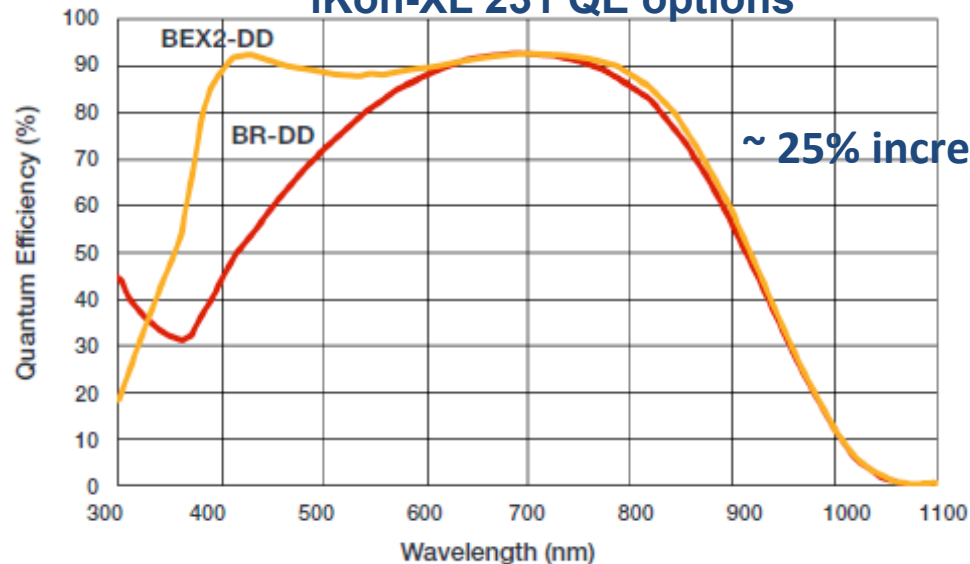
- 6k x 6k
- 9k x 9k
- 10-15 μm pixel size
- 2-3 e- @100 KHz
- Up to 3 MHz with up to 16 outputs (9k x 9k)
- Long lasting vacuum case
- Up to 350k pixel well depth (6k x 6k)

NEW Option

BR-DD: Deep depletion with fringe suppression

BEX2-DD: deep depletion with fringe suppression and dual AR coating.

iKon-XL 231 QE options



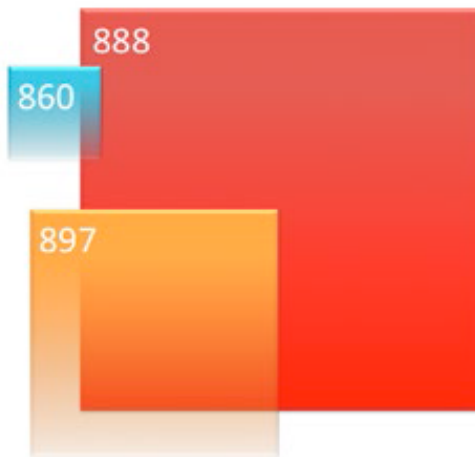
~ 25% increase QE in NIR

EMCCDs

iXon Ultra 888

- Up to 30 MHz readout
- 26 fps from 1024 x 1024
- 96 fps from 512 x 512 (crop mode)
- 697 fps from 128 x 128 (crop mode)
- -95 °C TE cooling
- 13 μm pixel size
- < 1 e- with EM gain
- > 90% max QE

Relative area for currently available EMCCD cameras



sCMOS

Zyla

- 2560 x 2160 (full frame)
- Down to 1 e-
- 100/50 fps for rolling/global shutter (full frame)
- Up to 33,000:1 dynamic range
- Up to 82% QE

FUTURE – Balor sCMOS

- **4096 x 4096** array
- **12 μm** pixel size
- **< 1.5 e-** rms read noise
- Rolling and Global shutter
- **> 90 fps** from 4k x 4k (rolling shutter)
- **~ 65% QE front-illuminated**
- High dynamic range mechanism
- **100K e-** pixel well depth
- Vacuum cooled