

- Concerns were raised that deviating from existing SPRAT-LT design to include filter mechanism and to accommodate smaller iXon chip (vs SPRAT-LT's iDus chip) would degrade the performance of the primary spectrograph mode.
- SAAO mechanical team think no added flexure to SPRAT system with slide mechanism incorporated so no concern there.
- Iain confirmed that collimator design is independent of detector size we pick. Chip size only determines final Nikon lens model after grism. i.e. either iXon or iDus can accommodate filter mechanism which sits after collimator but before grism + Nikon.
- Zemax shows we can expect similar optical performance for both options. iXon will give us 10x10arcmin FoV and iDus 10x2.5arcmin (iDus not square chip) Both with same plate scale (in arcsec/px).
- Another concern for iXon was that the smaller pixel size with smaller well depth of 80 000e- (vs. 300 000 for iDus) could hamper long exposures typical in spectrograph mode.
- Iain checked skylines for 3600second exposurer on SPRAT-LT, ? do not go above about 2000 counts (=5000 electrons/pixel) so I think you will be fine?
- Final concern were bias artefacts reported by observers in current SHOC systems. Iain also reported similar problems they see on their iXon systems. They suspect EM (even when not using EM mode) to be the cause.
- Suggestion of looking at iKon range (similar to iXon but without EM) since current SHOC systems are rarely used in EM mode by broader community.
- iKon also comes with nice deep depletion BEX2-DD chip with high (>50) QE from 350-980nm. QE>90 from 400-850nm not available in iXon range.
- iKon same chip and pixel size as iXon and similar frame rates as current SHOC systems (which are older versions of iXon, new versions have slightly higher frame rates)
- iKon also has 130 000e pixel well depth, USB connection and external trigger input (for potential GPs triggering)
- Consensus was that iKon with BEX20-DD was good comprise on frame rate, QE, well-depth, long-exposure capabilities, and FoV coverage.
- Iain confirmed that iKon with BEX20-DD is within SPART budget.