



MODS Detectors

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MODS Detectors

Baseline Plan

- 4096×4096 CCDs in each channel
 - Processed by Lesser
 - Coating optimized for blue and red
 - UA contribution to MODS
- 15 μ m pixels (= 0.125 arcsec along slit)
 - R=2000 coverage of entire spectrum in single grating setting
 - 6 arcminute long slit (2880 pixels)
- 2-3 electron read noise

MODS Detectors

Baseline Plan

- Standard OSU array controllers
 - ~10 in service in field
 - Exceptional reliability and performance
 - <1 night in 1000 lost to controller failures
 - System noise negligible compared to CCDs
 - Familiar and comfortable choice for us

MODS Detectors

Baseline Plan

- Highest risk is failure of UA to deliver suitable devices
- Fallback plan is to purchase commercial devices
 - E2V 4.6K×2K, 13.5 μ m CCD
 - Same as CCDs in LBC
 - Quiet (2-3 electron read noise at 20 kHz)
 - Good q.e. in blue and red
 - Same spectral coverage as 4096 15 μ m pixel device
 - 3.8 arcminute slit length
 - Cost ~\$50K
 - E2V 2K×6K, 13.5 μ m CCD also a possibility
 - More spectral coverage
 - Cost \$75K-90K

MODS Detectors

Future Upgrade Plan

- Larger format detectors
 - Focal plane can illuminate 2880×8192 $15\mu\text{m}$ pixels without vignetting
 - Important for efficient high resolution observations and increased multi-slit field-of-view
- Higher q.e.
 - Exceptional red-sensitive devices now available
 - Minimal fringing an additional advantage
 - Possible arrays with very high, flat q.e. in UV/Blue
- Frame transfer potential
 - Increased observational efficiency

MODS Detectors

Future Upgrade Plan

- Need additional funds to pursue future upgrades
 - TSIP
 - Other
- Probable collaboration with UA on design and fabrication of new detectors
- Also have commitment from UA to try 2×1 array of 4K, if desirable