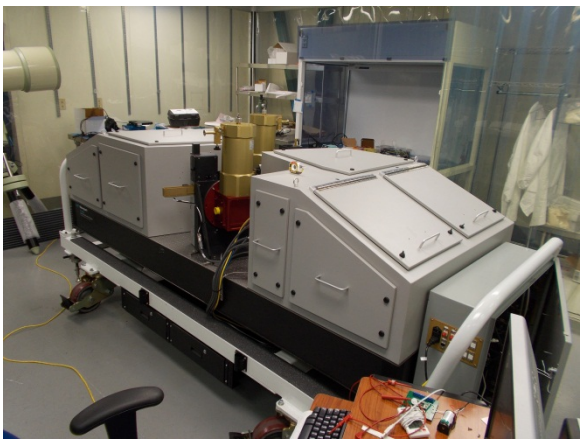
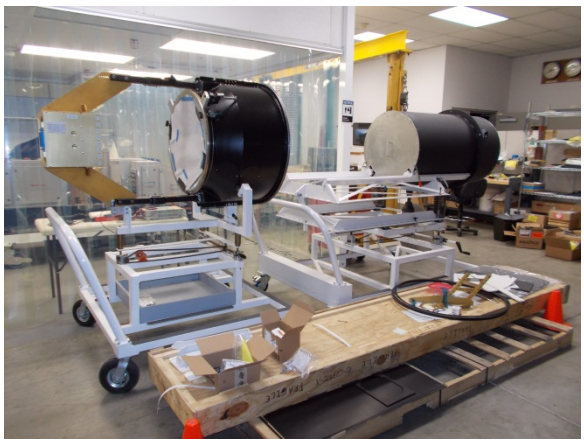
Guide to the Michigan/Magellan Fiber System (M2FS) for Potential Users During the 2013B Semester

Instrument Overview:

- Double-arm, fiber-fed spectrograph, each arm fed by 128 optical fibers.
- 256 total fibers, each with 1.2 *arcsec* apertures and capable of being deployed with 12 *arcsec* minimum separation (center-center).
- Fibers can be deployed over a 30-*arcmin* diameter field at the Clay NAS-E focus.
- Optics optimized from 370-950 *nm*. Observations possible to 1.05 *microns*.
- Two major modes of operation for each arm:
    1. *HiRes:* $20k < \mathcal{R} < 34k$; R2.6 Echelle grating.
    2. *LoRes:* $1.5k < \mathcal{R} < 2.7k$ (first order); 600 l/*mm* plane ruled grating [One LoRes grating presently availabale: 510 *nm* blaze with >67% efficiency (from peak) from 400-900 *nm* and >50% from 370-1000 *nm*].
- Single-fiber sensitivity in HiRes mode is expected to be comparable to MIKE at 550 *nm*; higher to the red, and no more than 20% lower to the blue to 370 *nm*.
- The resolution range is achieved with fiber-end slits. The highest resolution (narrowest slit) suffers a factor of two geometric light loss relative to the lowest resolution mode.
- Twin E2V 4096^2 CCDs with excellent cosmetics and ~2.5 e^- read noise (all four amps of each CCD). Readout time approx 20 *sec* using all four amps, both CCDs.
- Spectrograph parameters under GUI control from observer console.
- HiRes observations typically require order-isolation filters. Two pairs of filters currently available (the IR Ca Triplet and the Mgb orders). Contact the M2FS team (mmateo@umich.edu) as soon as possible for details regarding new filters.





Logistics Overview:

- M2FS is a PI instrument for use on the Magellan/Clay telescope.
- M2FS will be shipped to LCO on or before May 16, 2013.
- Commissioning runs are planned for July (off-sky) and Aug (on-sky) 2013.
- Assuming successful commissioning runs, a science run in the latter half of 2013B will be supported.
- This run to be 'shared risk' and 'pooled' such that various science projects will be supported simultaneously by experienced M2FS users and others who wish to learn how to use the instrument.
- A wide variety of modes is encouraged for this science run to help explore instrument capabilities and efficiencies, and to explore data reduction issues over a range of specific modes and applications.
- If a new order-blocking filter is required beyond those currently available (see previous page), please be aware that they require 10-12 weeks of lead time. Contact the M2FS team (via mmateo@umich.edu) as soon as possible to explore your options.
- LoRes gratings are easily interchangeable. Contact the M2FS team (via mmateo@umich.edu) if you are interested in exploring the possibility of getting additional LoRes gratings.
- Users will be required to submit astrometry eight weeks prior to the run (likely around early September, 2013); the M2FS team will produce plug plates.
- Standard proposals should be submitted to your TAC requesting M2FS. Please plan on specifying the full scope of your program, and also how much time would represent a viable 'pilot' run for your project during the 2013B semester. This information will be used to produce a viable 'M2FS block' during which all projects can be supported.
- Plan to restrict your targets to ones that can be viably observed for 2+ *hrs* during nights in the Nov-Jan 2013/14 period.
- Feel free to contact the M2FS team (via mmateo@umich.edu) to discuss your specific application.