

interface and data analysis facilities available at first light. The initial plan is to treat each 2K x 2K image as a unit, and not try to display or manipulate 4K x 4K images. It is expected that we could see first engineering use of the camera as early as the fall of '93. The PI's are eagerly waiting to use it for studies of various aspects of gravitational lensing and high redshift quasar surveys where large fields are essential. For more information contact:

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MOS/FP or the Succession of Palila

MOS/FP, the Fabry-Perot interferometric mode of MOS has been thoroughly tested recently, in the course of 2 engineering runs. Here follows some results of these tests and general information about this configuration.

The Fabry-Perot module is physically a box that replaces the MOS Grism/Filter wheels box. It can be inserted either on the MOS or SIS side of the instrument, depending on the spatial resolution desired. However, one must keep in mind that photons will be sparse at a sampling of some 0.08 arcsec/pixel (SIS). The exchange is done easily but must be done in daytime by CFHT staff. The MOS mask slide is used as filter holder for 3 inch circular or 2 inch square interference filters. Therefore, the available field is limited by the entrance filter; 7'45" for the former and 5'41" for the latter. The LICK CCDs offer the more flexibility although PHX1, and SAIC1 can also be used. The scale is 0.31" per 15 μ m pixel, and a raster of 1500 pixel covers the field defined by a 3 inch filter. A 2x2 binning provide a more reasonable pixel size (0.62") for this type of application (low flux). Larger binning can also be used, if flux is critical, to the detriment of spatial resolution. However, care should be taken not to use too high a binning which would result in undersampling the external interference ring of the Fabry-Perot. This effect is critical only for high interference order etalons. For instance, at the edge of the field defined by a 3 inch interference filter, the outer ring of the etalon $p=1162$ is sampled by 4 pixels of 1.24" (4x4 binning of LICK2). Notice also that the read-out of a high number of pixels (large raster at high spatial resolution) reduces the observing efficiency of a scan. A 1500x1500 pixel read-out takes some 3 minutes.

Flexures are very small (see Bulletin No 27, p. 9) but we found out that 2 CFHT etalons (CFHT#1 and CFHT#3) produce important rings shift when the telescope is pointed at high hour angle. The problem lies with some etalon only and they are being shipped to Queensgate for inspection.

Fringing is low with LICK2, of the order of 2 % at 6598 Å (notice that it gets a lot worse above 7000 Å; \approx 10-15 %).

For some applications, the observer may prefer to use a tilted etalon, to insure that internal reflections are not superimposed on the object (the Queensgate etalon, usually a low interference order one, is then mounted on a 2.4 degrees wedge). The tilted etalon must be used in conjunction with a

mask that further reduces the field. These masks have been fabricated with the LAMA machine and obstruct about 25 % of the 2 inch field (the mask edge is a diameter going through the center of the interference rings; notice that less than half the field is obstructed, since the ring center is offset with the wedge).

Internal flat fields are currently used in the Fabry-Perot mode, because of the very low bandwidth of the system. To this effect a very bright flat field lamp (Halogen Spectral) has been installed in the calibration lamps unit.

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CFHT AO Bonnette Progress Report

On August 15 1992, representatives of Laserdot (France), Dominion Astrophysical Observatory, Observatoire de Paris-Meudon and the Institute for Astronomy, met at CFHT to discuss and review the work accomplished by each parties. This meeting officially ended the Phase A study.

The end of 1992 is used to start writing the contracts and review and update the technical specifications of the AO Bonnette, in view of the performance expected. The basic concept is kept ie: piezo-stacked array deformable mirror (Laserdot; 44 actuators), curvature wavefront sensor (19 sub-apertures), separate tip-tilt mirror (OPM), and modal control. The mechanical is thought of as an intermediate stage between telescope Cassegrain Bonnette and instrument.

Recent developments on the realization of bimorph mirror have led CFHT to emphasize, to Laserdot in particular, the development of a flexible control algorithm, that could easily adapt to different type of deformable mirror.

CFHT expects to issue the contracts for fabrication for the beginning of 1993.

Some thoughts have been given to the first generation of instruments for the AO Bonnette. For imagery, it is envisioned that FOCAM could probably be adapted with very few modifications to the AO Bonnette. If higher sampling is required CFHT could acquire a 4Kx4K 7.5 μ m pixel CCD or adapt MOCAM with a focal enlarger.

The infrared camera, Red-Eye, could also be installed on the AO Bonnette, although the rough sampling will not be appropriate due to the larger pixel size, and better image quality attainable in the near IR. We hesitate between 2 solutions: a different re-imaging optics for Red-Eye (with higher magnification) or a focal enlarger behind the AO Bonnette. The final choice may depend on the next generation of array detectors available in the 1-2.5 μ m range. Concerning spectroscopy, integral field spectrography seems a logical option. This will not suffer from a competition with the Hubble Space Telescope, and will cover two-dimensionally the object features investigated, while minimizing positioning problems. The integral field spectrograph(s) must also have a long-slit option (MOS/SIS as a integral unit exceeds the weight and torque limits).

The official acronym of this instrument will be PUEO. PUEO is the name of a typical Hawaiian owl. It stands for: Probing the Universe with Enhanced Optics.

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