

slicer entrance slot. Guiding is normally accomplished by maximizing the signal on the exposure meter which picks off a small fraction of the light immediately after the slicer. Comments by some observers subsequent to these tests indicate that a detected signal improvement by as much as a factor of two could be obtained by guiding at a star position significantly away from that which produced maximum exposure meter count rates. If verified, image slicer efficiencies approaching those predicted in Table 1 should be realized. Further tests on the sky are planned using a photomultiplier mounted at the spectrograph focal plane, beside the detector, as the exposure meter sensor.

The third problem - that of a missing slice - is not fully understood.

iv) Conclusions:

A factor of two improvement in the Richardson image slicer efficiency may be possible. Although internal alignment of the slicer will likely give some gains, the largest increase in signal of the detector may come from improved guiding.

D. Salmon
T. Gregory

FTS IMPROVEMENTS

Over the past two years, we have made a number of significant improvements to the Fourier Transform Spectrometer, primarily in the detector systems. The first step was to replace the original InSb detectors with InSb detector/preamp hybrids from Cincinnati Electronics Corporation (Model IDH-100). These hybrids comprise the 0.5-mm detector element, the preamp FET, and the feedback resistor in one package. In addition to having lower noise, the new detectors are completely free of microphonics and do not require "J flashing". At the same time, the internal optics of the cryostats were entirely reworked from a design by Derrick Salmon to provide proper cold baffling. This has resulted in a large increase in sensitivity at wavelengths longer than 3 microns, where the dominant noise source is the thermal background. Included in the new optics are four cold aperture stops with diameters of 2.5, 5, 8, and 12 arcseconds. These can be selected by remote control.

In the last few months, we have increased the number of frequencies available for internal modulation from one to three in order to optimize the sensitivity over the entire range of object brightnesses. We are currently implementing a short-scan mode (symmetrical around zero-path-difference) for use on faint objects.

The FTS performed almost flawlessly during a two-week run in September.

R. McLaren

RECENT TECHNICAL ACTIVITIES

CFHT'S CAD SYSTEM

INTRODUCTION

It is now approaching the "paper anniversary" for the CFHT Computer-Aided-Drafting, i.e. CAD System, and it would seem appropriate to note our progress, describe what and how we have learned to use, yea, even to cope with, this ever-seductive, tantalizingly, superficially simple, yet devilishly complex tool, for the betterment of our Telescope Corporation.

In late fall, 1985, after surveying some of the affordable systems available (primarily concentrating on the 16-bit Personal Computer versions), we decided to standardize on hardware of the PC-AT type (or compatible). We are currently using 4 Hewlett Packard (HP) Vectras (AT-compatible with 80286 CPU), each set up with 640K RAM, Sigma 400 (640x400) color video driver boards, each with 13" Mitsubishi color CRT display (non-interlaced), Intel 80287 math co-processor, 20 MB hard disk drive and one 1.2 MB floppy disk. Separately, as a less expensive option, but utilizing their good graphics display capabilities, we are using 2 NEC APC-III's which are partially IBM-PC compatible (640K RAM, 8087-2 co-processor, 20 MB hard disk drive, one 360K floppy drive, color graphics board and display (640 x 400)). Each work station has a Hitachi 11" x 11" digitizing tablet. One station also has an additional large, backlighted digitizer, Hitachi 36" x 48" for inputting up to "E-size" drawings. Output devices are HP "Thinkjet" dot-matrix printers for draft copies, two 8-pen color plotters, one HP 7550 for A and B size drawings and one HP 7586 for up to "E-size" drawings. This hardware has given us the potential to follow a number of options for software.

Although the PC-CAD market had blossomed in the early '80's, it was soon clear to us that the most practical choice was to go with the strength of an "open" system, such as "AutoCAD". This package comes as a "basic" part, plus up to two levels of sophistication. In addition, AutoCAD has, within the past 3 years, become adopted as the standard for PC-based CADs, offering good support and incorporating users' suggestions for improvements (through a sort of "wish-list"). The price is very reasonable: about \$1,000 for the Basic Level, and \$2,000 for the full-blown system. By comparison, rather elementary CADs programs for the VAX 750, begin around \$7,000, and although there is the illusion of potentially faster CPU speed, and larger RAM access, these in fact tend not to be realizable on a multi-user system such as found at CFHT.