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# PROGRESS REPORT<sup>1</sup>

U of L FTS

## Summary

July was spent preparing for the FTS CoDR which was held on July 30<sup>th</sup>, and investigating 'aliasing' techniques for improving observing efficiency.

## Detailed Description

### Project Management

The FTS CoDR was successfully held via telecon on July 30th. The review panel consisted of Per Friberg (JAC), William Duncan (ATC), Mark Halpern (UBC), Don Jennings (NASA GSFC) and Ed Wishnow (UC Berkley). The meeting was chaired by Janos Molnar (UBC).

Documentation for the CoDR is posted at <http://research.uleth.ca/scuba2/codr.shtml>. Minutes from the review, as well as a summary of the panel report should be available in the next week. There were many useful comments from the panel and other interested participants; some of the preliminary comments raised before the review are outlined in: [http://research.uleth.ca/scuba2/documents/codr/pre-CoDR\\_comments.pdf](http://research.uleth.ca/scuba2/documents/codr/pre-CoDR_comments.pdf)

It has been suggested that delivery of the FTS be delayed until after full SCUBA-2 commissioning, to reduce the complexity.

### Design

We are still contemplating the various possible observing modes for the FTS. The consensus of the review panel was that a system with both input ports viewing the sky would be very desirable for sky correction, even if it meant reducing the number of FTS pixels significantly. An added benefit of this setup is that we would no longer need a complex cryogenic blackbody calibration source to null the interferogram.

It was also noted that the DREAM-FTS mode is considered to be risky, and a rapid-scan technique would be preferable, using standard sky subtraction methods. For low resolution scans, which will likely be the bulk of FTS observations, interferograms can be acquired in the order of seconds (or less depending on mirror and drive performance). High resolution scans will take ~30 seconds. This is sufficient to avoid large scale atmospheric variations.

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<sup>1</sup> Please email to Erin McPhee for inclusion in the documentation system [ekm@roe.ac.uk](mailto:ekm@roe.ac.uk)

Further analysis of the step-and-integrate mode to be used with the DREAM mode, has shown that we can sample 5 times fewer points than the normal dc band-limited Nyquist sampling, and get 450 and 850 micron spectra. The interferogram sampling could be even further reduced for just the 850 band.

### **Software**

The U of L SPIRE group is making rapid progress in coding the imaging FTS processing pipeline toolkit modules, which will be the foundation of the SCUBA-2 FTS pipeline.

## **Successes**

- Successful CoDR
- Initial simulations show that intentional aliasing could increase observing efficiency with the DREAM-FTS mode by a factor of 5 (or more if just using the 850 um band), with no cost in spectral resolution or fidelity.

## **OPPORTUNITIES**

- The option of a dual-input system will be investigated.

## **Failures**

- None to report

## **Threats**

- Delaying delivery date to after SCUBA-2 commissioning may require changes to the budget