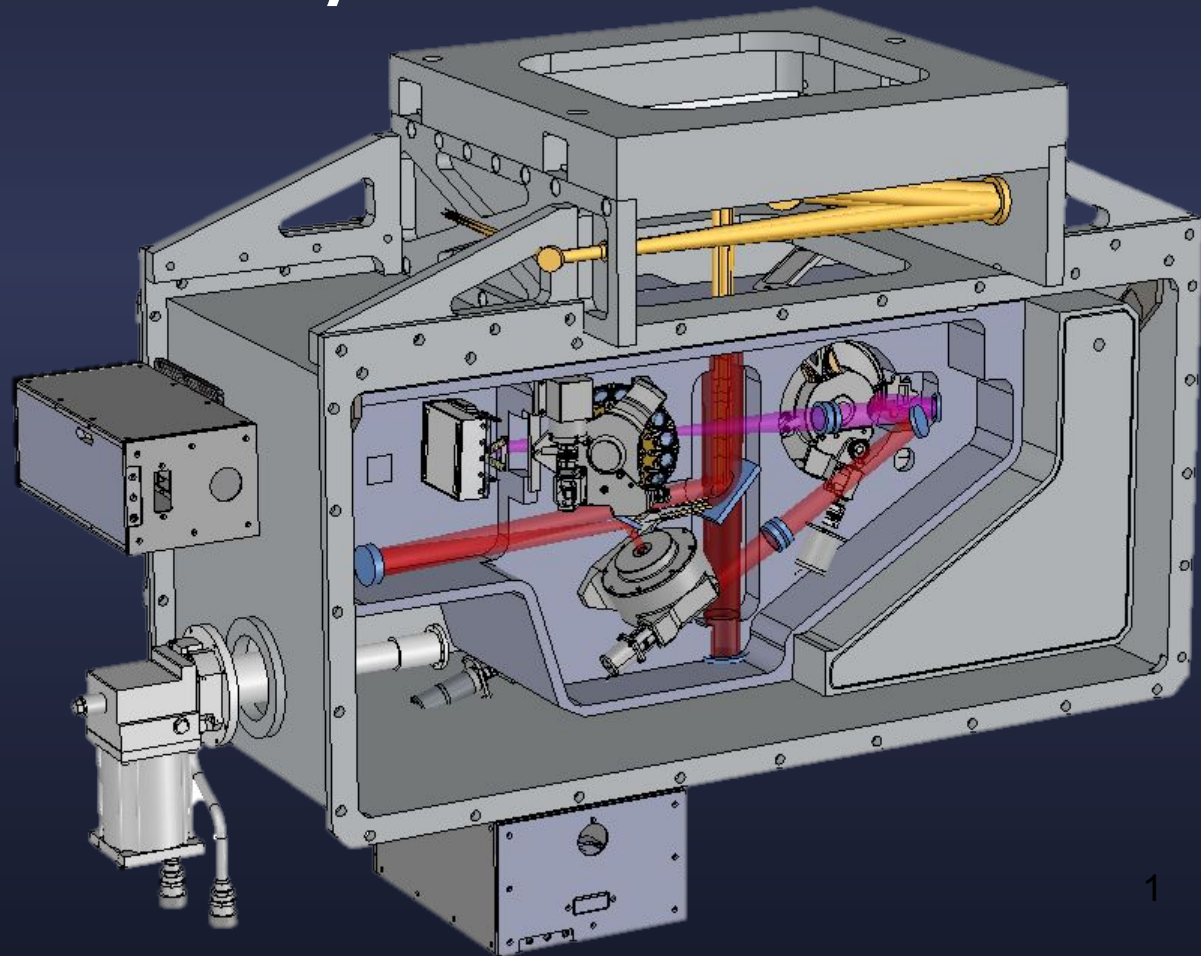


iSHELL Design Review

April 1 & 2, 2013

Institute for Astronomy



Introduction

- Thank you for your willingness to help.
- No formal review is required by our funding agencies, but we feel a review be very helpful for our team.
- We do not require a formal report, however we would appreciate any written feedback you can give us after the review.

Introduction

The format of the review will consist of: (1) one day of presentations and discussion, and (2) one half day to provide us with feedback and also have additional technical discussions. The panel should provide a list of items that need attention. This should include areas of concern, high risk items, and detailed technical feedback. Specifically,

- Should the project proceed with procuring the optics? If not, what additional work is needed?
- Are all other aspects of the project ready to proceed to detailed design? If not, what additional work is needed?
- Are there significant high-risk areas not already identified by the project? Are there significant risk-mitigation actions not already identified by the project?
- Do the project budget and schedule appear realistic?

Introduction

- Immersion Grating Echelle Spectrograph (iSHELL) is a collaboration that started between Tokunaga and Jaffe to exploit the immersion grating technology developed by Jaffe and his group at the Univ. of Texas at Austin.
- Original intent was to use an R2 grating (blaze angle = 63.4°) that already existed. When funding was obtained, it was decided to use an R3 grating (71.5°) that was being developed at UT Austin. This allows the slit width to be increased from 0.25" to 0.38".
- A successful R3 grating was made for the H and K band for IGRINS, an instrument under development at UT Austin. A successful R3 grating was made for the LM bands (2.8-5.3 μm) for iSHELL as well, but we are waiting for a better grating to be fabricated. Jaffe also plans to make a second grating for iSHELL for the JHK bands (1.15-2.5 μm).
- Much more time was taken to get to the design than expected. Along with personnel changes, this has led to a situation where much work needs to be done in the next 18 months. We have employed the services of Oceanit, an local engineering firm, to complete the instrument.

Science Team

- Allende-Prieto (U. of Texas)
- G. Bjoraker (GSFC)
- J. Carr (Naval Research Lab)
- N. Dello Russo (Johns Hopkins/ APL)
- D. Deming (GSFC)
- M. DiSanti (GSFC)
- D. Jaffe (U. of Texas)
- L. Keller (Ithaca College)
- V. Krasnopolsky (Catholic U. of America)
- K. Magee-Sauer (Rowan Univ.)
- S. Miller (Univ. College London)
- M. Mumma (GSFC)
- J. Najita (NOAO)
- R. Novak (Iona College)
- L. Prato (Lowell Obs.)
- M. Simon (SUNY Stony Brook)
- T. Stallard (Univ. of Leicester)

Introduction

- Team members:
 - Alan Tokunaga, PI
 - John Rayner, Project Scientist
 - Dan Kokubun, Project Manager, Oceanit
 - Morgan Bonnet, Mechanical Engineer
 - Tony Denault, Software Engineer
 - Charles Lockhart, Software Engineer
 - Eric Warmbier, Electronic Engineer
 - Darryl Watanabe, Instrument Technician
 - Allister Knox, Mechanical Engineer, Oceanit
- Team structure reorganized in the past year.
 - Had worked with Gary Muller (NOAO) for about one year at half time. He left for another position in Aug. 2012.
 - Our senior mechanical engineer, Tim Bond, resigned effective Mar. 31.
 - Dan Kokubun was hired on Nov. 2012 to manage the project and to provide the necessary engineering resources to complete the project.

Introduction

Overall Status of the design

	comment	Completion (%)
Optics	scheduled to be ordered in May	95%; finalize details and make shop drawings
Mechanisms	finish remaining tasks	80%; component details; motor shielding; mechanism control
Cryostat	concept finished	50%
Calibration box	Concept finished	40%
Instr. Software	follow SpeX approach	planning started
Data Reduction Software	modify Spextool	planning started
Instr. Controller	follow SpeX approach	planning started
Array controller	hardware and software testing complete for NSFCAM	iSHELL work to follow SpeX detector upgrade