NIRCam Team Overview

Massimo Robberto

JWST User Committee Meeting – December 10, 2020
TEAM ORGANIZATION

FRONT END 33%
- Proposal Tools (ETC, APT)
- Documentation (JDOX, video)
- Master Classes, training
- Help Desk
- Proposal Reviews

BACK END 34%
- Pipeline Development
- Simulators
- Reference Files
- Advanced Data Products
- Archive

OPERATIONS 33%
- Capability Development
- OSS Support
- Rehearsals/Console Training
- Commissioning
- Calibration Plan
NIRCam Tactical Board

**Back End**
“after the data have been taken”
- Data Analysis Tools
- Reference File creation
- Quick Look/Monitoring tool
- Pipeline
- Simulations

**Operations**
“when data are taken”
- Cycle 1 Calibration plan
- Commissioning plan
- MOC Rehearsals
- OSS Support

**Front End**
“before taking the data”
- Master Classes
- Help Desk
- JDOX
- ETC
NIRCam Branch: Main Interfaces

- NIRCam Branch
- INS Working Groups (MESA)
- Other STScI Divisions
- STSCI
- JWMO
- Other INS Branches
- JWMO Tagup Meeting (weekly)
- JWMO-INS Meeting (weekly)
- Multiple Meetings (weekly)
- SI-IDT Management Telecon (monthly)
- SI-IDT Commissioning Telecon (weekly)
- INS Management Meeting (weekly)
- IDT -UAz
  - M. Rieke
- INS Division Management
- Telescopes
  - NIRISS
  - NIRSpect
  - MIRI
  - RIAB

Weekly meetings:
- JWMO-INS Meeting
- JWMO Tagup Meeting
- Multiple Meetings
- INS Management Meeting

Monthly meeting:
- SI-IDT Management Telecon
NIRCam Contribution to JWST Working Groups and Cross-Instrument Teams

Every member participates to one or more Cross-Instrument Working Groups

Multiple Leadership roles covered by team members

J. Stansberry
Cross-SI Ops WG Lead

D. Coe
Multi-Mission Help Desk Lead

A. Canipe
DMS WG Lead

B. Brooks
ETC Help Desk Lead
ETC WG Deputy

A. Koekemoer
Calibration WG Lead

M. Correnti
Photometry Expert Group Lead

J. Girard
Coronagraphy WG Lead

M. Gennaro
JWST Cross-Instr. PPS Lead

B. Hilbert
Ref. Files Expert Group Lead

NIRCam Commissioning Delta Review
Simulation tools: MIRAGE, PyNRC, Guitarra

APT file + input catalog

MIRAGE: simulated raw images

Source finder

PSF analysis

PSF model

Photometry

Error analysis

Products
MIRAGE Simulations SBE Extraction

Single Obs

Method: see Pirzkal+17 for details

F356W

Dither 1

Dither 2

Dither 3

All Obs
Developments

• TSO

Enable grism-C for better background subtraction, mitigating against 1/f noise that affects grism-R observations (Nikolov)

• Coronagraphy

Develop parallel SW/LW coronagraphy mode. Define requirements e.g. relations between prime and secondary apertures (Gennaro)

• WFSS

Improve modeling of off-field contamination for spectral extraction in the WFSS pipeline (Pirzkal)

• Other studies for future cycles
  - scanning subarrays for very bright extended object
  - Read-Reset-Read for TSOs to increase duty cycle and better quality data on bright sources
  - High-precision timing for TSOs
Ancillary Slides
NIRCam IDT Console Team
(they will become familiar faces during commissioning)

Marcia Rieke
Principal Investigator

Doug Kelly
System Engineer

Karl Misselt
Staff Scientist, Pipeline Development, ASICs

Christopher Willmer
Associate Astronomer, deep imaging

Eiichi Egami
Astronomer, widefield slitless grisms

Tom Beatty
Assistant Astronomer, exoplanet transits

Jarron Leisenring
Star Formation, Exoplanets, ASICs, coronagraphy

Christina Williams
Galaxy evolution, (especially z~1-3)

Kevin Heinline
High-z galaxies, AGN

Everett Schlawin
Exoplanets, calibration

Tom Greene
Exoplanets, star formation, grisms

Tom Roellig
Brown dwarf, cool stars

NIRCam Post-Docs

NASA Ames Scientists
NIRCam IDT Data Analysis support team (no console)

Charity Woodrum  
U. Arizona Imaging

Raphael Hviding  
U. Arizona Imaging

Ryan Endsley  
U. Arizona Imaging

Ben Johnson  
CfA Photometry

Marie Ygouf  
Caltech/IPAC Coronagraphy

Chas Beichman  
Caltech/IPAC Coronagraphy

SUMMARY
Both IDT and AURA will support commissioning and participate in data analysis

- 10 IDT scientists @ Arizona/AMES/CFA
- 8 IDT postdocs/students @ Arizona/AMES
- 5 IDT engineers @ Lockheed/GSFC
- 11 Astronomers/Scientists @ STScI
- 5 Technical staff @ STScI
- 4 Flight operations staff @ STScI

Total of 40 scientists contributing to NIRCam commissioning
Communication and Collaboration Tools

• E-mail
• Jabber
• Slack Channel
  • Non-permanent informations
• Video Services
  • Webex
  • BlueJeans
• Confluence
  • Innerspace (STScI only)
  • Outerspace (communications with IDT-UAz)
• Github
  • SW and Analysis Scripts
• JIRA
  • Tickets

• Regular meetings
  • Board Weekly Meeting
  • Team Weekly Meeting
  • INS Weekly Meeting (Management)
  • WMO Weekly Meeting
  • Monthly IDT+IST telecons
  • Weekly CAR/CAP telecons