EAO Futures
PMO, Nanjing, China
May 20th – 23rd 2019
Future science and instrumentation within EAO

www.eaobservatory.org/jcmt/science/futures-2019
International Workshop on EAO Futures: Future Science and Instrumentation
May 20th-23rd, 2019
Nanjing, China
Thank you to Lin and her team at PMO!
EAO Futures: "Beyond the meeting" discussion survey

EAO sub-mm Futures - Community Input

Thank you so much for visiting this survey page. The aim of this survey is to ask participants of the 2019 EAO sub-mm Futures meeting and our wider community to provide input into the community needs in the coming decade. In particular we are keen to hear about your views/interests for the science drivers and instrumentation demand of the future of both single and VLBI facilities.

We would also like to solicit interest for contributions to white papers in support of a new 850 micron camera at the JCMT. Specifically we will be looking for those interested in supporting the science case from the Sub-mm Galaxy community, the Transient Community and Polarization community.

Please feel free to collaborate with colleagues when answering these questions. You might not have the answers to all the questions, no worries! We simply want to begin an open conversation.

Thank you

1. Given Name *

2. Family Name *

3. Email *
EAO Sub-mm Futures Discussion Wiki

This wiki is designed to aid in the ongoing discussion of the future of sub-mm astronomy within the East Asian Observatory. This wiki has been created on the back of the 2019 EAO Sub-mm Futures Meeting held at PMO, Nanjing, China.

Main discussion topics are:

- VLBI - Capabilities, Demands, Advancements
- Continuum - Capabilities, Demands, Advancements
- Heterodyne - Capabilities, Demands, Advancements
- Other - questions/suggestions/comments

White Papers will be written to show community demand for new instrumentation at the JCMT. Submission deadline: June 30th, 2019. Links to the individual White Paper pages can be found here for the Continuum science case:

- Magnetic Fields
- Transient Events
- Sub-mm Galaxies
- Nearby Galaxies
- Cold cores and filaments
- Evolved Stars
Announcing the JCMT Large Programs (III)

The EAO are pleased to provide an early announcement of the third Call for JCMT Large Programs. This information is being provided ahead of the opening of the Call in order for current and new teams to pursue discussion and planning. Submissions will be accepted from August 15th up until the September 15th deadline. This will coincide with the 20A PI Call.

Up to 4,800 hours of time to be awarded between: February 2020 and January 2023

The call will open
Thursday August 15th 2019 (TBC)
• November 4th – SMA meeting
• November 5th – SMA meeting & JCMT Workshop – from proposal to analysis a comprehensive workshop for users
• November 6th – JCMT Users Meeting – Day 1
• November 7th – JCMT Users Meeting – Day 2
• November 8th – splinter meeting for Large Programs and other science groups

SMA details: https://events.asiaa.sinica.edu.tw/workshop/20191104/
EAO Futures Summary

• Meeting Quote: “Really Sincere This Time” (Jiansong Gao)

• Science Pressure: “faster”, “wider”, “more sensitive”
  — “larger volume for discovery space”

• Community wants: “New Instrument ASAP”
  — but don’t give up “current abilities”

• Consensus: 850µ Camera
  — but don’t give up 450µ window
  — increase speed for heterodyne

• Tight Focus: Maunakea Atmospheric Window
Science Drivers or Targets

- Transients: greater volume in space and time domains
- Magnetic Fields: extended faint structures, cloud structures
- Nearby Galaxies: dust imaging on arm/interarm/nuclei
- Distant Universe/ Cosmology: larger volume survey
- Cold Cloud Cores and Filaments: larger surveys
- M31 map: dust continuum and larger heterodyne array
- Preparation for next generation large telescopes
- Larger Bandwidth or Spectral Window at once

- Emphasis: Advantage of 850µ Window
Next Steps for 850μ Camera

• Seek synergy with Next Generation Telescopes (eg 60m, DATE5, LST, AtLAST, ALMA 2030)
• Share and Coordinate with other Developments (eg LMT)
• Sharpen Camera Specifications (450μ potentials)
• Sharpen Cost and Timeline of Camera Development
• Distribute Camera Work Packages into Regions
• Identify Pacing Items in Development (eg detector, cryostat)
• Ensure Instrument Design matches Science Drivers
• Track Technology Improvements and Cost Analysis
• Efforts from the Universities
Team to Build 850µ Camera

- Detector Procurement: PMO/EAO
- Detector Characterization: NIST/PMO/Cardiff
- Readout Electronics: PMO/Canada
- Optical Design: AAO
- Engineering Design: PMO/ASIAA/NAOJ
- Cryostat: ASIAA/Cardiff
- Instrument Integration: PMO/Cardiff/ASIAA
- Data Acquisition/Calibration: KASI//EAO
- Data Reduction: Canada/EAO
- Observing Modes: KASI/EAO
- Leads in Each Region
White Paper Assignments

- Transients  (Steve Mairs)
- Magnetic Fields  (Keping Qiu, Ray Furuya, Eswaraiah Chakali)
- Cosmology and Early Universe Surveys  (Ran Wang, Hyunjin Shim,)
- Nearby Galaxies in Dust  (Matt Smith, Qinghua Tan)
- Galactic Star Formation Topics  (Tie Liu, Di Li)
- Synergy with SMA/ALMA  (Keping Qiu, Nimesh Patel)
- Synergy with DATE5  (Sheng-Cai Shi)
- Synergy with 60m, LST  (Ji Yang, Ryohei Kawabe)
- Spectroscopy and Dynamics in Galaxies  (Yu Gao, Xuejian Jiang)
- HARP Upgrade  (Wenlei Shan, Kuan Yu Liu, Mingjye Wang, Phichet Kittara)
- Spectrometer Upgrade  (Jongsoo Kim)
- VLBI  (Kiyoaki Wajima)

- Inputs: Projected Specifications, Sensitivity of new Camera
- Outputs: Science Goals, Targets, Required Sensitivity, Survey Size, Survey Depth , Link to science on next generation telescopes
- White Paper Czar: Greg Herczeg