



CHARA Year in Review

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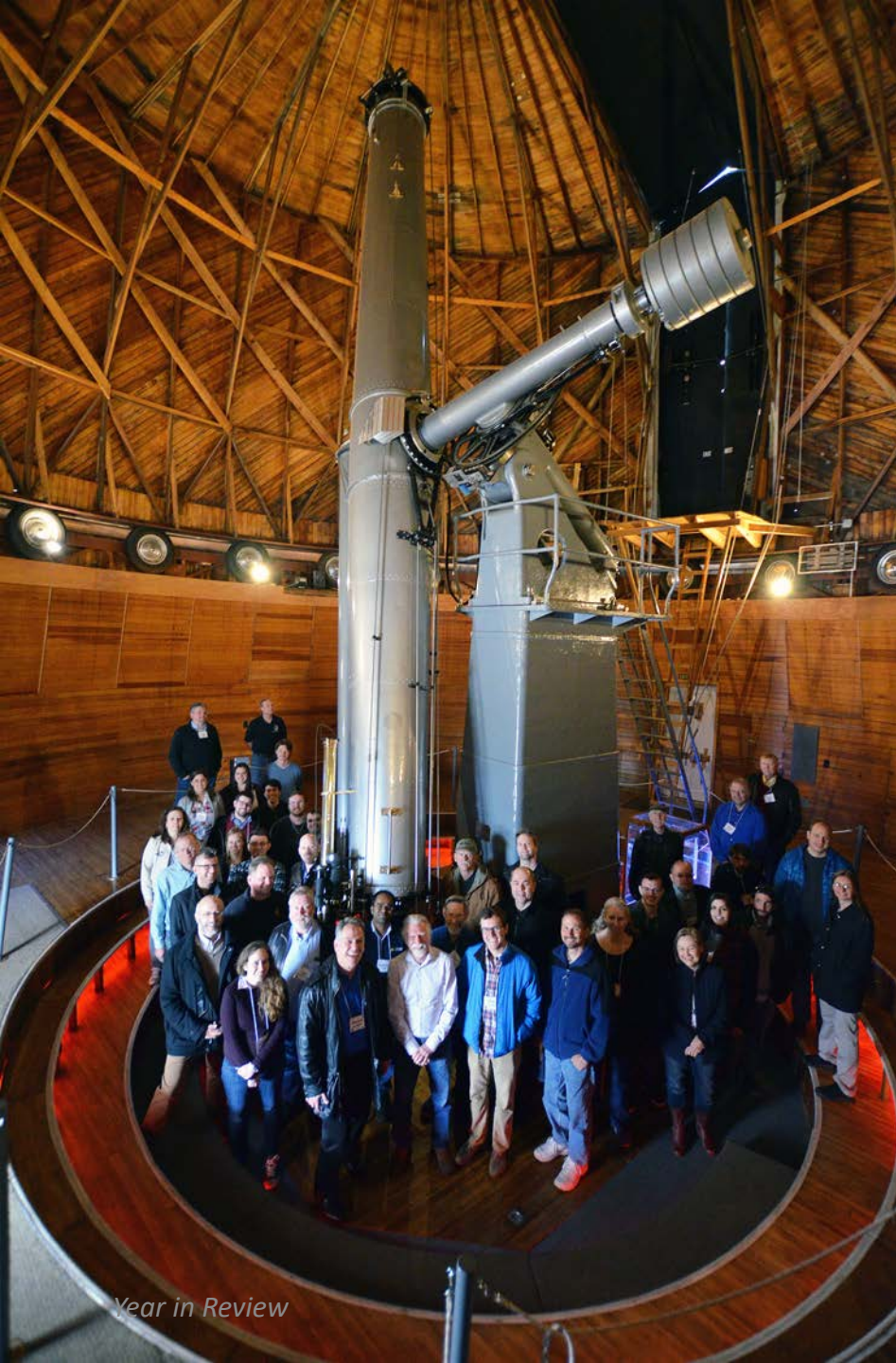


CHARA Array in 2019-2021

- Welcome/Bienvenue!
Thanks to Gail Schaefer
- Special Events
- Kudos
- GSU Update
- Astro2020
- New NSF/MSIP grant
- New NSF/MRI grant
- This Meeting



Flagstaff 2019 *Thank you Gerard!*





OUR 15TH CHARA SCIENCE MEETING

- 2005 Paris
- 2006 Tucson
- 2007 New York
- 2009 Nice
- 2010 Pasadena:
Caltech
- 2011 Atlanta
- 2012 Atlanta
- 2013 Flagstaff
- 2014 Ann Arbor
- 2015 Atlanta
- 2016 Nice
- 2017 Pasadena:
Carnegie
- 2018 Paris
- 2019 Flagstaff
- 2020 *cancelled*
- 2021 **Virtual**
- 2022 [Exeter]

Special Events

- Aug 5, 2019 USG BOR Regents visit
- Oct 4, 2019 GSU COAS Alumni visit
- Oct 1, 2019 New NSF grant to support postdoc Robert Klement (half support from GSU)
- Jan 2020 Special Session at AAS Hawaii Meeting on Betelgeuse
- Mar 19 - May 25, 2020 ***Covid-19 shutdown*** then remote observing
- June 3 - July 22, 2020 Summer seminar series



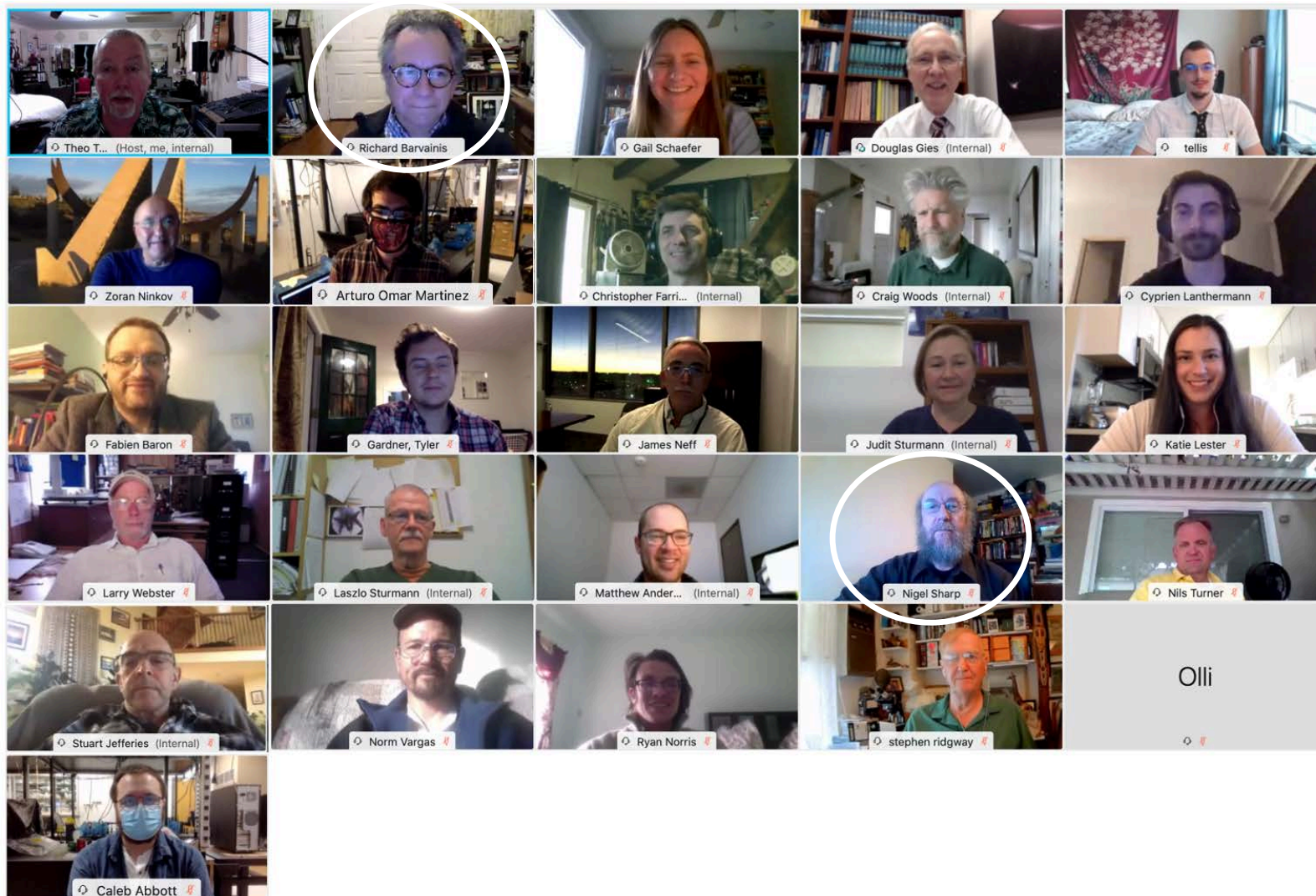
<http://www.chara.gsu.edu/workshops/chara-summer-seminar-2020>

Special Events

- Sept 14 - Oct 28, 2020
Bobcat Fire shutdown
- Thanks to Larry Webster & Craig Woods
- <http://www.chara.gsu.edu/press-release/bobcat-fire-burning-in-the-angeles-national-forest>



Special Events



- Nov 20, 2020
NSF Virtual Site Visit
- Dec 13, 2020
100th Anniversary of
Betelgeuse resolution
by Michelson & Pease
(talks by David DeVorkin
and Hal McAlister)
- Dec 19, 2020
Last VEGA run
www.chara.gsu.edu/press-release/tribute-vega
- Jan 4, 2021
Cyprien Lanthermann
starts postdoc

Kudos

- **Ryan Norris (2019)**
2020 joined faculty at
New Mexico Institute of
Mining & Technology
(MROI)
- **Katie Gordon (2018)**
finished postdoc at
Agnes Scott College;
joining faculty at the
University of Tampa





Kudos

- **Noel Richardson (2012)**
2020 joined faculty at
Embry-Riddle
Aeronautical University
(Prescott, AZ)
- **Katie Lester (2020)**
postdoc at NASA Ames



Kudos

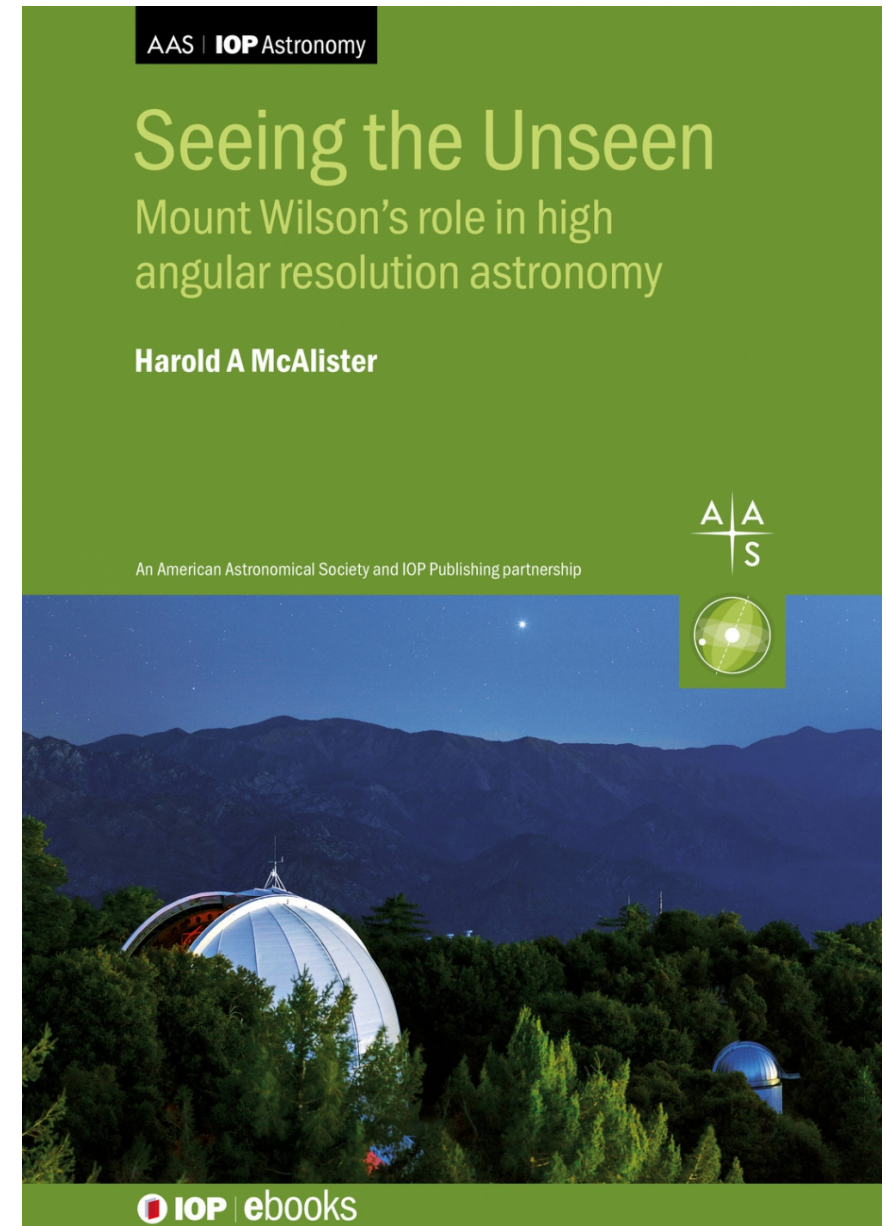
- **Ellyn Baines (2007)**
welcomed her son
(and proto-astronomer)
Oscar Crippes





Kudos

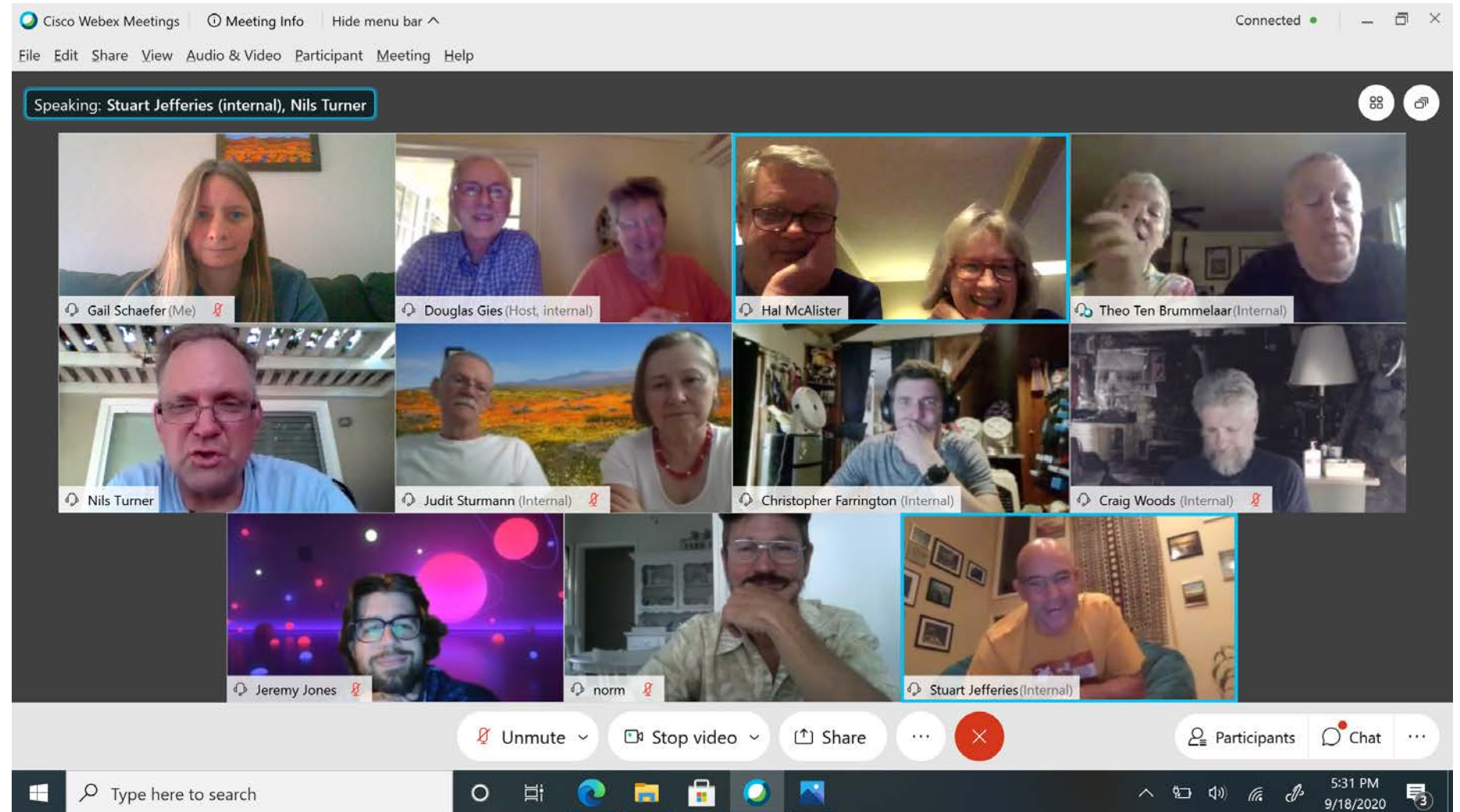
- **Gail Schaefer**
promoted to Associate Director
of the CHARA Array
- **Theo ten Brummelaar**
2020 GSU Staff Award for
Global Engagement
- **Hal McAlister**
new book
*"Seeing the unseen, Mount Wilson's
role in high angular resolution
astronomy"*





Kudos

- **Olli Majoinen**
Feb 16, 2020
5 year anniversary
- **Nils Turner**
Sep 18, 2020
30 year anniversary





Kudos - ahead

- **Matt Anderson**
Aug 22, 2021
5 year anniversary
- **Chris Farrington**
May 23, 2021
20 years at GSU,
15 years at CHARA
- **Judit Sturmann**
Retiring, May 31, 2021
- **Laszlo Sturmann**
Retiring, May 31, 2021
- **Larry Webster**
Retiring, May 31, 2021



GSU Update

- Administration changes:
President Mark Becker (*leaving*)
Provost Wendy Hensel (*new*)
VPR Tim Denning (*new*)
- 5 year review of CHARA in College of Arts & Sciences ahead this summer
- Faculty working with CHARA:
Fabien Baron
Douglas Gies
Stuart Jefferies
Piet Martens
Russel White
- Jefferies leading
Shared Vision: A Georgia State Imaging Innovation Hub
search for new senior faculty



GSU Update – graduate students

- **Caleb Abbott** (Baron) "Imaging the surface features of AGB stars"
- **Matthew Anderson** (Baron) "Adaptive Optics and AGN"
- ***KhaDeem Coumarbatch*** (Jones/Martens/White)
"Radii of Solar Analogues"
- ***Becky Flores*** (White)
"Stellar radii of stars with dynamically determined masses"
- **Arturo Martinez** (Baron) "Imaging of Rapid Rotators"
- ***Katherine Shepard*** (Gies)
"Circumbinary disks around massive interacting binary stars"
- ***Peter Wysocki*** (Gies) "Be Star Disk Asymmetries"



Astro2020 Decadal Survey

- Prioritize science goals for next decade in U.S.A.
- Offer funding priorities to NASA and NSF
- <https://www.nationalacademies.org/our-work/decadal-survey-on-astronomy-and-astrophysics-2020-astro2020>
- *“The goal remains to deliver the report in Spring 2021.”*
- Two opportunities for comment in 2019
 - Science White Papers
 - Activities, Projects, or State of the Profession Consideration Papers



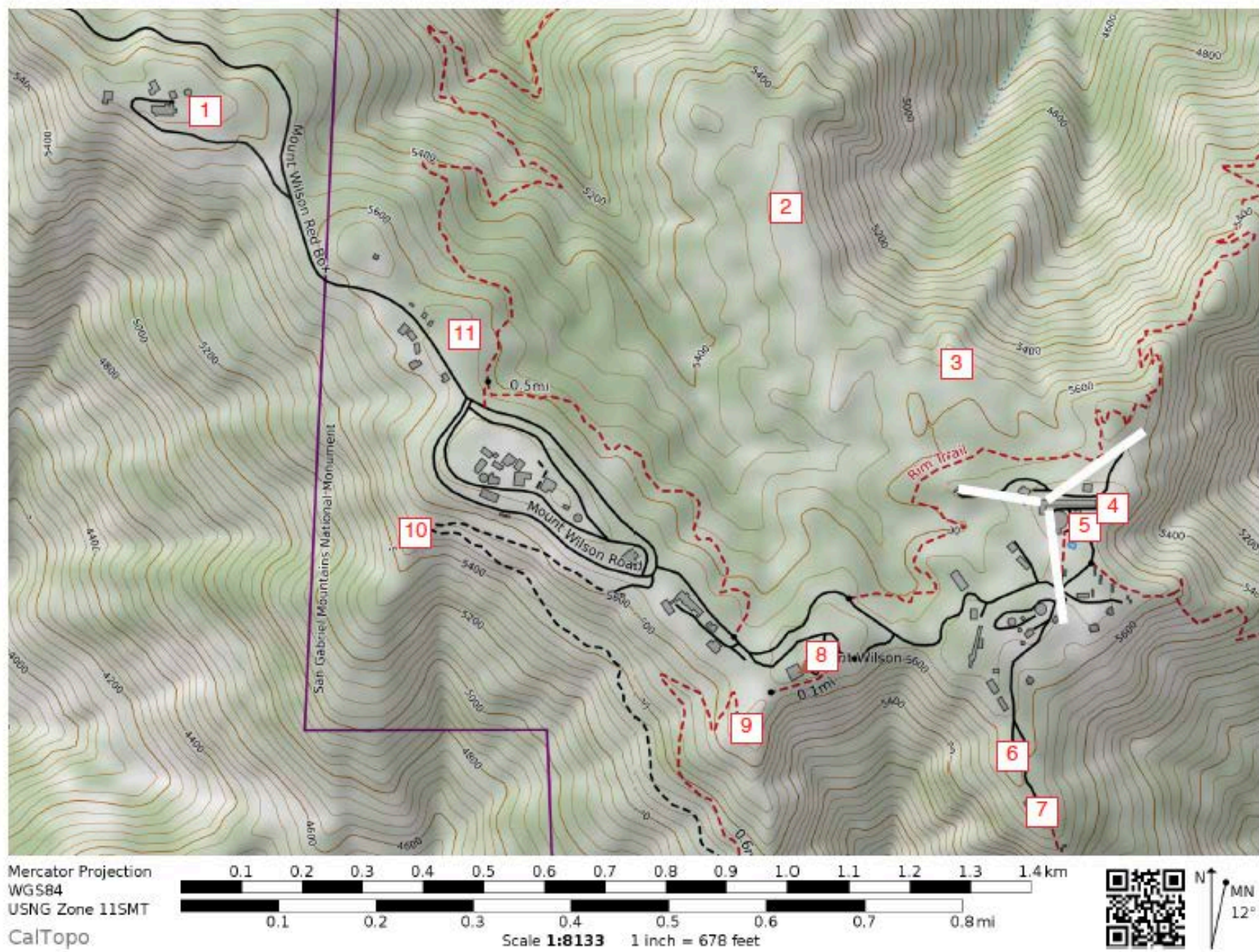
Astro2020 Science White Papers

- AGN (Kishimoto)
[2019BAAS...51c.156K](#)
- Asteroseismology (Huber)
[2019BAAS...51c.488H](#)
- Binaries (Schaefer)
[2019BAAS...51c.483S](#)
- Evolved stars (Ridgway)
[2019BAAS...51c.332R](#)
- Exoplanets (Monnier)
[2019BAAS...51c.514M](#)
- Mass loss (Gies)
[2019BAAS...51c.171G](#)
- Pulsators (Creech-Eakman)
[2019BAAS...51c.196C](#)
- Transients (Schaefer)
[2019BAAS...51c.502S](#)
- YSOs (Monnier)
[2019BAAS...51c.498M](#)
(Isella)
[2019BAAS...51c.174I](#)
- Imaging (Roettenbacher)
[2019BAAS...51c.181R](#)
- Radii (van Belle)
[2019BAAS...51c.381V](#)



Astro2020 APC Project White Papers

- General (Ridgway), CHARA (Gies), NPOI (van Belle), MROI (Creech-Eakman)
- ***CHARA Michelson Array***
<https://ui.adsabs.harvard.edu/abs/2019BAAS...51g.226G/abstract>
- Expansion of the Array at MWO
- Twelve 2-m aperture telescopes, up to 1 km (and longer) baselines
- Beam transport by fiber optics
- Use (expanded) OPLE/BCL and current beam combiners
- Followed up with a technical and cost document (Request for Information)





New NSF/MSIP Grant: *Exploring the Milliarcsecond Frontier: Open access to the renewed CHARA Array*

- Dec 19, 2019 Pre-proposal submitted, selected
- May 20, 2020 Full proposal, positively reviewed, selected for 2021 start
- Sep 1, 2021 Start date for revised budget (less 2-m telescope)
- Three year grant, \$4.6 M
- Thanks to **Theo, Gail, Steve Ridgway (& me)**



New NSF/MRI Grant: *Development of a Fiber-Linked Mobile Telescope Facility for the CHARA Array*

- First step to the CMA: portable 1-m telescope with fiber optics transport
- Select sites to expand spatial dynamical range (smaller / larger baselines)
- Jan 21, 2020 Full proposal, positively reviewed, selected
- Sep 1, 2020 Start date
- Three year grant, \$2.5 M
- Currently seeking new instrument scientist and postdoc (GSU cost share)
- Thanks to **Theo, Gail, Steve Ridgway (& me)**

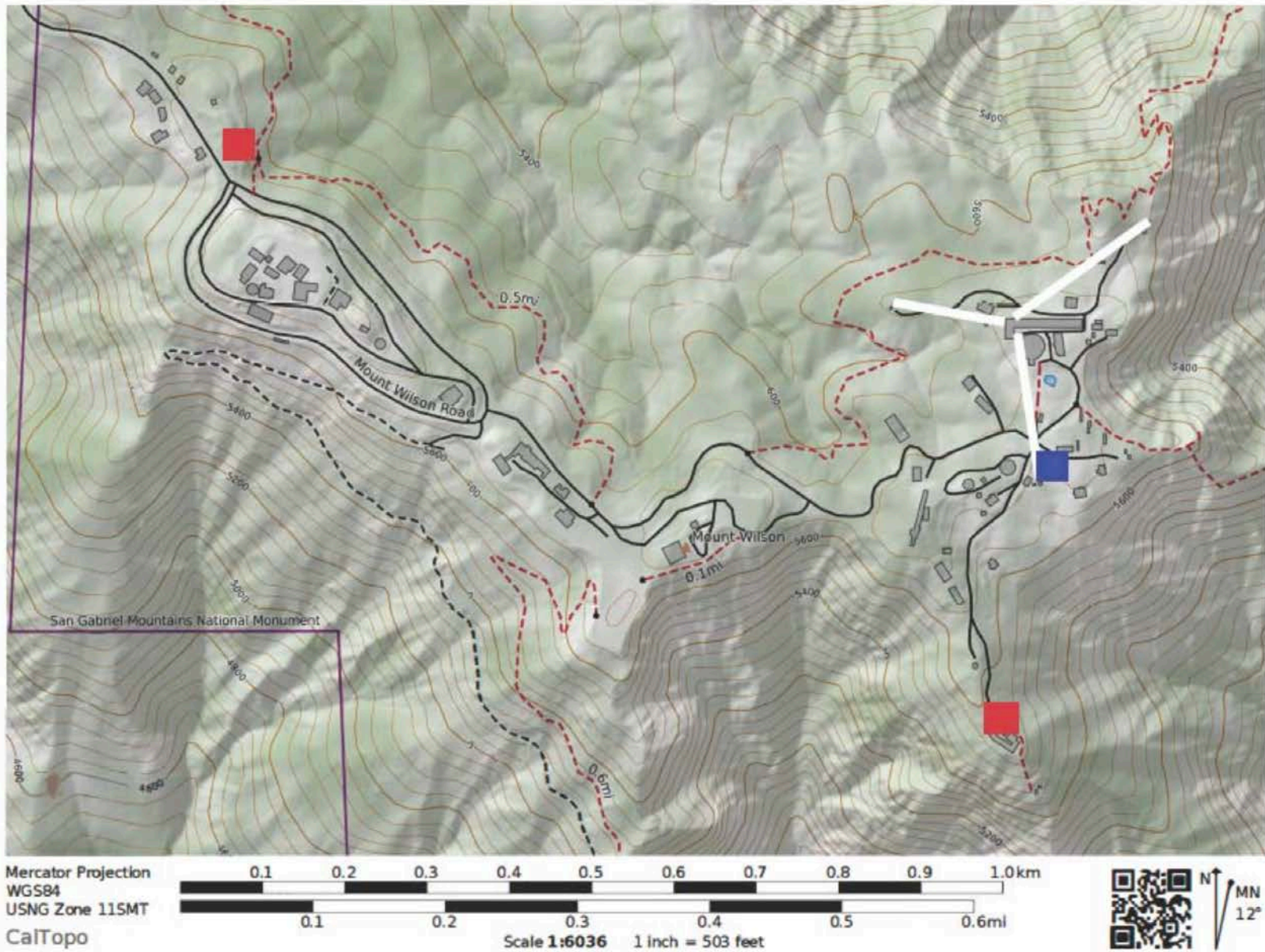


Fig. 8 – Telescope sites on a topographic map of Mount Wilson Observatory. The white lines show the three arms of the CHARA Array that host two telescopes each. The blue square marks the location for three pads that will be located close to the S1 and S2 telescopes to form small baseline triangles. The red squares indicate southern and western locations for the mobile telescope in long baseline operation with the existing Array telescopes.



This Meeting

- Chance to review many changes and improvements at CHARA
- New instrumentation and experiments
- VLTi, MROI, NPOI updates
- Exciting science programs (207 refereed papers to date)
- Compact 2 hour format over four days
- Reminder: 2021B proposals due March 31
- *Thank you for participating!*

