

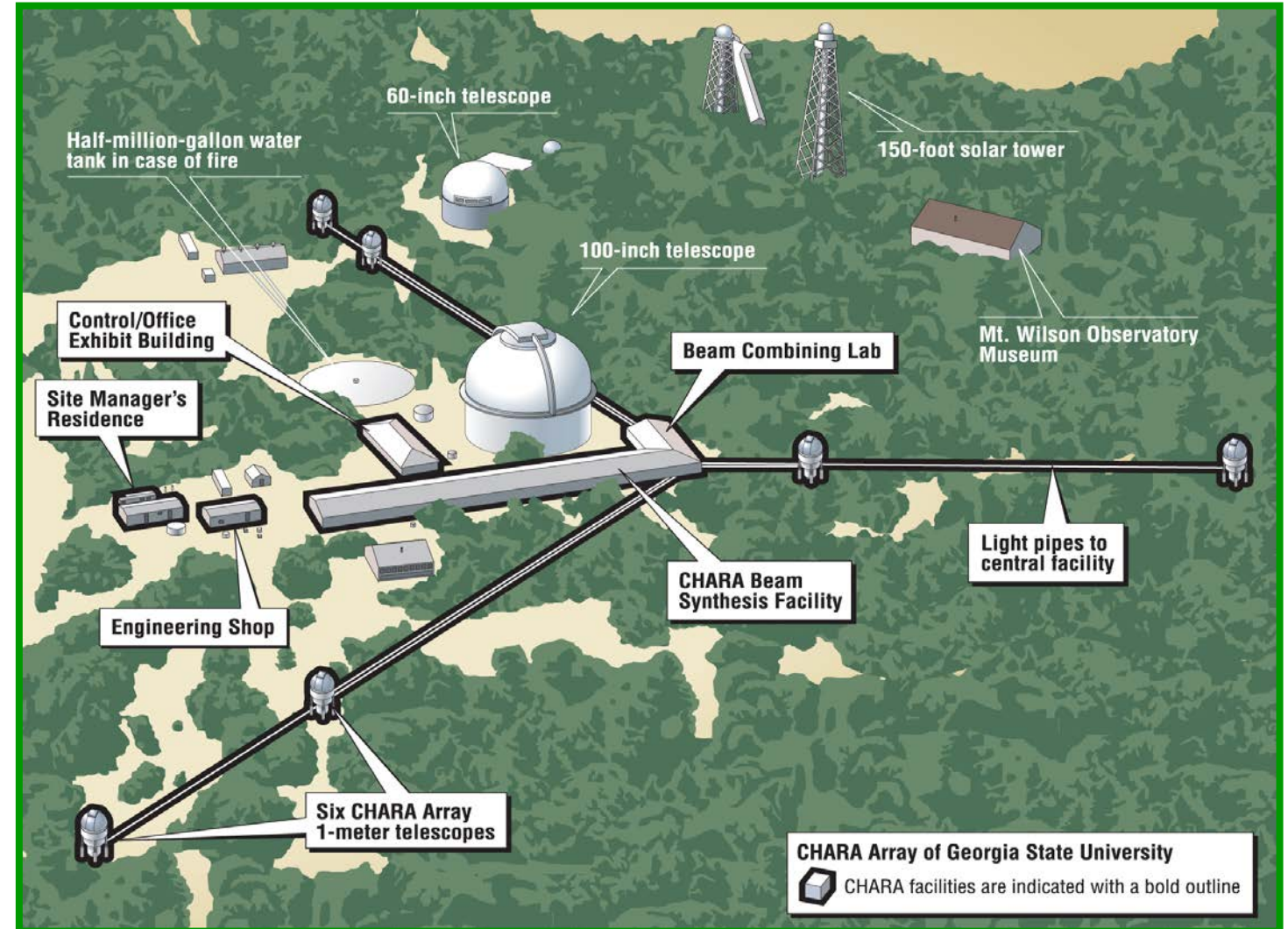


CHARA Year in Review

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CHARA Array in 2018

- Staff and Anniversaries
- Kudos
- Special Events
- Funding
- Community Access
- Science Highlights
- This Meeting





CHARA SCIENCE MEETINGS

- 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**

Flagstaff 2013





Paris Meudon 2018



Staff & Anniversaries

- No staff changes
- Jeremy Jones –
CHARA Data Scientist
10 years (GSU, 2009 July 1)
- Steve Golden –
CHARA Assistant Site Manager
15 years (2004 April 14)
- Judit Sturmann –
CHARA Optical Systems Scientist
20 years !!! (1999 November 8)
- First fringe - 20 years ago
(1999 November 23 – 15 days
after Judit joined the staff)
- Station Fire - 10 years ago
(2009 August 26 to October 16;
*Diary of a Fire: The Station Fire
Threat to Mount Wilson
Observatory*, H. A. McAlister)
- Lots of moisture this year!

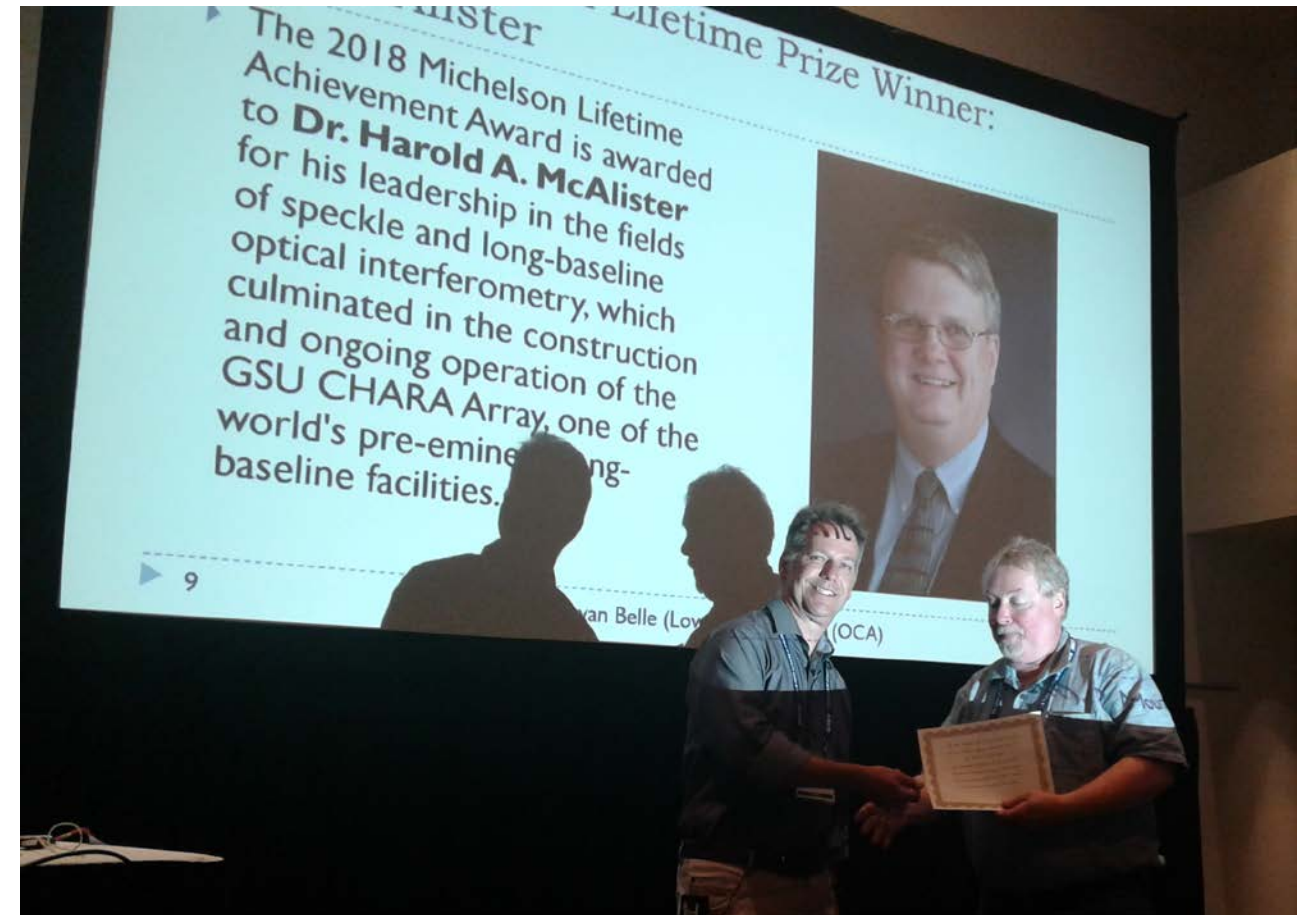


Rock/mud slide on the Angeles Crest Highway above Red Box – 2019 March 6

Larry Webster's daughter Chara – 2019 February 5

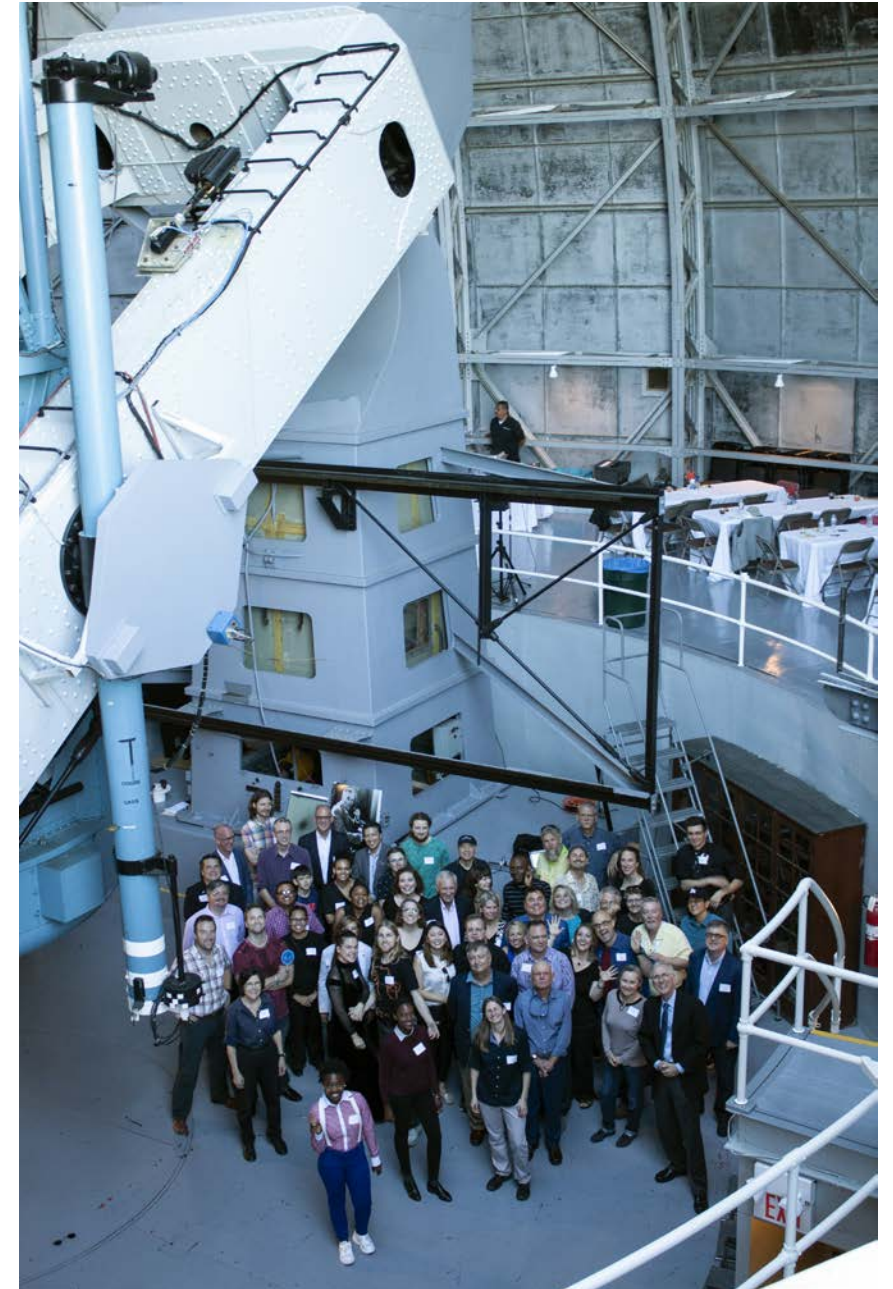
Kudos

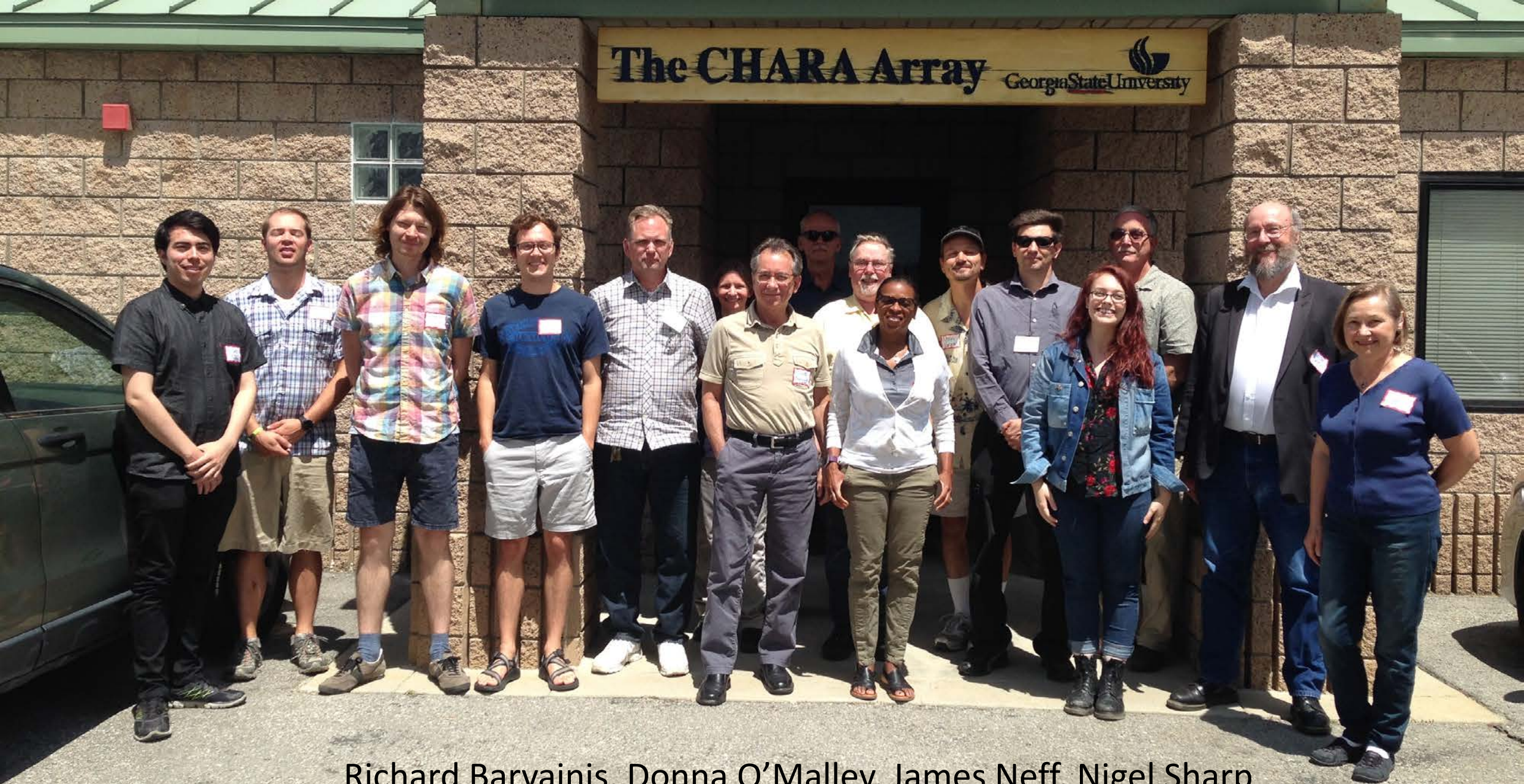
- **Fabien Baron**
GSU Dean's Early Career Award
- **Hal McAlister**
2018 Michelson Lifetime Achievement Award
- **John Monnier**
2019 Joseph Weber Award for Astronomical Instrumentation
- **Kathryn Gordon**
2018 PhD
(now at Agnes Scott College)



Special Events

- NOAO Futures meeting (Feb. 20)
Gail Schaefer's invited talk
- GSU College of Arts & Sciences
Alumni visit (June 21)
- ngVLA meeting at GSU (Oct. 19 – 20)
- NSF visit to CHARA (July 18)
- CHARA visit to NSF by Theo and Doug (September 13)





Richard Barvainis, Donna O'Malley, James Neff, Nigel Sharp



Funding

- NSF MSIP and science grants for staff (through Aug 2022)
- Continued support from the GSU College of Arts and Sciences
- Two pending grants with NSF
- GSU Next Gen Faculty: two awards (PDF and new staff?)
- Lodging costs at Mount Wilson:
\$45 USD for the first night plus \$20 USD per night for successive nights per person. Costs will be waived for GSU employees, NOAO observers, those who have purchased telescope time, and others who apply to me.
- Guaranteed time purchases possible (see Theo and/or me).

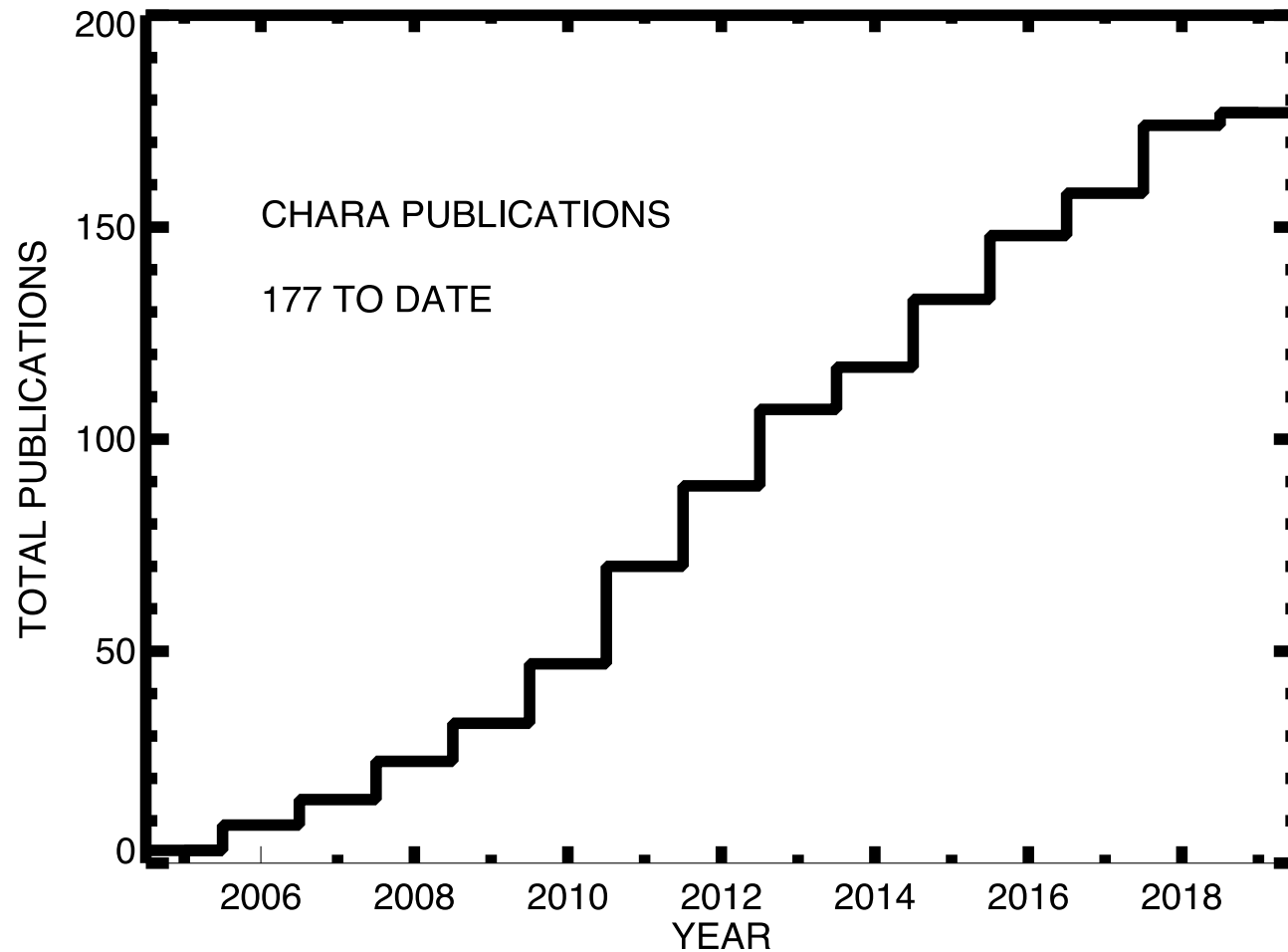


Community Access to CHARA

- NSF MSIP award for telescope access (Schaefer) and data archive (Jones)
- Offering 30 nights in each 6 month semester through NOAO
- Demand remains high (requested/awarded nights = 2)
- 2019B proposals due April 1 (August – December)
- Community workshops - *thanks to Gail Schaefer!*
 - AAS, Washington, DC (January 7)
 - STScI, Baltimore (April 26)
 - University of Texas, Austin (June 15)
 - Cool Stars, Boston University (July 30)
- AAS Splinter Session (2019 January 8)



CHARA Publications: 16 in 2018













Important review of field: Creech-Eakman, van Belle, & ten Brummelaar

*Advances in Test & Measurement:
Photonic advances to dramatically
improve astronomical
interferometry in the next decade*
Laser Focus World, 2018 June issue



A Multi-instrument and Multi-wavelength High Angular Resolution Study of MWC 614: Quantum Heated Particles Inside the Disk Cavity*

Jacques Kluska¹ , Stefan Kraus¹ , Claire L. Davies¹ , Tim Harries¹ , Matthew Willson¹, John D. Monnier² ,
Alicia Aamio³ , Fabien Baron⁴ , Rafael Millan-Gabet^{5,6} , Theo Ten Brummelaar⁷ , Xiao Che², Sasha Hinkley¹ ,
Thomas Preibisch⁸, Judit Sturmman⁷, Laszlo Sturmman⁷, and Yamina Touhami⁹

- Multi-instrument study of disk surrounding YSO
- CHARA Classic and CLIMB used to help map inner hot region
- Hot dust remaining heated by young star

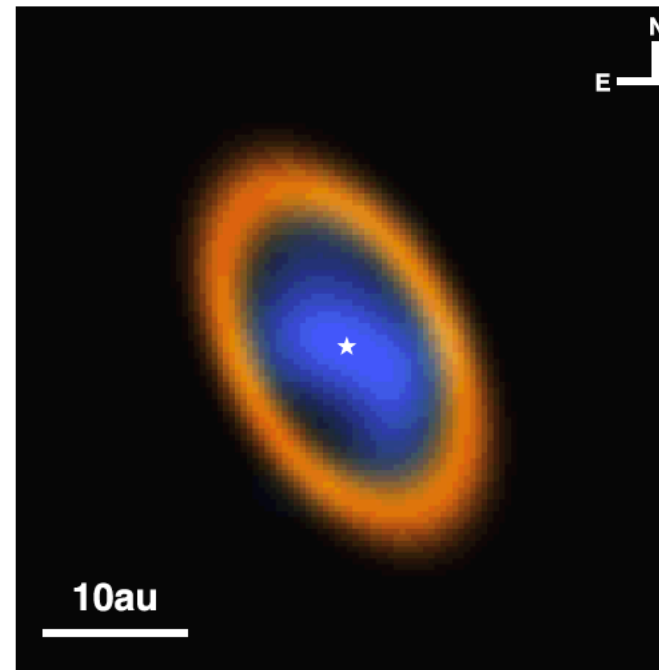


Figure 16. Composite image, including the best-fit MIR *N*-band model image (orange) and the image reconstructed from the NIR *H*-band data (blue). The star is indicated by the white star.

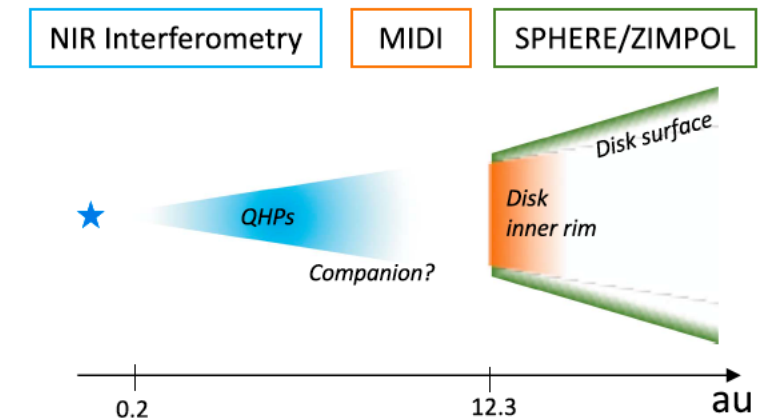
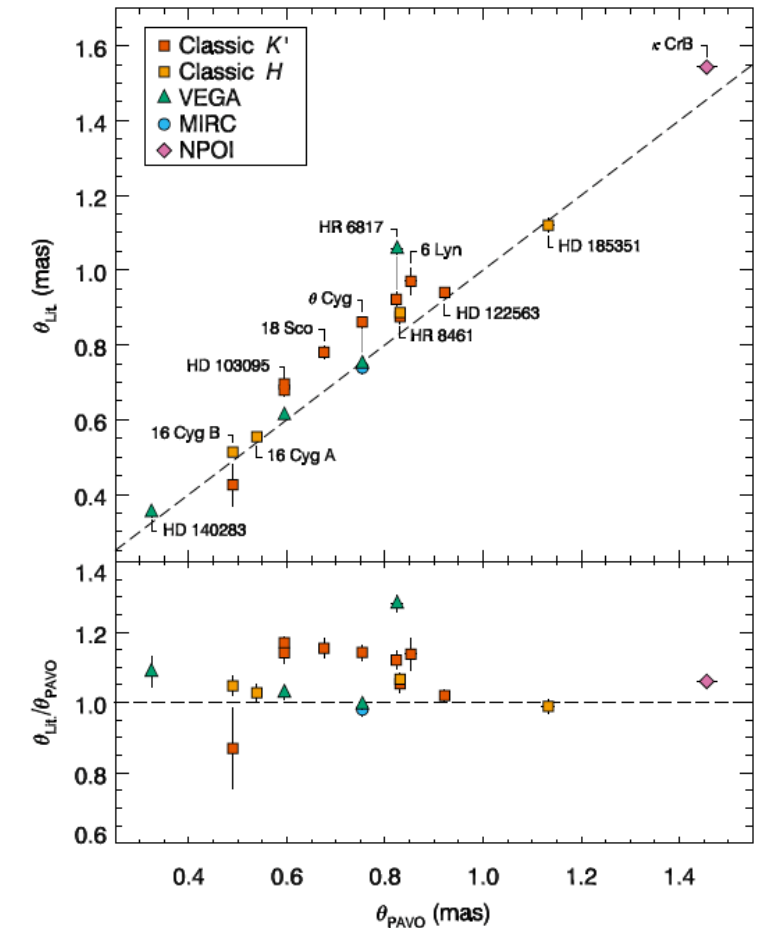


Figure 17. Sketch of MWC 614.





Interferometric diameters of five evolved intermediate-mass planet-hosting stars measured with PAVO at the CHARA Array

T. R. White,^{1,2,3★} D. Huber,^{4,5,1,6} A. W. Mann,^{7,8†} L. Casagrande,^{9,10} S. K. Grunblatt,⁴ A. B. Justesen,¹ V. Silva Aguirre,¹ T. R. Bedding,^{5,1} M. J. Ireland,⁹ G. H. Schaefer¹¹ and P. G. Tuthill⁵

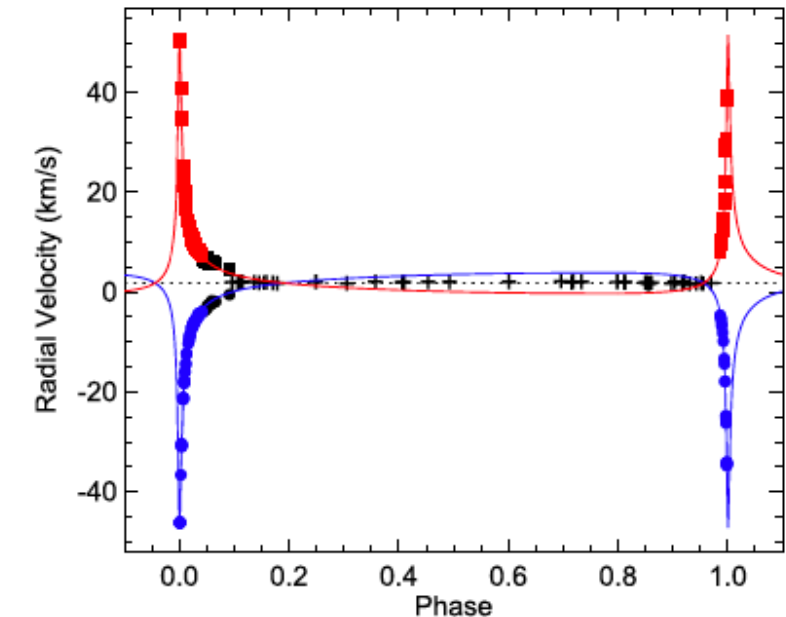
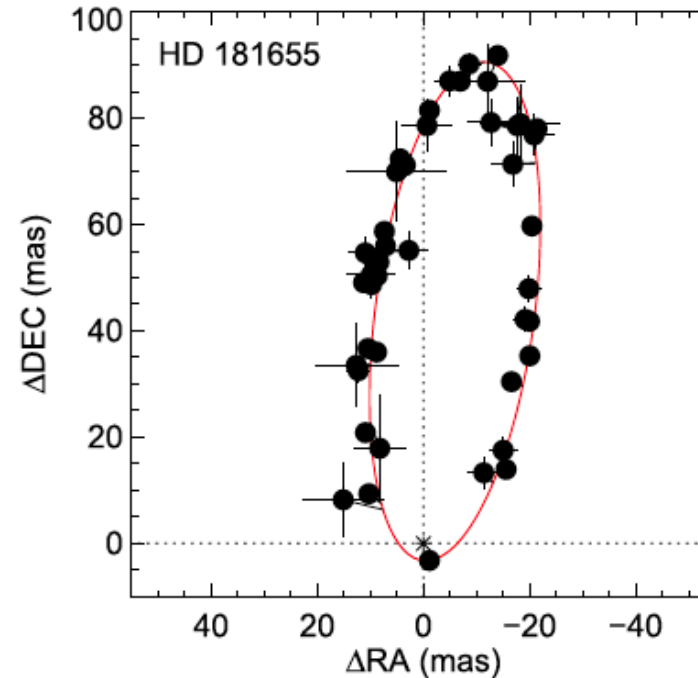
- Diameters for “retired A star” exoplanet hosts from PAVO
- Careful comparison of angular diameters as measured by different combiners



Separated Fringe Packet Observations with the CHARA Array. III. The Very High-eccentricity Binary HR 7345

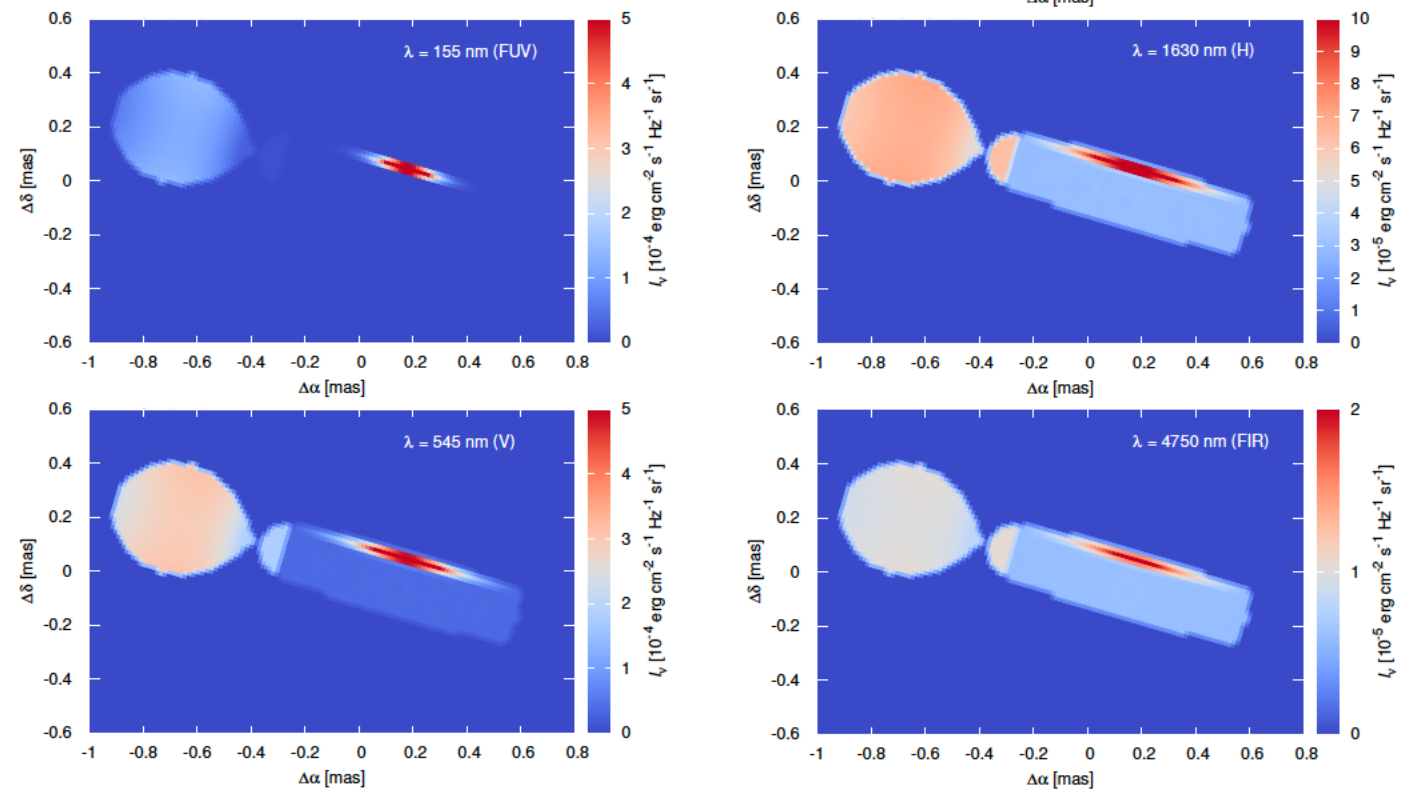
C. D. Farrington¹ , Francis C. Fekel² , G. H. Schaefer¹ , and T. A. ten Brummelaar¹ 

- Pair of G-dwarfs in a very eccentric orbit
- Classic and CLIMB data using the separated fringe packet method
- $P = 332$ days, $e = 0.93$
- Tertiary M-star may be responsible for driving eccentricity through the Kozai-Lidov mechanism



Physical properties of β Lyrae A and its opaque accretion disk***

D. Mourard¹, M. Brož², J. A. Nemravová², P. Harmanec², J. Budaj³, F. Baron⁴, J. D. Monnier⁵, G. H. Schaefer⁴, H. Schmitt⁶, I. Tallon-Bosc⁷, J. T. Armstrong⁶, E. K. Baines⁶, D. Bonneau¹, H. Božić⁸, J. M. Clausse¹, C. Farrington⁴, D. Gies⁴, J. Juryšek^{2,9}, D. Korčáková², H. McAlister⁴, A. Meilland¹, N. Nardetto¹, P. Svoboda¹⁰, M. Šlechta¹¹, M. Wolf², and P. Zasche²



- Multi-beam combiner study of famous interacting binary
- Multi-wavelength interferometry and light curves
- New models of the opaque accretion disk surrounding the mass gainer star



Exciting meeting ahead

- News about Adaptive Optics installation, MIRC-X, and SPICA
- Plus NPOI, MROI, VLTi
- Full range of science topics
- Many students and former students (9 GSU PhDs)
- Hal McAlister sends his greetings to all and best wishes for our gathering
- Stefan Kraus also sends greetings and invitation to 2020 Exeter meeting:
CHARA Meeting April 2 – 4
VLTi Meeting April 6 – 8

Thanks to:

- *Lowell Observatory and NPOI*
- *Local Organizing Committee*
Gerard van Belle
- *Program and Website*
Gail Schaefer
- *CHARA Staff* led by Theo ten Brummelaar
- *CHARA Collaboration Members*
especially Narsireddy Anugu
- Sebastien Lepine, Chair, Physics & Astronomy, Georgia State University
- to everyone here for your participation in this meeting





- CHARA Web site
<http://www.chara.gsu.edu>
- Mount Wilson web cam
<http://hpwren.ucsd.edu/cameras/wilson.html>
- Mount Wilson Solar Tower cam
<http://obs.astro.ucla.edu/towercam.htm>

