

NASA Hubble Fellowship Program

- Since 2018, the NHFP postdoctoral fellowship program now covers all of NASA astrophysics. Sponsored by NASA, administered at STScI.
- The 3 original categories of fellowships are preserved under the NHFP corresponding to their relevant science questions
 - ***How does the Universe work? – Einstein Fellows***
 - ***How did we get here? – Hubble Fellows***
 - ***Are we alone? – Sagan Fellows***
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- Hubble Lead **Andy Fruchter** at STScI, Sagan Lead **Dawn Gelino** at IPAC and Einstein Lead **Paul Green** at CXC

NHFP Selection

- **2020** Fellows selected in Miami Jan 21-25 2020 in NOLA
 - 7 topical panels, 7 reviewers each + Merging Panel Chair
 - 380 applicants, 28 Offers, 4 declines (15 F, 2 declined)
 - Some allowed to start in 2021 due to pandemic dislocation
- **2021** Fellows selected last Jan 19-26 via GoogleMeet & Slack
 - 7 topical panels, 7 reviewers each + Merging Panel Chair
 - 406 applicants, 3 declines, 27 Offers
(16 F, 2 declined; 7 URM, none declined)
- All 24 host endorsement letters received.
- Bios/Photos to be posted w/press release early April.

NHFP Selection Panels

- Compact Objects & /Accretion
 - Physics & Cosmology
 - Galaxies/IGM
 - Milky Way & Stellar Populations
 - Stellar Physics
 - Proto-planetary/Debris Disks
 - Exoplanets
- ⇒ Merging Panel

NHFP Seeks to *Spread the Wealth*

- At most 2 new fellows will be approved for any single institution in a given year.
- No more than 5 fellows at any single host institution, except for short periods of overlap.
- Thus in any given year, some institutions may only be allowed to take one new fellow.
- For 2021, only one slot available at: *Princeton*. Only one fellow requested Princeton.

Selected Fellows w/ Flavors

<u>Year</u>	<u>Einstein</u>	<u>Hubble</u>	<u>Sagan</u>	<u>Total</u>
2021	8	9	7	24
2020	8	7	8	23*
2019	7	11	6	24
2018	7	12	5	24
2017	8	17	3	28
2016	12	15	6	33
2015	14	17	6	37

NHFP Symposium

- **2020** Symposium was 2d merged, 1st virtual
- Sep 21-25, noon-4pm EDT
- ~70 talks (abstract deadline was Fri Sep 20)
- Non-science sessions
 - NHFP Against (Anti-Black) Racism
 - Benefits & Policies (w/STScI Admins & Program Scientist Pat Knezek)
 - Open Mic (E/PO work, pandemic cooking, songs,...)
- **2021** Symposium ~late September, may be hybrid in-person/virtual

Benefits Changes

● Allow applications up to 4 years post-PhD for extenuating personal circumstances*	✓
● All NHFP hosts must offer employees status for Fellows ≥ 2022	✓
● Fund collaborator or grad student travel* to support research	✓
● Can accept honoraria	✓
● Expand hosts to include NASA research centers - Goddard, Marshall, Ames	?

* *Intention is to be more “family- (and now COVID-) friendly”.*

Upcoming NHFP Review by NASA

- NASA will hold a (remote) review of the NHFP June/July 2021
- Intent is not to judge the value of the program, which is already known to be strong, but to identify ways it might be improved
- Both Leads and Fellows themselves have identified a number of potential improvements, some of which have been implemented. Others may be impossible to achieve, but some are surely feasible.
- Agenda includes Program Implementation, Health & Well-Being, DE&I

New Survey and Database

- Demographic survey composed cooperatively by the NHFP “Statistics Subgroup” and Leads.
- Survey circulated to (406) 2021 applicants; received 338 reponses (83%) by deadline Jan 26, 2021.
 - Name, PhD date, PhD institution, Fellowship Start Date, Host Institution, Gender Identity, Race/Ethnicity, Disability Status, Current Career Path
- Survey requests sent to 707 current fellows and alumni (1990-2020); received 454 reponses (64%) by deadline Feb 15, 2021
- Analysis underway by the NHFP “Statistics Subgroup”
- Major NHFP database effort underway to have one place for information on all Applicants, Fellows, & Alumni

SDSS-V 2020 - 2025

<http://www.sdss.org/future>

All-Sky Spectroscopy

❑ Black Hole Mapper

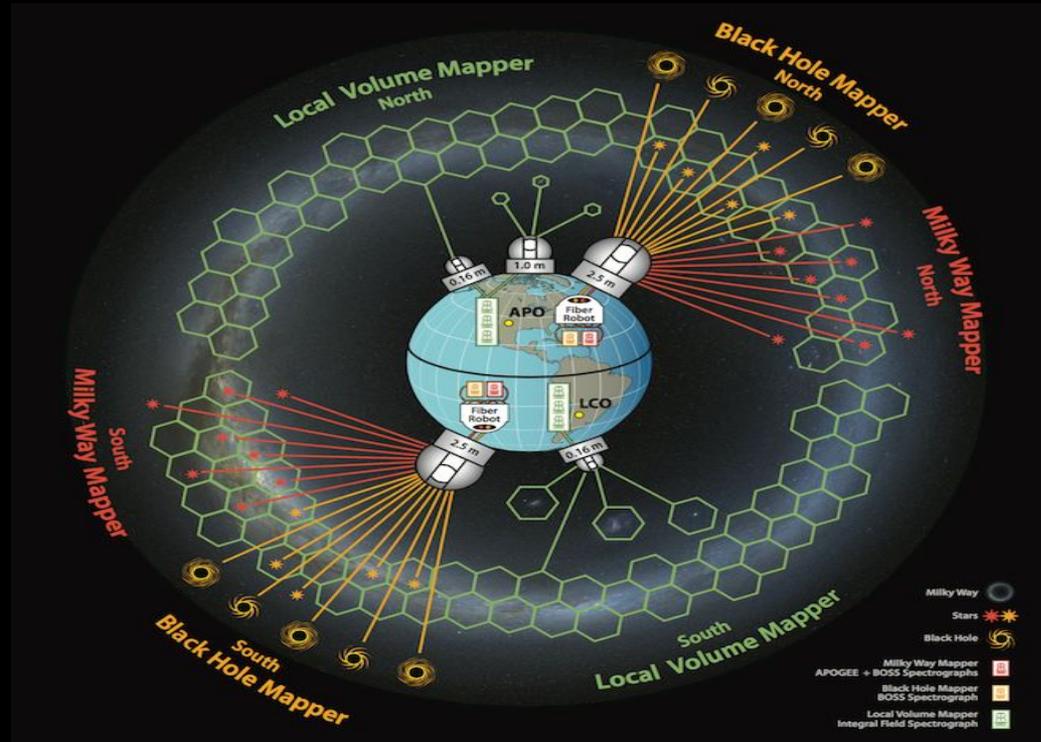
Repeat QSO spectra
eROSITA followup

❑ Milky Way Mapper

stars in IR at high-res

❑ Local Volume Mapper

IFU of nearby galaxies



SDSS-V, SAO + CSC

- ❑ SAO joining SDSS-V as a full member, includes CXC/MIT
- ❑ CXC chipping in 50% of membership cost (\$115k/yr)

CSC: 315k sources through 2014 <http://cxc.harvard.edu/csc2/>

- ❑ Only covers ~2% of sky
- ❑ Much better sensitivity and spatial resolution than eROSITA!
- ❑ ~45% have optical counterparts with mag <21
- ❑ Spectra are coming in now (so far still plug plates, North only)
- ❑ Timely expansion of the CSC to newer archival data is important.
- ❑ CXC will serve SDSS-V data products (spectral properties and flux-calibrated digital spectra) to the community on a regular schedule

CSC2 Matching

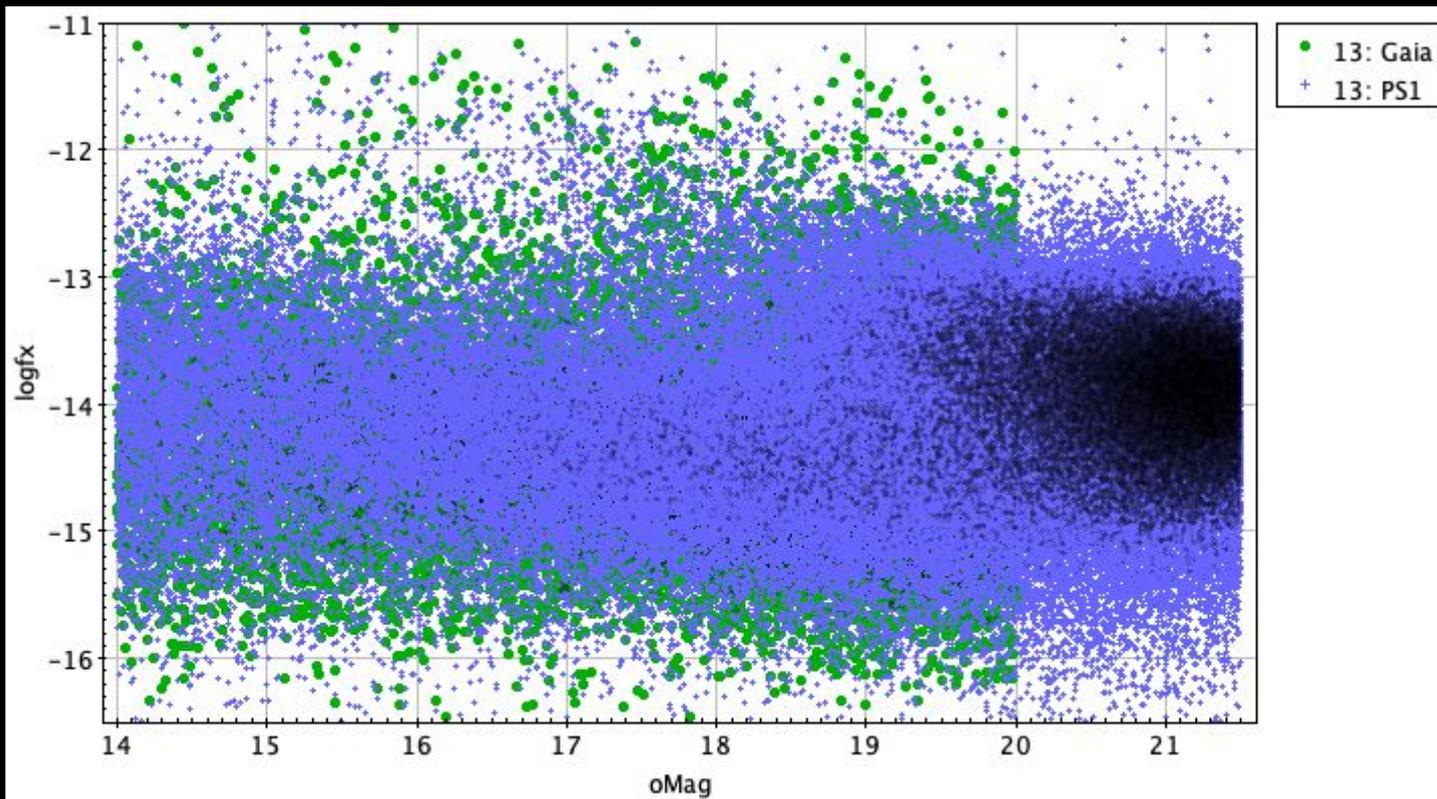
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- ❑ Best optical/IR counterparts matched by CXC/CatSci group using PanSTARRS, Gaia and 2MASS catalogs and NWAY Bayesian matching¹ but accounting for extent or PSF via XMATCH²

<u>Catalog</u>	<u>Mag Constraints</u>	<u>Matched</u>
PanSTARRS	14 < (g r i z) < 21.5	115,587
Gaia	14 < G < 20	26,356
2MASS	H <= 14	49,416 (13,314 IR only)
Total		155,257

1. Buchner+2018; Budavari&Szalay 2008
2. Rots 2020

CSC2 Matching



CSC2 Matching

