

SONG HUANG (黄崧)

PRESENT ADDRESS

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CONTACT INFORMATION

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FIELDS OF INTEREST

- Connecting galaxies to dark matter halos using imaging and spectroscopic survey.
- Decoding the life of massive and dwarf galaxies using their structure and stellar population.
- Mining data and modeling galaxies in large imaging survey.

COLLABORATIONS:

- [The MULTiplexed Survey Telescope \(MUST\) project](#): a future 6.5m telescope to conduct Stage-V spectroscopic cosmology survey. I am the key member of the team. My role is to help organize the science collaboration and lead the effort to build MUST's data system.
- [The Hyper Suprime-Cam \(HSC\) Survey](#): I am a permanent member of this ambitious imaging cosmology survey using the 8.2m Subaru telescope.
- [The Merian Survey](#): Dual medium-band survey of the HSC fields using the 4-m Blanco telescope aiming to probe the dark matter halos of dwarf galaxy. I am a key member of the project and help design the survey.
- [The Dark Energy Spectroscopic Instrument \(DESI\) Survey](#): currently a continuing collaborator to work on projects related to galaxy clusters; Applying to full membership now.

WORKING EXPERIENCE

- **Assistant Professor**, Tsinghua University, Beijing, China Nov, 2021 – Now
- **Associate Research Scholar**, Princeton University, NJ, U.S.A Oct, 2019 – Oct, 2021
(Contact: Prof. Jenny Greene)
- **Post-doc Researcher**, UCSC, CA, U.S.A Feb, 2017 – Oct, 2019
(Contact: Prof. Alexie Leauthaud)
- **Post-doc Researcher**, Kavli-IPMU, University of Tokyo, Japan Aug, 2014 – Feb, 2017
(Contact: Prof. Alexie Leauthaud)

EDUCATION

- **Doctor of Philosophy**, Astrophysics
School of Astronomy and Space Sciences, Nanjing University 2008 – 2014
- **Bachelor of Science**, Astronomy
School of Astronomy and Space Sciences, Nanjing University 2004 – 2008

APPROVED FUNDING

- **National Natural Science Foundation of China** General Project, No.12273015
Amount: ¥ 550K 2023 – 2026
- **China Manned Space Project** Science Research Grants, No.CMS-CSST-2021-A07
Amount: ¥ 160K 2021 – 2023

REFERENCES

- **Prof. Alexie Leauthaud** University of California, Santa Cruz
✉: alexie@ucsc.edu
- **Prof. Jenny Greene** Princeton University
✉: jgreene@astro.princeton.edu
- **Prof. Michael Strauss** Princeton University
✉: strauss@astro.princeton.edu

TEACHING

- [Observational Astronomy \(30920023-90\)](#) 2022 Fall

ONLINE TALKS

- [Stellar mass in a single galaxy's outskirts reveals the whole cluster mass, Cosmology Talks, 2021](#)
- [New Insights about the Assembly of Massive Galaxies from the Hyper Suprime-Cam, Santa Cruz, 2017](#)
- [Structure of Nearby Massive Galaxies and Comparison with Hydro-dynamic Simulations, Santa Barbara, 2017](#)
- [New Insights from the HSC survey on the Stellar Halos of Massive Galaxies, Santa Barbara, 2017](#)

HONORS AND AWARDS

- YCAA Postdoctoral Prize Fellowship (*Declined*) 2018
- National Scholarship for Graduate Student 2013
(Most prestigious scholarship for graduate student in China)
- Yao-Liang Scholarship for Outstanding Students 2008
- People's Scholarship 2005

APPROVED PROPOSALS

- NOIRLab Proposal 2020B-0288 Co-I
Title: The Merian Survey: Characterizing Dark Matter, Feedback, and Black Holes in Star-Forming Dwarf Galaxies (PI: Prof. Alexie Leauthaud)
- Hubble Space Telescope Cycle 28 (ID: 16461) Co-I
Title: The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies (PI: Dr. Somalwar, Jean)
- Keck Proposal 2019B Co-I
Title: Testing the Feedback-driven Breathing Mode in Dwarf Galaxies at $z \sim 0.1$ (PI: Prof. Alexie Leauthaud)
- Spitzer Space Telescope Cycle-10 (ID:10052) Co-I
Title: Deep Imaging and Structure Decomposition of Nearby Elliptical Galaxies (PI: Prof. Luis C.Ho)
- Gemini-2014B (Time awarded: 16 hrs) Co-I
Title: Do the Primordial Cores of Massive Elliptical Galaxies Have a Bottom-heavy IMF? (PI: Prof. Luis C.Ho)

COMPUTER SKILLS

- Skilled in IDL and Python. Past works can be found on GitHub: [@dr-guangtou](#)
- Examples of software contributions:
 - `ASAP` Modeling the halo mass variation over the aperture stellar mass plane: [🔗](#)
 - `dsigma` A simple pure-python galaxy-galaxy lensing pipeline: [🔗](#)
 - `synpipe` Synthetic object pipeline for LSST data reduction pipeline: [🔗](#)
 - `kungpao` Photometric analysis library for HSC images: [🔗](#)
 - `unagi` Python portal to the HSC SSP data release: [🔗](#)
- Familiar with C; SQL; Mathematica; R.
- Experience with imaging data reduction in the optical and near-infrared.
- Experience with image decomposition and morphological analyses.
- Experience with stellar population synthesis tools and general spectral analysis.
- Familiar with basic statistical methods in astrophysics, approaches to deal with large dataset, and basic machine learning methods.

REVIEWER/REFEREE

- The Astrophysical Journal • The Astrophysical Journal, Letter • Monthly Notices of the Royal Astronomical Society • Research in Astronomy and Astrophysics • Acta Astronomica Sinica

OBSERVATIONAL EXPERIENCE

- DECam on the 4.0m Blanco telescope, CTIO, Chile
- 3.0m Shane telescope, UCO Lick, California,
- 8.2m Subaru telescope, Mauna Kea, Hawaii (7 night; as observer for the HSC survey)
- 2.16m telescope at Xinglong Observatory, NAOC, China (20 nights from 2009 to 2010; both imaging and spectroscopic observations).
- 2.4m telescope at Yunnan Observatory, China (in total of 8 nights since 2010; both imaging and spectroscopic observations).


STUDENT MENTORSHIP

- [Fangzhou Jiang](#) (姜方周, Undergraduate Student, Nanjing University) 2009-2010
- [Shuo-Wen Jin](#) (靳硕文, Graduate Student, Nanjing University) 2012-2014
- Ryoma Murata (Graduate Student, University of Tokyo) 2016-2017
- [Felipe Ardila](#) (Graduate Student, UCSC) 2017-2019
- [Christopher Bradshaw](#) (Graduate Student, UCSC) 2017-2019
- Enia Khakaj (Graduate Student, UCSC) 2017-2019
- [Yi-Fei Luo](#) (Graduate Student, UCSC) 2017-2019
- Dane Cross (Undergraduate Student, UCSC) 2017 Summer
- [Rajdipa Chowdhury](#) (Undergraduate Student, UCSC) 2017-2019
- Greg Sallaberry (Undergraduate Student, UCSC) 2017-2019
- [Jia-Xuan Li](#) (李嘉轩, Visiting Undergraduate from PKU) 2018-2020
- [Shuo Xu](#) (许朔, Graduate Student at Tsinghua) 2021-Now
- [Xiaoya Zhang](#) (张筱雅, Graduate Student at Tsinghua) 2021-Now
- [Zechang Sun](#) (孙泽昌, Graduate Student at Tsinghua) 2022-Now

OTHER PROFESSIONAL EXPERIENCE

- *Time Allocation Committee* Chinese Telescope Access Program (TAP)
(Contact: Prof. Eric Peng @ KiAA) Review observational proposals.
- *Member of the LOC* Feb, 2015 Getting a Grip on the Galactic Girths Conference
(Contact: Prof. Alexie Leauthaud @ UCSC)
- *Member of Time Allocation Comm* Chinese Li-Jiang IFU (CHILI)
(Contact: Dr. Lei Hao @ Shanghai Observatory) Develop the science cases for galaxies.
- *Leader of the LOC, Summer School for Astrophysics, Nanjing, China* Summer 2010
(Contact: Prof. Qiu-Sheng Gu @ Nanjing University)
- *Summer Internship, Xinglong Observatory, NAOC, China* Summer 2007
(Advisor: Dr. Hong Wu @ NAOC) Optical-MIR color selection of low metallicity dwarf galaxies

OUTREACH AND OTHER EXPERIENCE

- Founder of academic sharing website: [AstroLeaks](#).
- I created and am maintaining a curated collection of resources for astrophysical research: [Taotie \(饕餮\)](#) 
- Wrote many articles for the general public (Please see my personal website).
- Helped organize the Summer School of Modern Astronomy and Astrophysics at Nanjing, 2010.
- Several talks to the general public in levels that range from elementary school students to undergraduate students.

TALKS AND COLLOQUIA

- Colloquium at Shanghai Observatory
Invited Speaker Given remotely, (Apr 7, 2022)
- Colloquium at University of Alabama
Invited Speaker Given remotely, (Mar 22, 2022)
- Seminar for the Galaxy Cluster Group at University of Michigan
Invited Speaker Given remotely, (Nov 1, 2021)
- Seminar for the Cosmology Groups at SUNY
Invited Speaker Given remotely, (Jun 7, 2021)
- Galaxy Formation and Evolution in the Era of the Nancy Grace Roman Space Telescope
Speaker Given remotely, (Oct 7, 2020)
- Princeton Thursday Lunch Talk (Thunch)
Speaker Given remotely, (Sep 3, 2020)
- The Galaxy-Halo Connection Across Cosmic Time: Recent Updates *Invited speaker* Given remotely, (Aug 6, 2020)
- The HSC Weak Lensing Workshop *Speaker* Given remotely, (Jun 14, 2020)
- The Low Surface Brightness Universe as seen by LSST
Invited speaker Given remotely, (Feb 6, 2020)
- Astronomy Seminar at SJTU/TDLI
Invited speaker Shanghai, China, (Jan 9, 2020)
- Special Astronomy Colloquium at Tsinghua University
Invited speaker Beijing, China, (Jan 3, 2020)
- Astronomy Seminar at Tsinghua University
Invited speaker Beijing, China, (Nov 19, 2019)
- Astronomy Colloquium at KIAA/PKU
Invited speaker Beijing, China, (Nov 14, 2019)

- Astronomy Colloquium at UMASS Amherst
Invited speaker Amherst, MA, (Oct, 2019)
- Galaxies & Cosmology Seminar
Invited speaker Cambridge, MA, (Mar, 2019)
- Santa Cruz Galaxy Workshop 2018
Speaker Santa Cruz, CA, (Aug, 2018)
- Collaboration Meeting of the Hyper Suprime-Cam Survey
Speaker Princeton, NJ, (May, 2018)
- CosmoClub at University of California, Santa Cruz
Speaker Santa Cruz, CA, (Apr, 2018)
- Astronomy Seminar at University of Kentucky
Invited speaker Lexington, KT, (Apr, 2018)
- Astronomy Journal Club at University of California, Los Angeles
Speaker Los Angeles, CA, (Feb, 2018)
- Lunch Talk at Princeton University
Speaker Princeton, NJ, (Nov, 2017)
- Astronomy Journal Club at New York University
Speaker New York, NY, (Nov, 2017)
- YCAA Seminar at Yale University
Invited Speaker New Haven, CT, (Oct, 2017)
- Cosmology Seminar Series at the University of California, Davis
Invited Speaker Davis, CA, (Oct, 2017)
- Lunch Talk at the Physics Department of UCSB
Speaker Santa Barbara, CA, (May, 2017)
- Quantifying and Understanding the Galaxy—Halo Connection
Presentation Santa Barbara, CA, (May, 2017)
- KITP Program: The Galaxy-Halo Connection Across Cosmic Time
Presentation Santa Barbara, CA, (May, 2017)
- The Galaxy-Halo Connection Across Cosmic Time
Presentation Santa Barbara, CA, (May, 2017)
- 229th Meeting of the American Astronomical Society
Invited speaker for the HSC special session Grapevine, TX, (Jan, 2017)
- Collaboration Meeting for MaNGA/SDSS-IV
“SpectralFitness” workshop Shanghai, China, (Nov, 2016)
- The Changing Faces of Galaxies
Presentation Hobart, Australia, (Sep, 2016)
- Collaboration Meeting of the Hyper Suprime-Cam Survey
Presentation Kashiwa, Japan, (Aug, 2016)
- Group Meeting talk for Lars Hernquist’s Group at CfA/Harvard University
Speaker Cambridge, MA, (Jun, 2016)
- Collaboration of the Chinese-Lijiang IFU
Speaker Shanghai, China (Feb, 2016)
- Lunch Talk at Kavli-IPMU, University of Tokyo
Speaker Kashiwa, Japan, (Feb, 2016)
- Collaboration Meeting of the Hyper Suprime-Cam Survey
Presentation Taipei, China/Taiwan, (Jan, 2016)
- Annual Meeting of the Chinese Astronomical Society
Presentation Beijing, China, (Oct, 2016)

- SDSS-IV Collaboration Meeting
Lighting Talk Madrid, Spain, (Jul, 2015)
- Collaboration Meeting of the Hyper Suprime-Cam Survey
Presentation Princeton, NJ, (Jul, 2015)
- The Stellar IMF at Low Masses
Poster Baltimore, MD, (Jun, 2015)
- Getting a Grip on Galactic Girths
Conference Summary Speaker Chiba, Japan (Feb, 2015)
- Lunch Talk at KIAA, Peking University
Invited Speaker Beijing, China, (Feb, 2015)
- Lunch Talk at KIAA, Peking University
Invited Speaker Beijing, China, (Sep, 2014)
- Colloquium at University of Science & Technology of China
Invited Speaker Hefei, China, (Sep, 2013)
- The Origin of the Hubble Sequence – 75 Anniversary Conference IAP
Presentation & Poster Paris, France, (Jun, 2013)
- Dissecting Galaxies with 2-D Wide-Field Spectroscopy
Presentation Li-Jiang, China (Mar, 2013)
- Lunch Talk at the Purple Mountain Observatory
Speaker Nanjing, China (Dec, 2012)
- Lunch Talk at the National Astronomical Observatories of China
Speaker Beijing, China (Nov, 2012)
- Lunch Talk at the Carnegie Observatories
Speaker Pasadena, CA (Sep, 2012)
- Science Day at the Carnegie Observatories
Speaker Pasadena, CA (Apr, 2012)
- 219th American Astronomical Society Meeting
Presentation Austin, TX (Jan, 2012)
- Lunch Talk of the Extragalactic Group at University of Arizona
Speaker Tuscon, AZ (Nov, 2011)
- Science Day at the Carnegie Observatories
Speaker Pasadena, CA (Oct, 2011)