# HUGH SHARP

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## EDUCATION

*2020 - present* | **University of Connecticut,** Storrs, CT
**PhD Student** in Physics
**Advisor:** Dr. Jonathan R. Trump

*2016 - 2020* | **University of Texas A&M**, College Station, TX
**B.S.** in Physics, **Minor** in Astrophysics
**Advisor:** Dr. Jonelle Walsh

## RESEARCH EXPERIENCE

*2020-present* | **Research on Accretion Disk Size Diversity**
Worked with Dr. Trump, Assitant Professor at the University of Connecticut
*Graduate*
In many recent studies, measurements of supermassive black hole (SMBH) accretion disk sizes been shown to be inconsistent to the foundational model used to describe SMBH accretion disks by Shakura & Sunyaev in 1973 (known as the SS73 model). I work to understand what physical properties influence accretion disk geometry from an observational approach, investigating large scale surveys representing diverse populations, and designing/implementing my own monitoring campaign through a 2020 LCO Key Project.

*2018-2020* | **Research on NGC 4203 Supermassive Black Hole Mass**
Worked with Dr. Walsh, Assitant Professor at Texas A&M
*Undergraduate*
Worked on analysing the stellar kinematics as a function of distance from NGC 4203's galactic center using the penalized pixel fitting method (pPXF). Monte Carlo simulations were performed to test the robustness of the kinematics and their associated statistical uncertainties, and the results will be used in stellar-dynamical techniques to constrain NGC 4203's supermassive black hole mass.

*2017* | **Research at Munnerlyn Astronomical Instrumentation Lab**
Worked with Dr. Marshall, Assistant Professor at Texas A&M
*Undergraduate*
Learned the basics of charge coupled device (CCD) detectors and put together a specification sheet of hundreds of CCD detectors on the market, to compare price points and features between models.
Worked on the traveling photometric calibration system (TCal) project at the lab. This system was designed so that the calibration between telescopes may be more consistent by using a common mobile instrument.

## AWARDS, FELLOWSHIPS, AND HONORS

*2020* | **Travel Grant**, provided by the Phillip and Doris Moses Ranch Fund.

## PRESENTATIONS

*2023* | **SDSS Annual Meeting**, Flatiron Institute, NY
"Investigation of Continuum Lag Dependence on Broad-Line Contamination and Quasar Properties" (poster)

*2021* | **SDSS 2021 Lightning Talk**, Online
"Exploring Accretion Disk Size Through Diverse Quasar Properties"

*2020* | **235$^{th}$ American Astronomical Society Meeting**, Honolulu, HI
"Stellar Kinematics of NGC 4203" (poster)

*2017* | **7$^{th}$ Texas Astronomy Undergraduate Symposium**, Rice University, TX
"Mobile Spectrophotometric Calibration Instrument TCal"

## OUTREACH

*2022* UCONN, Astro On Tap Presenter
*2016-2020* Texas A&M Physics Festival
*2016-2020* Discover Explore and Enjoy Physics (DEEP)
*2016-2020* Gameday Physics Outreach
*2016-2020* Chemistry Open House

## TEACHING EXPERIENCE

*2022-Present* | **BRIDGE Physics Instructor**
5-week summer program designed to uplift and prepare incoming engineering students from underrepresented backgrounds, as they begin their first semester of undergrad.

*2020-2022* | **PHYS 1201Q/1401/1501**, Teaching Assistant
Implenting studio based learning to promote interactive problem solving and study within algebra and calculus based physics.

## SELECT PROGRAMMING AND TECHNICAL SKILLS

- Exceedingly proficient programming in Python, including large scale data manipulation, web based data visualization, and various statistical analysis techniques.
- Proficient in extracting differential aperture photometry from reduced exposures.
- Experienced in the planning and implementation of photometric observational design over the course of 850 hrs of Las Cumbres Observatory (LCO) observing, and proposal writing for the LCO 2023B semester.
- Ability to work using JAVA, HTML, MatLab, IRAF.

## PUBLICATIONS

- Sharp, H. W., et al 2023, *The Sloan Digital Sky Survey Reverberation Mapping Project: Investigation of Continuum Lag Dependence on Broad-Line Contamination and Quasar Properties*

  **Co-Authorships:**

- Fries, L. B., et al 2022, *The SDSS-V Black Hole Mapper Reverberation Mapping Project: Unusual Broad-Line Variability in a Luminous Quasar*