# ANTONIO C. RODRIGUEZ

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## EDUCATION

**PH.D. IN ASTROPHYSICS, CALIFORNIA INSTITUTE OF TECHNOLOGY** 2020-

**B.S. IN PHYSICS, STANFORD UNIVERSITY** 2016-2020

Honors Thesis: *Youthful Exuberance of FU Ori Accretion Disks*
Advisors: Lynne A. Hillenbrand and Roger W. Romani

## RESEARCH EXPERIENCE

**CALTECH SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP (SURF)** 2019

Advisor: Lynne A. Hillenbrand. Created model spectral energy distributions and spectra for FU Ori-type young stellar objects using the suite of NextGen stellar atmospheres. Wrote a proposal for and acquired new optical spectroscopy to compare to models. Wrote a Markov Chain Monte Carlo Bayesian framework to test agreement between models and data. Publication in progress.

**STANFORD PHYSICS DEPARTMENT SUMMER RESEARCH PROGRAM** 2017 and 2018

2018 Advisor: Roger Blandford. Developed a computational toolkit to characterize and track stationary points of the cosmic microwave background. Collaborated with two other undergraduates as part of a larger project to make a low-resolution map of the Universe, and presented my work at an end-of-summer symposium.

2017 Advisor: Roger W. Romani. Improved and added new functionalities to a simulation of detection events by an upcoming space telescope, the Imaging X-Ray Polarimetry Explorer (IXPE). Extended the simulation to time-evolving, extended astrophysical sources, created interactive tools to develop models, and presented my work at an end-of-summer symposium.

## OBSERVING TIME

**PALOMAR OBSERVATORY, HALE 200-INCH TELESCOPE** 2019

PI: 1 night. Proposal: *Optical Spectroscopy of FU Ori Objects*. Instrument used: Double Spectrograph (DBSP).

## AWARDS

**JEFFREY ALAN WILLICK MEMORIAL AWARD, Stanford Physics Department** 2020

Outstanding member of the senior class concentrating in astrophysics.

**FORD FOUNDATION PREDOCTORAL FELLOWSHIP HONORABLE MENTION** 2020

## OUTREACH

**STANFORD ASTRONOMICAL SOCIETY, MEMBER** 2016-2020

**CO-PRESIDENT** 2017-2020

Participated in and led quarterly stargazing and informational sessions for the public. Led regular outreach events and directed expansion of events to underserved Bay Area elementary and middle schools. Helped manage a $10,000+ budget for telescopes, astrophotography, outreach activities, external collaborations, emergency fund, etc.

## TEACHING AND TUTORING

**STANFORD CENTER FOR TEACHING AND LEARNING MATH AND PHYSICS TUTOR** 2018-2020

**LEAD MATH AND PHYSICS TUTOR** 2019-2020

Stanford Office of the Vice Provost for Teaching and Learning

Peer tutor in introductory and intermediate physics and math courses, holding multiple drop-in sessions per week open to all Stanford students. Lead tutor responsibilities included hosting

biweekly meetings with other math/physics tutors to discuss effective tutoring strategies and continually improve our tutoring services.

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| PROFESSIONAL MEMBERSHIP | American Astronomical Society, Undergraduate Member | 2019- |
| | Stanford Physics Department Committee on Undergraduate Studies | 2019 - 2020 |

TECHNICAL SKILLS Python (Numpy, Scipy, Jupyter Notebook), Mathematica, Java, C++, R, LaTeX, Git, Unix/Linux, IRAF/PyRAF, SExtractor

PRESENTATIONS

[1] A. Rodriguez and L. Hillenbrand. Accretion Disk Modeling of FU Ori Stars. In *American Astronomical Society Meeting Abstracts*, American Astronomical Society Meeting Abstracts, page 308.13, Jan. 2020.

PUBLICATIONS

[1] (*in preparation*) A. C. Rodriguez, L. A. Hillenbrand, et al. New Observations and Modeling of FU Ori-type Objects HBC 722 and Gaia 17bpi (*tentative title*).

[2] (*in preparation*) L. A. Hillenbrand, ..., A. C. Rodriguez, et al. LkH$\alpha$ 225 (V1318 Cyg) South in Outburst (*tentative title*).