

# STEPHEN REVESZ

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## EDUCATION

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### Florida International University

Ph.D. in Physics - Quantum Optics (Advisor: Dr. Hebin Li) 2019 - Today

Research Topic: [MDCS Spectroscopy and 2D Materials \(Experimental Optics/Theory\)](#)

### Florida International University

B.Sc. in Physics w/ Minor in Astronomy (Advisor: Dr. James Webb) 2012 - 2018

Research Topic: [Optical Variability in Active Galactic Nuclei \(Observational/Semi-Theoretical\)](#), Southern Cross Astronomical Society Scholarship

## RESEARCH EXPERIENCE

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### Ultrafast Spectroscopy (Experimental Optics)

2019 - Present

*Graduate Researcher*

*Advisor: Dr. Hebin Li*

- Focus on studying the optical properties of quasi-particles (excitons) within two-dimensional transition metal dichalcogenides heterostructures through multi-dimensional coherent spectroscopy.

### Blazar Optical Variability (Observational Astrophysics)

2015 - 2019

*Undergraduate Researcher*

*Advisor: Dr. James Webb*

- Observed short-term ( $\Delta t \approx$  hourly) and long-term ( $\Delta t \approx$  monthly) optical variability of the sub-class of active galactic nuclei, blazars, for model fitting.

## TECHNICAL SKILLS

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### Observing

SARA-Kitt Peak (Optical, 0.9m, 5 nights)  
SARA-Cerro-Tellolo (Optical, 0.6m, 1 night),  
SARA-Roque de los Muchachos (Optical, 1m, 3 nights)  
Stocker AstroScience Center (Optical, 0.6m, > 80 nights)

### Programming

Python, Matlab, LabView, MiraPro, LaTeX, IDL, Java, HTML/CSS

## TEACHING

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### PHY2048L: Intro. Physics Laboratory 1 (Teaching Assistant)

Fall 2018 (3 sections), Summer 2019 (4 sections)

### PHY2049L: Intro. Physics Laboratory 2 (Teaching Assistant)

Spring 2019 (6 sections), Spring 2020 (2 sections), Summer 2020 (Sections 1)

### PHY2049: Physics 2 W/ Calculus (Learning Assistant)

Fall 2018 (1 section)

### PHY4605: Quantum Mechanics 2 (Learning Assistant)

Spring 2019 (1 section)

## PUBLICATIONS

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### Optical Two-Dimensional Coherent Spectroscopy of a Rubidium Atomic Vapor

Submitted to: TBD; Advisor: Dr. Hebin Li

## **Energetics and Region Size of a Minor Luminous Outburst in 2200+420 (BL Lac)**

Submitted to: Galaxies Magazine; Advisor: Dr. James Webb

## **FIU Ion Propulsion Engine (FIRE) Proposal with Modular Acceleration Grid**

Unsubmitted; Advisor: Dr. James Webb

## **CONFERENCES/TALKS**

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### **CLEO 2020: Compendium**

May 2020

Discussed a selection of 10 talks and the underlying physics behind them.

### **Optical Modulators with 2D Materials (OSA FIU Chapter)**

Feb. 2020

Summarized the technical properties of several optical modulators built from 2D materials such as graphene, black phosphorous, and transition metal dichalcogenides.

### **Fitting $D_1$ and $D_2$ Resonances in Rubidium One-Quantum Spectra**

Jan. 2020

Showcased two-dimensional frequency domain model fits to Rubidium and Potassium one-quantum spectra.

### **Valleytronics: A Short Introduction**

Feb. 2020

Discussed the theoretical foundations of valleytronics in terms of excitons within transition metal dichalcogenides.

### **FIU Exoplanet Transit Search**

Sep. 2019

Presented work on attempting observations of various transiting exoplanets with the Stocker AstroScience Center.

### **2016 FIU Undergraduate Research Conference**

Poster presentation on “Energetics and Region Size of a Minor Luminous Outburst in 2200+420”

### **2017 FIU Undergraduate Research Conference**

Poster presentation on “FIU Ion Propulsion Engine Proposal”

### **84th Annual Meeting of APS Southeastern Section**

Nov. 2017

Poster presentation on “FIU Ion Propulsion Engine Proposal”

### **“Hubble” Talk for Southern Cross Astronomical Society**

Dec. 2016

Held a lecture seminar on the history of the Hubble Space Telescope detailing its past and current discoveries, including its turbulent history in the beginning.

## **OUTREACH**

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### **President - Astronomy Club at FIU**

2017 - 2018

- Lead the executive board towards a club that focused on outreach and collaboration between a variety of clubs to promote science communication. Focused on our weekly public nights at the observatory called Saturday Night Stargazing, summer camps to inspire the future generation of scientists, and several other outreach initiatives.

### **$\Sigma\Pi\Sigma$ Physics Honors Society & Society of Physics Students**

2018

- Inducted for my work at the Stocker AstroScience Center as observational astronomer and on independent research into building an ion propulsion engine.

### **Saturday Night Stargazing**

2016 - 2019

- Hosted a weekly public stargazing event at the Stocker AstroScience Center where I would setup telescopes and give tours of the observatory.

### **STEM Summer Camps**

2016 - 2018

- Organized summer camp excursions for middle school students with the Society of Physics Students and Sigma Pi Sigma Physics Honors Society to showcase fun and interesting physics demonstrations. Tours of the observatory, various hands-on experiments for the kids like nitrogen ice cream, and solar telescopes are a small example of demonstrations used to inspire the younger generation.

### **Telescope Training Workshop**

2016 - 2018

- Once per semester I hold a workshop to instruct students on how to operate the observatory at the Stocker AstroScience Center and give them a run down on the image reduction processes. The night starts with shadowing the students as they setup the Celestron 11" telescopes. The students are then instructed as to the procedures for controlling the observatory, all the necessary calibration images required for any observations, and any troubleshooting that could be encountered through the night. The goal of the workshop is to inspire students to take on the role of student observational astronomers for the facility.