

# Patrick James Ross

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## Education

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### Master of Science: Physics University of Toledo

- Graduated: 2018
- Concentration in Astronomy

### Bachelor of Science: Physics University of Michigan–Flint

- Graduated: 2015
- Minor: Mathematics
- Member of Honors College

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## Professional Experience

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### Planetarium Manager and Instructor

- Texas A&M University-Commerce                      2018 – Present
- Courses Taught:        IS 352 Science Inquiry II-Chemistry

### Planetarium Presenter

- Ritter Planetarium                                      2017 – 2018
- Sloan\*Longway Planetarium                      2015 – 2016

### Teaching Assistant

- University of Toledo                                      2016 – 2017
- University of Michigan–Flint                      2013 – 2016

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## Skills

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### Software

Python   Blender                      R  
GIMP     Linux based systems   C++  
L<sup>A</sup>T<sub>E</sub>X   Microsoft Office        Windows OS

### Planetarium Software

Digistar 5   SciDome 7   Digitalis Nightshade

### Telescopes

Schmidt-Cassagrain   Reflector   Refractor

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## Research Experience

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### University of Toledo

- Galaxy Evolution                                      2016 – Present

Used Hubble Legacy Data to calculate surface brightness profiles (SBP) on star clusters in the Triangulum Galaxy. The project aims to investigate the evolution of the Triangulum Galaxy through properties of the SBPs.

### University of Michigan–Flint

- Quasars    2014 – 2016

Identified quasars found in the Sloan Digital Sky Survey using spectral classification. Looked for common properties across different variations of quasars. Wrote code to model the material ejected from the accretion disk and compare to physical observations.

## University of Michigan–Flint

– General Relativity 2014 – 2016

Investigated possible stable orbits between two black holes using the geodesics of a modified Schwarzschild metric. Used Python to numerically solve the geodesics and simulate semi-stable orbits. Properties of the orbit were extracted from the simulations and compared to mathematical predictions.

## Volunteer Experience

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### University of Michigan–Flint

– AstroNite 2012 – 2018

Volunteered at biannual family oriented, open house-style astronomy public outreach program.

– Super Science Friday 2012 – 2016

Volunteered at annual event designed to provide middle school students supplemental science lessons.

– Society of Physics Students 2012 – 2015

Held position of Vice President and Demo Coordinator. Organized and directed visitations and demos for local schools. Project lead and designer of a "Mars Rover" for the University's AstroNite.

## Bergischen Universität Wuppertal, Germany

– Particle Physics 2014, 2015

Studied two summers in Germany measuring the quantum efficiency of photo-multiplier tubes (PMTs) for an upcoming particle accelerator.

### Science Fair Judge

– University of Toledo 2018

Judged science projects for middle schools students for a special physics award.