

# Alexandra N. Higley

Curriculum Vitae

November 2021

University of Wyoming

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## Education

Regis Jesuit High School (Aurora, Colorado)

August 2013 - May 2017

University of Wyoming (Laramie, Wyoming)

August 2017 - May 2022

Standing:	Senior Undergraduate
Upper-Divisional GPA <sup>1</sup> :	3.806
Cumulative GPA:	3.525
Academic Advisor:	Dr. Adam D. Myers
Research Advisor:	Dr. Adam D. Myers

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## Publications

Lyke B.W., **Higley A.N.**, McLane J.N., Schurhammer D.P., Myers A.D., Ross A.J., Dawson K., Chabanier S., Martini P., Busca N.G., du Mas des Bourboux H., Salvato M., Streblyanska A., Zarrouk P., Burtin E. & 22 members of the SDSS-IV collaboration, 2020, [The Sloan Digital Sky Survey Quasar Catalog: Sixteenth Data Release](#), *The Astrophysical Journal Supplement*, 250, 8

Ross A.J., Bautista J., Tojeiro R. & 53 members of the SDSS-IV collaboration, 2020, [The Completed SDSS-IV extended Baryon Oscillation Spectroscopic Survey: Large-scale structure catalogues for cosmological analysis](#), *Monthly Notices of the Royal Astronomical Society*, 498, 2354

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## Scientific Poster Presentations

### Applied Superconductivity Conference, Denver, September 2016

Higley A.N., Li A., Klebe D., 2016, *Superconductors!*

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<sup>1</sup> Junior and Senior level Physics and Astronomy courses

### **Four Corners American Physical Society (APS), October 2018**

Higley A.N., Lyke B.W., Schurhammer D.P., Myers A.D., 2019, *Improving Automated Spectral Classifications Through Visual Inspections of Outliers*

### **American Astronomical Society, January 2019**

Higley A.N., Lyke B.W., Schurhammer D.P., Myers A.D., 2019, [\*Luminous eBOSS Quasars Missing from Visually Inspected SDSS Catalogs\*](#)

### **APS April Meeting, Denver CO, April 2019**

Higley A.N., Lyke B.W., McLane, J.N., Schurhammer D.P., Myers A.D., 2019, [\*Visual Inspection and Statistical Analysis of eBOSS Quasar Spectra\*](#)

### **University of Wyoming Undergraduate Research Day, May 2019**

Higley A.N., Lyke B.W., McLane, J.N., Schurhammer D.P., Myers A.D., 2019, *Visual Inspection and Statistical Analysis of eBOSS Quasar Spectra*

### **American Astronomical Society, January 2020**

Higley A.N., Lyke B.W., Myers A.D., Schurhammer D.P., McLane, J.N., Ross, A., Chabanier, S., Streblyanska, A., Zarrouk, P., 2020, [\*The Sloan Digital Sky Survey Quasar Catalog Sixteenth Data Release\*](#)

### **West Virginia Undergraduate Research Day, July 2021**

Higley A.N., Roch S.R., McLaughlin M.A., Bagchi, M., 2021, *The Effect of Observatory Localization in Pulsar Timing Searches for Gravitational Waves*

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## **Oral Presentations**

### **PSC Capstone, July 2021**

Higley A.N., Roch S.R., McLaughlin M.A., Bagchi, M., 2021, *The Effect of Observatory Localization in Pulsar Timing Searches for Gravitational Waves*

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## **Awards and Honors**

Wyoming NASA Space Grant

2018

Wyoming Research Scholars Program Grant (WRSP)

2019, 2020, 2021<sup>2</sup>

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<sup>2</sup> WRSP is an ongoing funding that will end once I graduate from UWYO in May, 2022

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## Employment

Denver Museum of Nature and Science

May 2016 – December 2016

**Teen Science Scholar**

University of Wyoming

January 2018 – present

**Undergraduate Researcher**

West Virginia University

May 2021 – July 2021

**IRES Student**

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## Projects

### **Sloan Digital Sky Survey DR16Q**

With Dr. Adam Myers, Eleanor B. Lyke and others, I constructed the quasar catalog for Data Release 16 of the Sloan Digital Sky Survey (SDSS DR16Q). My job entailed visual inspection of quasar spectra and computational projects for data interpretation that helped me to familiarize myself with .fits files, python, statistics and linux operating systems.

### **High Redshift Type II Quasars**

Using DR16Q data, I programmed a narrow-line finder for quasar spectra to look for narrow emission features in high-redshift quasars. Narrow features are indicative of type II quasars, and I wanted to find rare, high-z type II quasars using my program. This project did not reach completion due to COVID.

### **Observatory Localization in Pulsar Timing Searches for Gravitational Waves**

With the NANOGrav collaboration and my fellow IRES awardee, I created a program that used pulsar timing software TEMPO2 to incrementally move the observatory position and simulate data at the simulated location. This was done to see if a positional error in the observatory location would create noise that might mimic a gravitational wave signature in the pulsar timing array. Our results are promising and we plan on writing a paper. It should also be noted that the IRES (International Research Experience for Students) was supposed to

take place in India the summer of 2020. It was postponed to the summer of 2021 due to COVID and then later modified so that I could instead work with REU students at WVU.

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## Outreach

Wyoming Road Show February 2020 - March 2020

*We traveled to schools around Wyoming for outreach and to present on research. This endeavor was interrupted by the COVID pandemic.*

Upperclassmen Q&A (various instances from 2018 - 2021)

*I was often chosen to speak to prospective students. Additionally, we held a Q&A between freshmen and upperclassmen in which I participated.*

PSC Capstone July 2021

*During the final week of my IRES experience at WVU, high school students who were part of the PSC (Pulsar Search Collaboratory) Capstone flew out to visit us. We presented our research and discussed our experiences as astrophysics majors.*

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## Additional Links

My github: <https://github.com/alexhigley>

*I track some of my work for research projects and homework assignments on Git.*