

# Kathryn F. Neugent

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## ■ Education

**University of Washington**, Seattle, Washington, *2017 - 2021*

Ph.D. and M.S. Degrees in Astronomy

Thesis: “The Binary Fraction of Red Supergiants”

Advisor: Dr. Emily Levesque

**Northern Arizona University**, Flagstaff, Arizona, *2015 - 2017*

M.S. Degree in Applied Physics with Distinction

Thesis: “The Discovery and Analysis of a New Type of Wolf-Rayet Star”

Advisor: Dr. Philip Massey

**George Washington University**, Washington D. C., *2010 - 2012*

M.S. Degree in Computer Science

**Wellesley College**, Wellesley, Massachusetts, *2006 - 2010*

B.A. Degrees in Computer Science and Astronomy

## ■ Research

**Dunlap Postdoctoral Fellow**, Dunlap Institute, University of Toronto, *2021 - 2024*

**Research Associate**, Lowell Observatory, *2009 - present*

Research massive stars in the Local Group with Dr. Philip Massey.

**MANOS Team Member**, Lowell Observatory, *2014 - 2015*

Created an image reduction pipeline for the Mission Accessible Near-Earth Object Survey (MANOS) data with Dr. Nick Moskovitz.

**Astronomy Research Student**, Wellesley College, *2009*

Studied the azimuthal brightness variations in Saturn’s rings with Dr. Richard French.

**MIT / Wellesley Field Camp Participant**, Lowell Observatory, *2008*

Characterized a Xenix CCD with Dr. Henry Roe.

**Astronomy Research Student**, Wellesley College, *2007 - 2008*

Determined rotation periods of Koronis family asteroids with Dr. Steve Slivan.

## ■ Work

**Senior Web Security Specialist**, National Renewable Energy Lab, *2014 - 2015*

Assessed the vulnerability of web applications. Managed the web application firewall. Conducted site-wide phishing exercises. Participated in incident response events.

**Cyber Security Engineer**, MITRE Corporation, *2012 - 2013*

Assessed the vulnerability of government systems, specifically web applications. Formulated and executed test plans for open source software.

## ■ Teaching

**Graduate Teaching Assistant**, University of Washington, *2020*

**Graduate Teaching Assistant**, Northern Arizona University, *2015 - 2016*

**Whitin Observatory Teaching Assistant**, Wellesley College, *2006 - 2009*

**Computer Science Teaching Assistant**, Wellesley College, *2008*

## ■ Leadership and Outreach

**Research advisor**

- Tzvetelina Dimitrova, UW undergraduate *2019 - Present*
- Pre-MAP (Majors in Astronomy & Physics): two UW first-year undergrads *Fall 2020*

**Skype a Scientist** *2020 - Present*

**Letter to a Pre-Scientist Pen Pal** *2020 - Present*

**Apache Point Observatory Telescope Allocation Committee** *2018 - 2020*

**UW Planetarium Presenter** *2017 - 2020*

**Referee for A&A, ApJ, AJ, and MNRAS**

## ■ Conference Presentations

**Invited Talks (5)**

May 2022 (postponed due to COVID): **The Binary Fraction of Red Supergiants**, IAUS #361: “Massive Stars Near and Far” in Ballyconnell, Ireland

June 2021: **Observational Constraints on the Red Supergiants Binary Fraction and Merger Rate**, AAS #238: Special Session on TZOs

November 2020 (postponed due to COVID): **Wolf-Rayet Populations**, “The Wolf-Rayet Phenomenon in the Universe” in Morelia, Mexico

November 2018: **Surveys and Populations of Wolf-Rayet Stars**, “NidiaFest” in Bariloche, Argentina

June 2017: **A new type of Wolf-Rayet star: A possible progenitor to Type Ic-BL supernovae and long duration GRBs**, European Week of Astronomy and Space Science (EWASS) Conference in Prague, Czech Republic.

**Contributed Talks (8)**

June 2021: **Red Supergiant Interactions with Companions**, GAPS 2021 – unsolved problems in red Giants And suPergiantS

May 2021: **The Binary Fraction of Red Supergiants**, IAUS #361: “Massive Stars Near and Far” Virtual Preview Meeting

January 2021: **The Binary Fraction of Red Supergiants**, AAS, Dissertation Talk

July 2020: **The Binary Fraction of Red Supergiants**, MOBSTER-1 Virtual Conference

May 2019: **Binary Red Supergiants: A New Method for Detecting B-type Companions**, MMT's 40th Anniversary Conference in Tucson, Arizona

November 2016: **The Evolutionary Status of WN3/O3 Wolf-Rayet Stars**, IAUS #329: "The lives and death-throes of massive stars" in Auckland, New Zealand

July 2015: **The Discovery and Physical Parameterization of a New Type of Wolf-Rayet Star**, "The International Workshop on WRs" in Potsdam, Germany

June 2013: **The Wolf-Rayet Content of Local Group Galaxies**, "Massive Stars: From  $\alpha$  to  $\Omega$ " in Rhodes, Greece

### Posters (6)

January 2019: **Binary Red Supergiants: A New Method for Detecting B-type Companions**, AAS Meeting #233

January 2018: **A Runaway Yellow Supergiant Star in the Small Magellanic Cloud**, AAS Meeting #231

June 2016 **WN3/O3 Wolf-Rayet Stars; Examples of Homogeneous Evolution?**, "Bridging the gap: from massive stars to supernovae" at Chicheley Hall, England

June 2014: **The Close Binary Frequency of Wolf-Rayet Stars as a Function of Metallicity in M31 and M33**, IAU #307: "New windows on massive stars: asteroseismology, interferometry, and spectropolarimetry" in Geneva, Switzerland. (poster)

May 2011: **Wolf-Rayet Stars in the Local Group**, AAS Meeting #218

January 2010: **Determining the Physical Parameters of Massive Stars in the SMC and LMC**, AAS Meeting #215

### ■ Talks & Colloquia

March 2021: **The Binary Fraction of Red Supergiants**, Denver University Colloquium

March 2021: **The Binary Fraction of Red Supergiants**, NOIRLab / Steward Colloquium

March 2021: **The Binary Fraction of Red Supergiants**, University of Auckland Astronomy Seminar

December 2020: **The Binary Fraction of Red Supergiants**, OSU's CCAPP Seminar

November 2020: **The Binary Fraction of Red Supergiants**, CalTech Tea Talk

September 2020: **The Binary Fraction of Red Supergiants**, Harvard / CfA's Galaxies & Cosmology Seminar

September 2020: **The Binary Fraction of Red Supergiants**, Florida Tech colloquium

June 2020: **Wolf-Rayet Stars: Hot, Massive and Luminous!**, Lowell Observatory’s “Meet An Astronomer” Live YouTube series

April 2020: **Binary Red Supergiants**, Lowell Observatory’s “Meet An Astronomer” Live YouTube series

October 2019: **The Extragalactic Runaway Yellow Supergiant That Wasn’t (but was something even better)**, Seattle’s Astronomy on Tap

April 2019: **Why it is difficult to be an observational astronomer in Seattle**, UW’s Theodor Jacobson Observatory

July 2018: **Wolf-Rayet Stars in the Local Group Galaxies**, Geneva University, Switzerland colloquium

October 2016: **Wolf-Rayet Stars in the Local Group Galaxies**, Colorado University: Boulder lunch colloquium

October 2016: **Wolf-Rayet Stars in the Local Group Galaxies**, University of Washington lunch colloquium

### ■ Telescope Time as PI\*/co-I

Telescope	Instrument	# Nights
Gemini 8m*	GMOS	8.5
MMT 6.5m*	Hectospec	18
Magellan (Clay and Baade) 6.5m	IMACS, MagE, FIRE	20
Lowell Discovery Telescope 4.3m*	LMI, EXPRES	14
Apache Point 3.5m*	DIS	1.5
Kitt Peak 2.1m	Gold Spectrograph	5
Swope 1m	CCD	45

### ■ Funding

2020 - HST Cycle 28 COS - 2 orbits, **The Nature of a Newly Discovered Wolf-Rayet Binary: Archetype of Stripping?** (Co-I)

2018 - Sigma Xi Grants-in-Aid of Research

2017 - ADAP, **The Fundamental Physical Properties of Wolf-Rayet Stars** (Co-I)

2016 - AAS International Travel grant

2014 - HST Cycle 22 COS and STIS - 9 orbits, **WO-Type Wolf-Rayet Stars: the Last Hurrah of the Most Massive Stars?** (Co-I)

2014 - HST Cycle 22 COS - 6 orbits, **The Nature of Newly Discovered Wolf-Rayet Stars in the LMC** (Co-I)