Kenny X. **Van**

8320 148 Ave, Edmonton, AB, Canada

(+780)885-5022 | kvan@ualberta.ca | kvan1231.github.io/ | kvan1231 | https://www.linkedin.com/in/kvan1231

Research Interests

stellar astrophysics, stellar multiplicity, high energy astrophysics, stellar populations, hydrodynamics, numerical methods

Education & Employment

2017 – Present — PhD Candidate in Physics
University of Alberta, Edmonton
Major: Astrophysics
Thesis: "Binary Evolution and Magnetic Braking"
Advisor: Prof. Natalia Ivanova

2015 – 2017 — Master of Science in Physics
University of Alberta, Edmonton
Major: Astrophysics
Thesis: "Select Topics in Mass Transfer and Magnetic Braking"
Advisor: Prof. Natalia Ivanova

2010 – 2015 — Undergraduate Degree in Physics
University of Alberta, Edmonton
Major: Astrophysics

Research

Sept 2017 - Present — The Effect of Magnetic Braking on Low Mass X-Ray Binaries
Graduate research
University of Alberta
Supervised by Prof. Natalia Ivanova

Sept 2015 - Aug 2017 — Select Topics in Mass Transfer and Magnetic Braking
Graduate research
University of Alberta
Supervised by Prof. Natalia Ivanova

Fall 2014 — Black Hole Binaries in Globular Clusters
Undergraduate research project
University of Alberta
Supervised by Prof. Natalia Ivanova

Winter 2013 — Finding a Pattern in the Outbursts of SS Cygni
Undergraduate research project
University of Alberta
Supervised by Prof. Gregory Sivakoff

Awards

Fall 2018 — Queen Elizabeth II Scholarship (Doctoral Level, $7500)

Summer 2016 — FGSR Graduate Travel (Master's Level, $1500)

Teaching Experience

Sept 2019 – Dec 2019	Teaching assistant for graduate stellar astrophysics course Marker for graduate computational physics course University of Alberta
Jan 2019 – Mar 2019	Marker for undergraduate astronomy course University of Alberta
Sept 2018 – Dec 2018	Teaching assistant for graduate stellar astrophysics course University of Alberta
Jan 2018 – Mar 2018	Marker for undergraduate astronomy course University of Alberta
Sept 2017 – Dec 2017	Teaching assistant for graduate stellar astrophysics course University of Alberta
Jan 2017 – Mar 2017	Volunteer at the University of Alberta observatory University of Alberta
Sept 2016 – Dec 2016	Teaching assistant for graduate stellar astrophysics course University of Alberta
Sept 2015 – Apr 2016	Teaching assistant for second year physics lab University of Alberta

Proposals

2019 "Resources for Research Groups Competition", Compute Canada
Awarded 314 CPU core years and 6 GPU core years

Publications

Nov 2019
ACCEPTED
Evolving LMXBs: CARB Magnetic Braking
Van, K. X., Ivanova, N.
Astrophysical Journal Letters
Summary: We derive and introduce a new magnetic braking scheme which can effectively reproduce a sample of well studied observed LMXBs.

Dec 2018
Low Mass X-ray Binaries: The Effects of Magnetic Braking Prescription
Van, K. X., Ivanova, N., Heinke, C. O.
Monthly Notices of the Royal Astronomical Society
Summary: A study of the most commonly used magnetic braking prescription and how effectively this prescription can reproduce observed LMXBs. We definitively show that the most commonly used prescription fails to reproduce observed systems and should not be used.

July 2017 Formation of Black Hole X-Ray Binaries With Non-Degenerate Donors in Globular Clusters
Ivanova, N.; da Rocha. C.A.; ***Van, K. X.***; Nandez, J.L.A
Astrophysical Journal Letters
Summary: Presented an alternative method in producing black hole X-ray binaries where a black hole captures a subgiant donor and strips a significant amount of mass off the donor.

Feb 2017 Stability of mass transfer from massive giants: double black-hole binary formation and ultra-luminous X-ray sources
Pavlovskii, K.; Ivanova, N.; Belczynski, K.; ***Van, K. X.***
Monthly Notices of the Royal Astronomical Society
Summary: Showed that there is a range where mass transfer from massive giants onto a black hole is stable. This significantly reduced the simulated BH-BH binary formation rate to fall in line with LIGO observations.

Presentations and Talks

June 2019 "Inverse Population Synthesis: Searching for the Origins"
16 June 2019 - 20 June 2019, Montreal, Canada, poster

May 2018 "Low Mass X-ray Binaries: Population at Roche Lobe Overflow"
22 May 2018 - 26 May 2018, Victoria, Canada, poster

May 2017 "Low Mass X-ray Binaries: Population at Roche Lobe Overflow"
30 May 2017 - 1 June 2017, Edmonton, Canada, poster

March 2017 "Stability of Mass Transfer from Massive Giants"
20 March 2017 - 24 March 2017 Santa Barbara, USA, poster

Sept 2016 "Population Study of LMXBs Using Standard Magnetic Braking in MESA"
23 Sept 2016, Edmonton, Canada, talk

July 2016 "Stability of Mass Transfer from Massive Giants"
24 July 2016 - 30 July 2016, Cambridge, England, poster presentation

Conferences and Workshops

June 2019 CASCA (Montreal, Canada)

May 2019 Westgrid Summer School (Calgary, Canada)

Aug 2018 MESA Summer School - TA (Santa Barbara, USA)

May 2018 CASCA (Victoria, Canada)

May 2017 CASCA (Edmonton, Canada)

March - May 2017 The Mysteries and Inner Workings of Massive Stars (Santa Barbara, USA)

July 2016 Binary Stars in Cambridge (Cambridge, England)

Professional Service

2018 - Present Graduate representative of Canadian Astronomical Society (CASCA)

2017 - Present Seminar and astro journal club organizer for UAlberta astronomy group

Outreach

Oct 2019 Judge for NASA/CSA Space Apps Challenge
Edmonton, Canada