

Akanksha Bij

PHD CANDIDATE · QUEEN'S UNIVERSITY

[akanksha-24](#) | [akankshabij](#)

Education

Queen's University

PHD PHYSICS AND ASTRONOMY

Kingston, Canada

Sep 2022 - Present

Queen's University

MSc PHYSICS AND ASTRONOMY

Kingston, Canada

Sep 2020 - Aug 2022

University of Toronto

B.ASc ELECTRICAL ENGINEERING

Toronto, Canada

Sep 2011 - Jun 2017

Research Experience

Queen's University

MSc THESIS

Kingston, Canada

Sept 2020 - Present

- Star formation, interstellar medium, magnetic fields
- Investigating the magnetic field morphology in high-mass star-forming filaments using infrared and sub-mm observations
- Supervised by Prof. Laura Fissel

University of Toronto - Canadian Institute for Theoretical Astrophysics

RESEARCH ASSISTANT

Toronto, Canada

Nov 2018 - Aug 2020

- Radio astronomy, compact objects, pulsar emission physics
- Using properties of giant pulse emission from the Crab pulsar to measure the Lorentz factor of relativistically moving plasma
- Co-supervised by Prof. Ue-Li Pen and Prof. Marten van Kerkwijk

Publications

FIRST AUTHOR

- Akanksha Bij et al. 2021 "Kinematics of Crab Giant Pulses". ApJ, 920, 38. [doi:10.3847/1538-4357/ac1589](https://doi.org/10.3847/1538-4357/ac1589)

CONTRIBUTING AUTHOR

- Lars Bonne et al. 2022 "The SOFIA FEEDBACK Legacy Survey Dynamics and Mass Ejection in the Bipolar H II Region RCW 36" ApJ, 935, 171. [doi:10.3847/1538-4357/ac8052](https://doi.org/10.3847/1538-4357/ac8052)
- Tomas Cassanelli et al. 2021 "Localizing FRBs through VLBI with the Algonquin Radio Observatory 10-mTelescope". AJ, 163, 65 [doi:10.3847/1538-3881/ac3d2f](https://doi.org/10.3847/1538-3881/ac3d2f)
- CHIME/FRB Collaboration et al. 2020 "A bright millisecond-duration radio burst from a Galactic magnetar" Nature, 587, 54. [doi:10.1038/s41586-020-2863-y](https://doi.org/10.1038/s41586-020-2863-y)

IN PREPARATION

- Akanksha Bij et al. 2021 "A Multi-Scale, Multi-Tracer Analysis of the Magnetic Field Morphology of High-Mass Star-forming Filament in Vela C"

Honors & Awards

DOMESTIC

2023-24 **Ontario Graduate Scholarship (OGS)**, \$15,000 for one year

Queen's University

Successful PI Proposals

Atacama Large Millimeter Array (ALMA)

CYCLE 8 - 12M (BAND 4)

39.8 hours

2021.1.01365.S

An ALMA Detailed Polarization Survey of Magnetic Fields within Filaments in a Magnetized Giant Molecular Cloud

James Clerk Maxwell Telescope (JCMT)

21A - SCUBA-2 + POL-2 (BAND 2)

9.21 hours

E21AC010

Testing High Mass Star Formation Models with POL-2 Magnetic Field Maps of G11.92-0.61

Conference Presentations and Posters

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| Canadian Astronomical Society (CASCA) 2023 AGM University of British Columbia SURVEYING ATOMIC GAS IN NEARBY GALAXIES WITH CHORD Contributed Talk | Penticton, BC June 2023 |
| Canadian Astronomical Society (CASCA) 2022 AGM University of Waterloo THE INTERPLAY BETWEEN THE MAGNETIC FIELD AND STELLAR FEEDBACK IN HIGH-MASS STAR-FORMING REGION RCW 36 Contributed Talk | Virtual Meeting May 2022 |
| SOFIA FEEDBACK Consortium Meeting THE INTERPLAY BETWEEN THE MAGNETIC FIELD AND STELLAR FEEDBACK IN HIGH-MASS STAR-FORMING REGION RCW 36 Contributed Talk | Virtual Meeting May 2022 |
| 16th Marcel Grossmann Meeting MG16 KINEMATICS OF CRAB GIANT PULSES Contributed Talk [Recording at 15:30] | Virtual Meeting July 2021 |
| SOFIA Science Series: Magnetic Fields Workshop MAGNETIC FIELD MORPHOLOGY IN HIGH-MASS STAR FORMING FILAMENTS Contributed Talk [Recording] | Virtual Meeting June 2021 |
| Canadian Astronomical Society (CASCA) 2021 AGM MAGNETIC FIELD MORPHOLOGY IN HIGH-MASS STAR FORMING FILAMENTS Poster | Virtual Meeting May 2021 |
| Scintillometry Workshop Max-Planck-Institut für Radioastronomie UPWARD DRIFT IN CRAB GIANT PULSES Contributed Talk | Bonn, Germany Nov 2019 |

Teaching Experience

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| PHYS242 - Relativity and Quanta TEACHING ASSISTANT Leading weekly tutorials, answering questions about course material, grading (120 hours/term) | Queen's University Fall 2021 and 2022 |
| APSC112 - Physics II Electricity and Magnetism TEACHING ASSISTANT Leading weekly tutorials, answering questions about course material, grading (120 hours) | Queen's University Winter 2021 |
| APSC111 - Physics I Classical Mechanics TEACHING ASSISTANT Leading weekly tutorials, answering questions about course material, grading (60 hours) | Queen's University Fall 2020 |
| ASTR102 - Astronomy II: Stars, Galaxies and the Universe TEACHING ASSISTANT Grading, answering questions about course material (60 hours) | Queen's University Fall 2020 |

Outreach and Volunteer Experience

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| Queen's Observatory OBSERVATORY COORDINATOR <ul style="list-style-type: none"> Leading and directing all astronomy outreach activity at Queen's university Initiatives include monthly open houses, school tours, science rendezvous, and podcasts | Queen's University Sept 2022-Present |
| Science Rendezvous VOLUNTEER | Queen's University May 2022 and 2023 |
| Global News MEDIA EXPERT Morning Show Interview | Kingston April 2022 |
| Innovation Diversity Exploration and Advancement (IDEAS Initiative) in STEM CO-DIRECTOR, EXECUTIVE TEAM <ul style="list-style-type: none"> Organizing week-long physics summer camp for students grade 6-8, promoting STEM research among youth minority groups | Winter 2023 - Fall 2023 |
| Graduate Physics Society VICE-PRESIDENT AND TEACHING AND OUTREACH REPRESENTATIVE | Queen's University 2022-2023 |

Astronomy on Tap Kingston

INVITED OUTREACH TALK

"Will it End in Fire or Ice?" [\[Recording at 42:56\]](#)

Arthur B. McDonald Institute

May 20 2021

The Queen's Observatory

VOLUNTEER

- Featured interview on 'Fast Radio Bursts' podcast titled [E02: Crab Pulsar](#)
- Leading virtual planetarium classroom visits (Grades 3-7) using Stellarium (6 hours)

Queen's University

Sept 2020-Aug 2022

Let's Talk Science

VOLUNTEER

- Leading virtual classroom visits activities (4 hours)
- Adapting classroom activity kits (3 hours)
- Organizing and Leading 'GoEngGirl' Python coding workshop for students (Grades 6-8) (5 hours)

Queen's University

Sept 2020-Present

Astronomy on Tap - Toronto

VOLUNTEER

University of Toronto

2019

AstroTours

VOLUNTEER

University of Toronto

2019

Frontier College

VOLUNTEER

St. George, Toronto

2019

Professional Experience

Xpert IT Solutions

SOFTWARE DEVELOPER

- Front-end web and mobile application development as well as back-end database management

Brampton, Canada

Jun 2017 - Nov 2018

Synopsys Inc. (Solution IP Group)

TECHNICAL INTERN

- Timing analysis for mixed signal analog and digital integrated circuits

Markham, Canada

May 2015 - Aug 2016

University of Toronto - Department of Geography

OFFICE ASSISTANT

- Administrative assistant for Prof. Rachel Silvey

Toronto, Canada

Sep 2012 - Dec 2012