

Patrick Armstrong

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EDUCATION

Doctor of Philosophy (Astronomy & Astrophysics)

February 2020 – Present

Australian National University

Bachelor of Science (Adv.) (Hon.)

February 2016 – October 2019

Australian National University

EXPERIENCE

DES Builder

July 2023 – Present

Dark Energy Survey

- Develop & maintain the Pippin pipeline
- Internal review of DES papers
- Organise & host meetings

MSATT Student Mentor

February 2020 – Present

MSATT

- Provide guidance and mentorship for highschool students completing astronomical projects

Astronomical Tutor

July 2019 – October 2022

Australian National University

- Sole tutor for *Galaxies and Cosmology (ASTR3002)*

Student Seminar Planning Committee Member

February 2021 – October 2022

Australian National University

- [2022]: Senior planning committee member
- [2021]: Planning committee member

Mt. Stromlo Outreach Officer

January 2018 – December 2022

Australian National University

- Deliver high quality outreach experience for school groups and families

Astronomical Consultant

October 2018 – December 2020

- [2020] Research for Questacon's *Australia in Space* exhibition
- [2019] Research for Penguin Random House's *Stargazer* publication
- [2018] Research and preparation for ABC's Stargazing Live 2018
- [2018] Building backend code and moderation for the Skymapper Citizen Science Project: Supernova Sighting

Questacon Staff

January 2015 – December 2020

Questacon

- [2019 – 2020] Learning Programs Presenter (APS 4)
- [2016 – 2019] Questacon Assistant (APS 2)
- [2015 – 2019] Gallery Assistant (APS 1)

AWARDS & SCHOLARSHIPS

Alex Rodgers Travelling Scholarship

ANU College of Science

2022

- Travel to DES Collaboration Meeting 2022

Commendation for Excellence in Tutoring or Demonstrating

ANU College of Science

2022

- Tutoring *Galaxies and Cosmology (ASTR3002)*

Australian Government Research Training Program

Australian National University

2020 – Present

- PhD Scholarship

RSAA Supplementary Scholarship

Australian National University

2020 – Present

- PhD Scholarship

ANU Science, Health, and Medicine Honours Scholarship

Australian National University

2019

- Honours Scholarship

ANU Summer Research Scholarship

Australian National University

2016

- Develop a TNS Bulk Report API for the SkyMapper Transient Survey

Boyapti Computer Science and Mathematics prize for first year

Australian National University

2016

- Top grades in mathematics and computing

CONFERENCE

DES Collaboration Meeting

2020, 2021, 2022, 2023

Invited Speaker

DES 5 year supernova analysis

ASA Annual Science Meeting

2020, 2021, 2022, 2023

Speaker

DES 5 year supernova analysis

Kepler K2 Extragalactic Data Analysis Meeting

2018

Attendee

Investigating transients in Kepler's K2 survey

COMMUNICATION

SN2017jgh: a high-cadence complete shock cooling light curve of a SN IIb with the Kepler telescope

2021

Over 180 items in print, radio, and online, across Australia and internationally

- **Highlights:**
- Al Jazeera
- National Geographic Indonesia
- Radio Canada
- De Morgen
- ABC Science online
- The Guardian
- Space Australia
- Sky News Australia
- 2GB and on the AAP wires

PUBLICATIONS

FIRST AUTHOR

Probing the consistency of cosmological contours for supernova cosmology

P. Armstrong, H. Qu, et. al.

Publications of the Astronomical
Society of Australia
doi: [10.1017/pasa.2023.40](https://doi.org/10.1017/pasa.2023.40)
2023

SN2017jgh: a high-cadence complete shock cooling light curve of a SN IIb with the Kepler telescope

P. Armstrong, B E. Tucker, et. al.

Monthly Notices of the Royal Astronomical
Society
doi: [10.1093/mnras/stab2138](https://doi.org/10.1093/mnras/stab2138)
2022

CO-AUTHOR

Binning is Sinning: Redemption for Hubble Diagram Using Photometrically Classified Type Ia Supernovae

R. Kessler, M. Vincenzi, ..., P. Armstrong, et. al.

The Astrophysical Journal Letters
doi: [10.3847/2041-8213/ace34d](https://doi.org/10.3847/2041-8213/ace34d)
2023

Revealing the Progenitor of SN 2021zby through Analysis of the TESS Shock-cooling Light Curve

Q. Wang, P. Armstrong, et. al.

The Astrophysical Journal Letters
doi: [10.3847/2041-8213/acb0d0](https://doi.org/10.3847/2041-8213/acb0d0)
2023

Concerning colour: The effect of environment on type Ia supernova colour in the dark energy survey

L. Kelsey, M. Sullivan, ..., P. Armstrong, et. al.

Monthly Notices of the Royal Astronomical
Society
doi: [10.1093/mnras/stac3711](https://doi.org/10.1093/mnras/stac3711)
2023

The Dark Energy Survey supernova program: cosmological biases from supernova photometric classification

M. Vincenzi, M. Sullivan, ..., P. Armstrong, et. al.

Monthly Notices of the Royal Astronomical
Society
doi: [10.1093/mnras/stac1404](https://doi.org/10.1093/mnras/stac1404)
2022

Revealing the progenitor of SN 2021zby through analysis of the TESS shock-cooling light curve

Q. Wang, P. Armstrong, et. al.

arXiv e-prints
doi: [10.48550/arXiv.2211.03811](https://doi.org/10.48550/arXiv.2211.03811)
2023

Measuring Cosmological Parameters with Type Ia Supernovae in redMaGiC Galaxies

R. Chen, D. Scolnic, ..., P. Armstrong, et. al.

The Astrophysical Journal
doi: [10.3847/1538-4357/ac8b82](https://doi.org/10.3847/1538-4357/ac8b82)
2023

The Pantheon+ Analysis: Cosmological Constraints

D. Brout, D. Scolnic, ..., P. Armstrong, et. al.

The Astrophysical Journal
doi: [10.3847/1538-4357/ac8e04](https://doi.org/10.3847/1538-4357/ac8e04)
2023

The dark energy survey 5-yr photometrically identified type Ia supernovae

A. Möller, M. Smith, ..., P. Armstrong, et. al.

Monthly Notices of the Royal Astronomical Society
doi: [10.1093/mnras/stac1691](https://doi.org/10.1093/mnras/stac1691)

2023

SN 2018agk: A Prototypical Type Ia Supernova with a Smooth Power-law Rise in Kepler (K2)

Q. Wang, A. Rest, ..., P. Armstrong, et. al.

The Astrophysical Journal
doi: [10.3847/1538-4357/ac2c84](https://doi.org/10.3847/1538-4357/ac2c84)

2022

Rates and delay times of Type Ia supernovae in the Dark Energy Survey

P. Wiseman, M. Sullivan, ..., P. Armstrong, et. al.

Monthly Notices of the Royal Astronomical Society
doi: [10.1093/mnras/stab1943](https://doi.org/10.1093/mnras/stab1943)

2023

First Results of the SkyMapper Transient Survey

A. Möller, B. E. Tucker, ..., P. Armstrong, et. al.

IAU Symposium
doi: [10.1017/S1743921318002077](https://doi.org/10.1017/S1743921318002077)

2022

Spectroscopic classification of SN 2018bwp as a type Ia supernova a few weeks after peak brightness

A. Lopez-Sanchez, L. Galbany, ..., P. Armstrong, et. al.

The Astronomer's Telegram
bibcode: [2018ATel11671....1L](https://ui.adsabs.org/2018ATel11671....1L)

2022

Spectroscopic classification of SN 2018bwq as a type Ia supernova a few days before maximum light.

A. Lopez-Sanchez, L. Galbany, ..., P. Armstrong, et. al.

The Astronomer's Telegram
bibcode: [2018ATel11667....1L](https://ui.adsabs.org/2018ATel11667....1L)

2022

First Confirmed Supernova with the SkyMapper/Zooniverse Supernova Sighting Project

B. E. Tucker, A. Moller, ..., P. Armstrong, et. al.

The Astronomer's Telegram
bibcode: [2017ATel10426....1T](https://ui.adsabs.org/2017ATel10426....1T)

2022

WiFeS Classification of SMT17kdl/SN2017edm as a Type Ia Supernova

B. E. Tucker, A. Moller, ..., P. Armstrong, et. al.

The Astronomer's Telegram
bibcode: [2017ATel10444....1T](https://ui.adsabs.org/2017ATel10444....1T)

2022

DEbass Transient Classification Report

C. Lidman, H. J. Abbot, ..., P. Armstrong, et. al.

Transient Name Server Classification Report

2023

- 2023-01-07
- 2022-10-11
- 2022-09-13
- 2022-09-14
- 2022-09-20

- 2022-08-19
- 2022-08-21
- 2022-07-09
- 2022-07-16
- 2022-07-20
- 2022-06-18
- 2021-12-21
- 2021-11-16
- 2021-11-18
- 2021-10-26
- 2021-10-27

Transient Classification Report for 2021-10-12

*C. Lidman, M. Dixon, ..., P. Armstrong,
et. al.*

Transient Name Server Classification
Report
bibcode: 2017TNSTR.593....1M
2022

Classification of 11 supernovae by DEBass

*C. Lidman, S. Dhaka, ..., P. Armstrong,
et. al.*

The Astronomer's Telegram
bibcode: 2017TNSTR.593....1M
2022

SkyMapper Transient Discovery Report

*A. Moller, B. Tucker, ..., P. Armstrong,
et. al.*

Transient Name Server Discovery
Report
2022

- 2018-05-23
- 2017-09-06
- 2017-08-01
- 2017-08-02
- 2017-08-03
- 2017-08-07
- 2017-08-08
- 2017-08-22
- 2017-08-23
- 2017-08-27
- 2017-08-28
- 2017-08-30
- 2017-05-19
- 2017-05-23
- 2017-05-25