





Patrick Armstrong

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EDUCATION

Doctor of Philosophy (Astronomy & Astrophysics)	Australian National University <i>February 2020 – Present</i>
Bachelor of Science (Adv.) (Hon.)	Australian National University <i>February 2016 – October 2019</i>

ACADEMIC EXPERIENCE

DES Builder	Dark Energy Survey <i>Develop & maintain the <u>Pippin</u> pipeline, Internal review of DES papers, Organise & host meetings. July 2023 – Present</i>
MSATT Student Mentor	MSATT <i>Provide guidance and mentorship for highschool students completing astronomical projects. February 2020 – Present</i>
Astronomical Tutor	Australian National University <i>Sole tutor for Galaxies and Cosmology (ASTR3002). July 2019 – October 2022</i>

OTHER EXPERIENCE

Student Seminar Planning Committee Member	Australian National University <i>[2022]: Senior planning committee member, [2021]: Planning committee member</i>
Mt. Stromlo Outreach Officer	Australian National University <i>Deliver high quality outreach experience for school groups and families</i> <i>January 2018 – December 2022</i>
Astronomical Consultant	<i>[2020] Research for Questacon's Australia in Space exhibition</i> <i>[2019] Research for Penguin Random House's Stargazer publication</i> <i>[2018] Research and preparation for ABC's Stargazing Live 2018</i> <i>[2018] Building backend code and moderation for the SkyMapper Citizen Science Project: Supernova Sighting</i>
Questacon Staff	Questacon <i>[2019 – 2020] Learning Programs Presenter (APS 4)</i> <i>[2016 – 2019] Questacon Assistant (APS 2)</i> <i>[2015 – 2019] Gallery Assistant (APS 1)</i>

AWARDS & SCHOLARSHIPS

Alex Rodgers Travelling Scholarship	ANU College of Science <i>Travel to DES Collaboration Meeting 2022</i> <i>2022</i>
Commendation for Excellence in Tutoring or Demonstrating	ANU College of Science <i>Tutoring Galaxies and Cosmology (ASTR3002)</i> <i>2022</i>
Australian Government Research Training Program	Australian National University <i>PhD Scholarship</i> <i>2020 – Present</i>
RSAA Supplementary Scholarship	Australian National University <i>PhD Scholarship</i> <i>2020 – Present</i>
ANU Science, Health, and Medicine Honours Scholarship	Australian National University <i>Honours Scholarship</i> <i>2019</i>
ANU Summer Research Scholarship	Australian National University <i>Develop a TNS Bulk Report API for the SkyMapper Transient Survey</i> <i>2016</i>
Boyapti Computer Science and Mathematics prize for first year	Australian National University <i>Top grades in mathematics and computing</i> <i>2016</i>

PUBLICATIONS

FIRST AUTHOR

Probing the consistency of cosmological contours for supernova cosmology

P. Armstrong, H. Qu, et. al. (2023)

Publications of the Astronomical Society of Australia

doi: [10.1017/pasa.2023.40](https://doi.org/10.1017/pasa.2023.40)

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

P. Armstrong, B E. Tucker, et. al. (2022)

Monthly Notices of the Royal Astronomical Society

doi: [10.1093/mnras/stab2138](https://doi.org/10.1093/mnras/stab2138)

CO-AUTHOR

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

R. Kessler, M. Vincenzi, ..., P. Armstrong, et. al. (2023)

The Astrophysical Journal Letters

doi: [10.3847/2041-8213/ace34d](https://doi.org/10.3847/2041-8213/ace34d)

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

Q. Wang, P. Armstrong, et. al. (2023)

The Astrophysical Journal Letters

doi: [10.3847/2041-8213/acb0d0](https://doi.org/10.3847/2041-8213/acb0d0)

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

L. Kelsey, M. Sullivan, ..., P. Armstrong, et. al. (2023)

Monthly Notices of the Royal Astronomical Society

doi: [10.1093/mnras/stac3711](https://doi.org/10.1093/mnras/stac3711)

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

M. Vincenzi, M. Sullivan, ..., P. Armstrong, et. al. (2022)

Monthly Notices of the Royal Astronomical Society

doi: [10.1093/mnras/stac1404](https://doi.org/10.1093/mnras/stac1404)

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

Q. Wang, P. Armstrong, et. al. (2023)

arXiv e-prints

doi: [10.48550/arXiv.2211.03811](https://doi.org/10.48550/arXiv.2211.03811)

Measuring Cosmological Parameters with Type Ia Supernovae in redMaGiC Galaxies

R. Chen, D. Scolnic, ..., P. Armstrong, et. al. (2023)

The Astrophysical Journal

doi: [10.3847/1538-4357/ac8b82](https://doi.org/10.3847/1538-4357/ac8b82)

The Pantheon+ Analysis: Cosmological Constraints

D. Brout, D. Scolnic, ..., P. Armstrong, et. al. (2023)

The Astrophysical Journal

doi: [10.3847/1538-4357/ac8e04](https://doi.org/10.3847/1538-4357/ac8e04)

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

A. Möller, M. Smith, ..., P. Armstrong, et. al. (2023)

Monthly Notices of the Royal Astronomical Society

doi: [10.1093/mnras/stac1691](https://doi.org/10.1093/mnras/stac1691)

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

*Q. Wang, A. Rest, ..., P. Armstrong,
et. al. (2022)*

The Astrophysical Journal

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

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

*P. Wiseman, M. Sullivan, ..., P. Armstrong,
et. al. (2023)*

Monthly Notices of the Royal Astronomical
Society

doi: [10.1093/mnras/stab1943](https://doi.org/10.1093/mnras/stab1943)

**First Results of the SkyMapper Transient
Survey**

*A. Möller, B. E. Tucker, ..., P. Armstrong,
et. al. (2022)*

IAU Symposium

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

**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. (2022)*

The Astronomer's Telegram

bibcode: [2018ATel11671....1L](https://ui.adsabs.org/2018ATel11671....1L)

**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. (2022)*

The Astronomer's Telegram

bibcode: [2018ATel11667....1L](https://ui.adsabs.org/2018ATel11667....1L)

**First Confirmed Supernova with the
SkyMapper/Zooniverse Supernova
Sighting Project**

*B. E. Tucker, A. Moller, ..., P. Armstrong,
et. al. (2022)*

The Astronomer's Telegram

bibcode: [2017ATel10426....1T](https://ui.adsabs.org/2017ATel10426....1T)

**WiFeS Classification of SMT17kdl/SN2017edm
as a Type Ia Supernova**

*B. E. Tucker, A. Moller, ..., P. Armstrong,
et. al. (2022)*

The Astronomer's Telegram

bibcode: [2017ATel10444....1T](https://ui.adsabs.org/2017ATel10444....1T)

**DEbass Transient Classification
Report**

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

Transient Name Server Classification
Report

- 2023-01-07: bibcode: [2023TNSCR...33....1L](https://ui.adsabs.org/2023TNSCR...33....1L)
- 2022-10-11: bibcode: [2022TNSCR2955....1L](https://ui.adsabs.org/2022TNSCR2955....1L)
- 2022-09-13: bibcode: [2022TNSCR2645....1L](https://ui.adsabs.org/2022TNSCR2645....1L)
- 2022-09-14: bibcode: [2022TNSCR2650....1L](https://ui.adsabs.org/2022TNSCR2650....1L)
- 2022-09-20: bibcode: [2022TNSCR2715....1L](https://ui.adsabs.org/2022TNSCR2715....1L)
- 2022-08-19: bibcode: [2022TNSCR2381....1L](https://ui.adsabs.org/2022TNSCR2381....1L)
- 2022-08-21: bibcode: [2022TNSCR2406....1L](https://ui.adsabs.org/2022TNSCR2406....1L)
- 2022-07-09: bibcode: [2022TNSCR1932....1L](https://ui.adsabs.org/2022TNSCR1932....1L)
- 2022-07-16: bibcode: [2022TNSCR2000....1L](https://ui.adsabs.org/2022TNSCR2000....1L)
- 2022-07-20: bibcode: [2022TNSCR2041....1L](https://ui.adsabs.org/2022TNSCR2041....1L)
- 2022-06-18: bibcode: [2022TNSCR1694....1L](https://ui.adsabs.org/2022TNSCR1694....1L)
- 2021-12-21: bibcode: [2021TNSCR4188....1L](https://ui.adsabs.org/2021TNSCR4188....1L)

- 2021-11-16: bibcode: [2021TNSCR3934....1L](#)
- 2021-11-18: bibcode: [2021TNSCR3951....1L](#)
- 2021-10-26: bibcode: [2021TNSCR3650....1L](#)
- 2021-10-27: bibcode: [2021TNSCR3660....1L](#)

Transient Classification Report for 2021-10-12

*C. Lidman, M. Dixon, ..., P. Armstrong,
et. al. (2022)*

Transient Name Server Classification Report

bibcode: [2017TNSTR.593....1M](#)

Classification of 11 supernovae by DEBass

*C. Lidman, S. Dhaka, ..., P. Armstrong,
et. al. (2022)*

The Astronomer's Telegram

bibcode: [2017TNSTR.593....1M](#)

SkyMapper Transient Discovery Report

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

Transient Name Server Discovery Report

- 2018-05-23: bibcode: [2018TNSTR.698....1M](#)
- 2017-09-06: bibcode: [2017TNSTR.974....1M](#)
- 2017-08-01: bibcode: [2017TNSTR.827....1M](#)
- 2017-08-02: bibcode: [2017TNSTR.832....1M](#)
- 2017-08-03: bibcode: [2017TNSTR.837....1M](#)
- 2017-08-07: bibcode: [2017TNSTR.851....1M](#)
- 2017-08-08: bibcode: [2017TNSTR.854....1M](#)
- 2017-08-22: bibcode: [2017TNSTR.899....1M](#)
- 2017-08-23: bibcode: [2017TNSTR.904....1M](#)
- 2017-08-27: bibcode: [2017TNSTR.923....1M](#)
- 2017-08-28: bibcode: [2017TNSTR.927....1M](#)
- 2017-08-30: bibcode: [2017TNSTR.934....1M](#)
- 2017-05-19: bibcode: [2017TNSTR.568....1M](#)
- 2017-05-23: bibcode: [2017TNSTR.582....1M](#)
- 2017-05-25: bibcode: [2017TNSTR.593....1M](#)

CONFERENCE TALKS

CosmoPalooza

DES SN 5 Year Methodology & Results

Invited Speaker
2023

DES Collaboration Meeting

DES 5 year supernova analysis

Invited Speaker
2020, 2021, 2022, 2023

ASA Annual Science Meeting

DES 5 year supernova analysis

Speaker
2020, 2021, 2022, 2023

Kepler K2 Extragalactic Data Analysis Meeting

Investigating transients in Kepler's K2 survey

Attendee
2018

COMMUNICATION

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

*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*

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

2021