

# Patrick Armstrong

🌐 [omegalambda.au](http://omegalambda.au) | ✉ [patrick.armstrong@anu.edu.au](mailto:patrick.armstrong@anu.edu.au) | 🌐 [OmegaLambda1998](https://github.com/OmegaLambda1998) | 🆔 [0000-0003-1997-3649](https://orcid.org/0000-0003-1997-3649)

## 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

---

### CosmoPalooza

Invited Speaker

2023

*DES SN 5 Year Methodology & Results*

### DES Collaboration Meeting

Invited Speaker

2020, 2021, 2022, 2023

*DES 5 year supernova analysis*

### ASA Annual Science Meeting

Speaker

2020, 2021, 2022, 2023

*DES 5 year supernova analysis*

### Kepler K2 Extragalactic Data Analysis Meeting

Attendee

2018

*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

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

2021

- **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