

ANDREW DAVID SELLEK (*he/him*)

PhD Student in Astronomy

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MAIN INTERESTS: Protoplanetary Disc Evolution, Dust Dynamics, Photoevaporation

EDUCATION

- 2019 – 2023 **PhD Astronomy**, Institute of Astronomy, University of Cambridge
Thesis Title: *“The Importance of Photoevaporation in the Evolution of Protoplanetary Discs”*
Supervisor: Professor Cathie Clarke
Research Output: Sellek, Booth & Clarke (2020b), Sellek, Clarke & Booth (2021), Sellek, Clarke & Ercolano (2022)
- 2015 – 2019 **MA & MSci Natural Sciences**, University of Cambridge
Master’s Thesis Title: *“Planet formation under the influence of external photoevaporation”*
Master’s Thesis Supervisors: Dr Richard Booth & Professor Cathie Clarke
Research Output: Sellek, Booth & Clarke (2020a)
Academic Performance: *1st year: Class 1, Rank 5/637; 2nd year: Class 1, Rank 7/595; 3rd year: Class 1, Rank 1/15, 4th year: Class 1, Rank 1/28*

ACADEMIC AWARDS

- 2019 **Part III Institute of Astronomy Prize**
Department prize awarded for showing the greatest distinction in the final year examinations
- 2018 **Winifred Georgia Holgate Pollard Memorial Prize**
University prize awarded for outstanding performance in the Natural Sciences Tripos
- 2016, 2017, **Senior Scholar of Trinity College**
- 2018 Admitted in recognition of outstanding examination results

SKILLS

- Programming Languages:** C (Basic), C++ (Basic), Python (Advanced), Fortran (Intermediate)
- Astronomical Codes/Tools:** FARGO3D (Hydrodynamics), PLUTO (Hydrodynamics), PRIZMO (Thermochemistry), MOCASSIN (Radiative Transfer), MIRISIM (JWST MIRI Simulator), JWST Pipeline
- Other Computing:** git, Bash, Slurm, LaTeX, HTML, CSS, Javascript, MATLAB
- Languages:** English (Native), Spanish (Intermediate; GCSE), Mandarin (Elementary; GCSE)

RESEARCH TALKS/CONFERENCES/WORKSHOPS

- December 2020 [Dustbusters Mid-Term Meeting \(Contributed Virtual Poster Talk\)](#)
A Dusty Origin for the Correlation Between Protoplanetary Disc Accretion Rates and Dust Masses
- January 2021 IoA Wednesday Seminar (Virtual Talk), University of Cambridge
A Dusty Origin for the Correlation Between Protoplanetary Disc Accretion Rates and Dust Masses
- January 2021 [Origins Seminar \(Virtual Talk\), University of Arizona](#)
The Importance of Photoevaporation in the Evolution of Protoplanetary Discs
- February 2022 IPLU Science Day (Contributed Poster), University of Cambridge
Impact of Photoevaporation on the Composition of Planet Forming Discs
- April 2022 Planet Formation & Exoplanets Journal Club (Talk), University of Arizona
Columns, Cooling, and Chemistry in Models of Photoevaporative Winds
- May 2022 Dustbusters Mid-Term Meeting (Secondment Report), University of Milan
- May 2022 First Dustbusters Summer School (Participant)
- June 2022 Photoevaporation Microworkshop (3 Contributed Talks), University of Cambridge
Columns, cooling & chemistry - what determines the driving radiation of photoevaporative winds?
Getting ready for JWST: modelling the Ne II emission from disc winds using self-similar models
Compositions of externally photoevaporating discs and their winds
- July 2022 The Dynamic & Chemical Connection Workshop (Invited Participant)
- October 2022 Cambridge Exoplanet Seminar (Talk), University of Cambridge
Modelling the Emission from Winds from Photoevaporating Protoplanetary Discs
- October 2022 Formation, evolution and dispersal of protoplanetary discs (Contributed Talk), RAS
The Prospect of Metal Depletion in Winds from Externally Photoevaporating Discs

PUBLIC TALKS/OUTREACH

- 2016 – Present Cambridge Hands-On Science Volunteer Demonstrator & Committee Member
(Roles including Secretary, Safety Officer, Training Officer, Fundraising Officer)
- 2018 – 2020 Open Evening Volunteer, Institute of Astronomy, University of Cambridge
- January 2022 [Open Evening Public Talk, Institute of Astronomy, University of Cambridge](#)
- March 2022 Contributed Talk at Trinity College Science Society Annual Symposium
- March 2019 Contributed Talk at Trinity College Science Society Annual Symposium
- November 2018 Cambridge University Astronomy Society Student Talks Night

ACADEMIC SERVICES

- 2022 – Present Referee for A&A
- 2022 – Present Institute of Astronomy Teaching Committee Postgraduate Student Representative
- 2019 – 2020 Organiser of Journal and Academic Skills Club for Undergraduate Students

TEACHING/SUPERVISION

- 2019 – 2022 Supervision of First Year Natural Sciences Students: Mathematical Methods I/II/III
- 2020 – 2023 Supervision of Third Year Astronomy Students: Principles of Quantum Mechanics
- 2020 – 2022 Supervision of Third Year Astronomy Students: Astrophysical Fluid Dynamics
- 2022 – 2023 Co-supervision of Masters' Student: Natasha Goodman
(Project title: *Exploring the Formation of Ultra-compact protoplanetary discs*)







PROFESSIONAL MEMBERSHIPS

- 2022 – Present Royal Astronomical Society

PUBLICATIONS

6 peer-reviewed papers (4 as first author). Total citations: 84, h-index 4 (NASA ADS, 13 November 2022)

For an up-to-date list, [see my ADS profile](#)

- 6 **Sellek A. D.**, Clarke C. J., Ercolano, B. 2022 MNRAS 514 535
The importance of X-ray frequency in driving photoevaporative winds 
- 5 Qiao L., Haworth T. J., **Sellek A. D.**, Ali A. A., 2022 MNRAS 512 3788
The evolution of protoplanetary discs in star formation and feedback simulations 
- 4 **Sellek A. D.**, Clarke C. J., Booth R. A., 2021 MNRAS 506 1
The general applicability of self-similar solutions for thermal disc winds 
- 3 Haworth, T. J., Kim, J. S., Winter, A. J., Hines, D. C., Clarke, C. J., **Sellek, A. D.**, Ballabio, G., Stapelfeldt, K. R., 2021 MNRAS 501 3502
Proplyds in the flame nebula NGC 2024 
- 2 **Sellek A. D.**, Booth R. A., Clarke C. J., 2020 MNRAS 498 2845
A dusty origin for the correlation between protoplanetary disc accretion rates and dust masses 
- 1 **Sellek A. D.**, Booth R. A., Clarke C. J., 2020 MNRAS 492 1279
The evolution of dust in discs influenced by external photoevaporation 

REFERENCES

- Professor Cathie Clarke** Professor of Theoretical Astrophysics
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- Professor Barbara Ercolano** Professor of Theoretical Astrophysics
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