Ting-Yun CHENG (Sunny)

✉ t.cheng@rug.nl
ADS | Google Scholar
🏠 tycheng-sunny.github.io

鄭婷筠

<u>ASSISTANT PROFESSOR</u>

Kapteyn Astronomical Institute, University of Groningen
Landleven 12 (Kapteynborg, 5419), 9747 AD Groningen, The Netherlands

EDUCATION

University of Nottingham | School of Physics and Astronomy [United Kingdom]
PhD in Physics | October 2017 – October 2020

- **Thesis:** The Narrative of Galaxy Morphological Classification Told Through Machine Learning
- **Advisors:** Prof. Christopher J. Conselice and Prof. Alfonso Aragón-Salamanca

National Tsing Hua University | Institute of Astronomy [Taiwan]
MSc in ASTRONOMY | September 2014 – August 2016

- **Thesis:** Investigating Dark Matter Distribution in Early-Type Galaxies
- **Advisor:** Prof. Ing-Guey Jiang

National Taiwan Normal University | Department of Physics [Taiwan]
BSc in PHYSICS | September 2010 – June 2014

APPOINTMENTS

University of Groningen | Kapteyn Astronomical Institute [Netherlands]
Assistant Professor | October 2020 – Present

Durham University | Centre for Extragalactic Astronomy [United Kingdom]
Postdoctoral Research Associate | November 2020 – July 2025

PUBLICATION SUMMARY

[Google/ADS; March 2025] Total Citation: 472/393 | h-index: 7/8

- **Accepted referee publications: <u>13</u>** (including 7 *first-author papers*)
- Papers in progress: <u>1</u> (submitted) + <u>2</u> (in preparation; including 1 *first-author papers*)
- Review/Other articles: <u>2</u>
- Conference proceedings: <u>4</u>

GRANTS, AWARDS AND FELLOWSHIPS

Dark Energy Survey Travel Grant | Fermilab [United States]	2023
Discretionary Award | Durham University [United Kingdom]	2023
Specialist Discussion Meeting Organising Grant | Royal Astronomical Society [United Kingdom]	2023
Physics Department Award for Excellence | Durham University [United Kingdom]	2022
The Post-Doctoral Enrichment Awards | The Alan Turing Institute [United Kingdom]	2022

Graduate School Travel Prize | University of Nottingham [United Kingdom]	2019
Conference/Meeting Travel Grants | Royal Astronomical Society [United Kingdom]	2019
Kavli Summer Program in Astrophysics Fellow | UC Santa Cruz [United States]	2019
Vice-Chancellor's Scholarship for Research Excellence (International) | University of Nottingham [United Kingdom]	2017—2020
ASROC Special Award for Oral Presentation | ASROC [Taiwan]	2016

LEADERSHIP

Organisational Leadership

Editor | Astronomy and Computing Journal, Elsevier	2024—Present
Convener: *Galaxy Evolution & QSO Working Group* | Dark Energy Survey	2022—Present
Committee: *Education and Public Outreach* | Dark Energy Spectroscopic Instrument	2023—2024
Early Career Researcher Editorial Board | Astronomy and Computing Journal, Elsevier	2022—2024
Guest Editor of Special Edition | Astronomy and Computing Journal, Elsevier ➜ *Machine Learning Techniques in Modern Astronomy* (Published in 2024)	2022—2024
IT & Seminar Chair | Taiwanese Young Researcher Association (TYRA)	2022—2023

Academic Events / Sessions

Lead Organiser: *Galaxy Evolution & QSO Working Group* | DES Collaboration Meeting	2022—Present
Lead Organiser: *Machine Learning for DES* | Dark Energy Survey	2022—2024
Lead Organiser: *Harvesting spectroscopic and time series data with ML/AI* | Specialist Discussion Meeting, RAS	Mar 2023
Lead Organiser: *CAPT Seminar* | University of Nottingham	2019—2020
Co-organiser: Illuminating the Faintest Galaxies: Dwarf Galaxies as Probes of Dark Matter, Feedback, and the First Stars | National Astronomy Meeting, RAS	Jul 2025
Co-organiser: *Deep & Shallow learning in the era of large galaxy surveys and simulations* | National Astronomy Meeting, RAS	Jul 2023
Co-organiser: *Machine Learning in Modern Astronomy & The Future of Machine Learning in Astronomy* | National Astronomy Meeting, RAS	Jul 2022

Other Activities

Lead Organiser: *Yearly Career Event - Next Step of Career after PhD* | Durham University	2022–2024
Co-organiser: *EDI Sessions* | Durham University	2022–2024

AWARDED TELESCOPE TIME & OBSERVATIONAL SERVICE

PI: William Herschel Telescope | 4.2 m, queued ➜ *Probing the Early Universe with Local Extremely Metal-Poor Galaxies*	2025
PI: Issac Newton Telescope | 2.54 m, in-person, 4 nights ➜ *A Search for Extremely Metal-Poor Star-Forming Galaxies*	Aug 2023

PI: Issac Newton Telescope | 2.54 m, in-person, 8 nights	Feb 2024
➜ *A Search for Extremely Metal-Poor Star-Forming Galaxies*	
Service: Dark Energy Spectroscopic Instrument (DESI) | 4 m, remote, 3 nights	May 2024
Service: Dark Energy Spectroscopic Instrument (DESI) | 4 m, remote, 3 nights	Jan 2024

ACADEMIC SERVICE

Referee for peer-review Journals: 20 (MNRAS, ApJ, A&A, RASTI, ASCOM, etc)

PRESENTATIONS

Invited Conference Talks / Lectures

Deciphering the Cosmic Code for Galaxy Formation | Pontifical Catholic University of Chile	Dec 2024
➜ *Hands-on Session: Machine Learning in Astrophysics*	
Machine Learning in Astronomy and Space Science | Taiwan Space Union	Sep 2023
➜ *Beyond the Hubble sequence — ML/AI for galaxy morphology*	
AI UK: Awardee Presentation | The Alan Turing Institute	Mar 2022
➜ *New era of galaxy studies with machine learning techniques*	
Artificial Intelligence for Science, Industry and Society | National Autonomous University of Mexico	Oct 2021
➜ *Beyond the Hubble Sequence —* Exploring galaxy morphology with unsupervised machine learning	
The 238th Meeting of the American Astronomical Society | American Astronomical Society	Jun 2021
➜ *Beyond the Hubble Sequence —* Exploring galaxy morphology with unsupervised machine learning	

Invited Colloquia & Seminars

Colloquium | University of Edinburgh	Mar 2025
Colloquium | University of Nottingham	Mar 2025
Seminar | Journal Club, Institute of Space Sciences (ICE-CSIC)	Feb 2025
➜ *Efficient Search for Extremely Metal Poor Galaxies using Convolutional Neural Networks*	
Seminar | University of Edinburgh	July 2024
➜ *Local laboratory for the first galaxies: searching for XMPs with deep learning on SDSS data*	
Colloquium | University College London	Dec 2023
➜ *Harvest information from galaxies with convolutional neural networks*	
Seminar | Academia Sinica Institute of Astronomy and Astrophysics	Jun 2023
➜ *Harvest Lyman-alpha forest with machine learning*	
Colloquium | National Central University	Jun 2023
➜ *Beyond the Hubble sequence — explore galaxy morphology with machine learning*	
Colloquium | University of Bath	Mar 2023
➜ *Beyond the Hubble sequence — explore galaxy morphology with machine learning*	
Seminar | University of Nottingham	Feb 2023
➜ *Harvest Lyman-alpha forest with machine learning*	
Seminar | University of Manchester	Nov 2022
➜ *Harvesting galaxy morphology and the Lyman alpha forest with deep learning*	

Seminar	National Cheng Kung University	May 2022

➜ *Beyond the Hubble sequence — what can a machine tell us?*

Seminar	Australia National University	Dec 2021

➜ *Beyond the Hubble Sequence — What can a machine tell us?*

Colloquium	National Tsing Hua University	Feb 2021

➜ *What a machine sees? - Galaxy morphological classification told through machine learning*

Colloquium	Academia Sinica Institute of Astronomy and Astrophysics	Jan 2021

➜ *What a machine sees? - Galaxy morphological classification told through machine learning*

Seminar	Machine Learning Club, University of California Santa Cruz	Oct 2020

➜ *Beyond the Hubble Sequence —* Exploring galaxy morphology with unsupervised machine learning

Seminar	Kavli 2019 Alumni Event, University of California Santa Cruz	Jul 2020

Seminar	University College London	Oct 2019

Contributed Talks

National Annual Meeting	Royal Astronomical Society	July 2025

➜ *Needles in Haystacks: Searching for Extremely Metal-poor Galaxies in the Local Universe*
➜ *Probing the Temperature-Density Relation with Primordial Lyman Limit Deuterium Systems*

Lurking Lions: Hidden Challenges to Solving Galaxy Formation	University of the Western Cape	Aug 2024

➜ *Hunting extremely metal-poor galaxies with deep learning*

Small Galaxies, Cosmic Questions - II	Durham University	Jul 2024

➜ *Local laboratory for the first galaxies: searching for XMPs with deep learning on SDSS data*

What matter(s) around galaxies 2022	University of Milan	Sep 2022

➜ *Harvesting the Lyman alpha forest with convolutional neural networks*

European Astronomical Society (EAS) Annual Meeting	European Astronomical Society	Jun 2022

➜ *Harvesting the Lyman alpha forest for low HI column density systems with convolutional neural networks*
➜ *CNN Lesson Learned from Two Largest Galaxy Morphological Classification Catalogues*

Debating The Potential of ML In Astronomical Surveys	Institu Astrophysique de Paris	Oct 2021

➜ *Beyond the Hubble Sequence - Exploring galaxy morphology with unsupervised machine learning*
➜ *Predicting Physical Properties of Lyman Alpha Forest with Deep Learning*

Dark Energy Survey Collaboration Meeting	Dark Energy Survey	Nov 2019

Specialist Meeting: Machine Learning and AI applied to Astronomy	Royal Astronomical Society	Mar 2019

Specialist Meeting: Dark Energy Survey: More than dark energy	Royal Astronomical Society	Nov 2018

Machine Learning Applications for Astronomy	University of Nottingham	Sep 2018

Planning for Surprises in the era of Data-Driven Astronomy	University of Oxford	Jun 2018

Annual meeting of the Astronomical Society in Taiwan	ASROC	May 2016

TEACHING EXPERIENCE

Durham University | Department of Physics [United Kingdom]

- *Demonstrator, 2020—2024*
    - Undergraduate Module: Year 2 Astronomy Laboratory, 2024/2025
    - Postgraduate Module: 4-week Data Analysis workshop, 2023/2024
    - Postgraduate Module: 4-week HPC/ science computing workshop, 2023/2024
    - Undergraduate Module: Year 1 Discovery Physics Laboratory, 2020—2023

University of Nottingham | School of Physics and Astronomy [United Kingdom]

- *Coursework Marker, 2017—2020*
    - Undergraduate Module: From Newton to Einstein
    - Undergraduate Module: Quantitative Physics

National Tsing Hua University | Institute of Astronomy [Taiwan]

- *Teaching Assistant, July 2016*
    - *Summer Program in Astrophysics.* The programme included one-week lectures of General Astronomy and the tutorial of astronomical softwares, two-days observation trip at the Lulin Observatory (Taiwan), data analysis, and seminars.
- *Teaching Assistant, 2015—2016*
    - Postgraduate Module: Observational Astronomy

National Tsing Hua University | Department of Physics [Taiwan]

- *Teaching Assistant, 2014—2016*
    - Undergraduate Module: Numerical Analysis
    - Undergraduate Module: General Astronomy (I) & (II)

SUPERVISION & MENTORSHIP

- *Supervision: Year 4 / Master projects*
    - S. Howie: Durham University (Natural Sciences), 2023—2024
    - G. Renton: Durham University (Physics), 2023—2024
    - V. Desai: Durham University (Physics), 2022—2023
    - T. Hehir: Durham University (Physics), 2022—2023
    - S. William: Durham University (Physics), 2021—2022
    - A. Lowe: Durham University (Physics), 2021—2022

- *Supervision: UG projects*
    - S. Bilacz: Durham University(Physics), July—August 2023 (6 weeks summer programme)

- *Mentorship:*
    - N. Chicoine: University of Chicago (UG, Physics), 2022—2023, DES mentor-mentee programme
    - M. Herbold: The Ohio State University (PhD, Physics), 2022—2023, DESI mentor-mentee programme

COMMUNITY ENGAGEMENT & OUTREACH

Talks/ Lectures

Talk	HM Prison Durham	June 2025
Lecture	Cleveland & Darlington Astronomical Society	Apr 2025
Lecture	Sunderland Astronomical Society	Oct 2024

Lecture | Newcastle Astronomical Society	Sep 2023
Talk | IOP Girl Guiding Group, Sunderland	Sep 2023
Lecture | Sunderland Astronomical Society	Jul 2023
Talk | Space Night, Woodham Academy, Durham	Nov 2022
Seasonal Talks | CUNY Baruch College Forum	2022—2023

Other Projects

Art Commission for Ogden Centre West | Durham University	2024–2025
Planetarium Show | Durham University	2023—Present
Science Festival | Durham University	2023—Present
Durham Astronomy Girl's Day | Durham University	2023—Present
Eyes to the Sky Project | Ogden Centre & County Durham	2022—2023
Digital Art & Astronomy Project, Ogden@20 | Ogden Centre & Durham University	Oct—Dec 2022