Postgraduate Application Form

UNIVERSITY OF CAMBRIDGE
Postgraduate Admissions Office

Zhong, Mr Wenrui (*Wenrui*)

Course	MASt in Astrophysics (MASAS)	**Date submitted**	18 Nov 2023
Department	Institute of Astronomy	**Mode of study**	Full Time
Course start date	01 Oct 2024 (MT 2024)	**PUF**	No

Academic History

Sep 2021 - Jun 2024 *(Not yet obtained)*	BSc (Hons) in Physics with Astrophysics (Physics & Astronomy) - All or mostly full-time	74	University of Manchester (*United Kingdom*)

Immigration

Nationality	China (1st)
Country of birth	China
Currently ordinarily resident	China
Country of birth is ordinary residence since birth	Yes
Estimated fee status	Overseas
Visa	Required
Visa type	I hold a Student visa

Language

I have recently studied for 3 years (ending within the last 2 years) at a level equivalent to a UK Bachelor degree in a list A country.

Scholarships

Apply for funding No

* Document not uploaded at the point of submission
** Other university

Curriculum Vitae

Uploaded

Career Goals

817/1000 chars

I plan to study for a PhD degree in Astrophysics after my intended postgraduate studies. After that, I envisioned a couple of compelling paths for my future. On the one hand, I aspire to remain within the academic realm, where I can continue contributing to cutting-edge astronomy research, wholeheartedly dedicating myself to advancing our understanding of the universe. On the other hand, I aspire to join esteemed space agencies like the European Space Agency (ESA). Collaborating with such agencies would grant me the privilege of participating in the construction and operation of deep space observatories, a critical aspect of furthering astrophysical discoveries. I am motivated to seize every opportunity to expand humanity's knowledge of the cosmos and leave an enduring impact on the frontiers of astronomy.

Additional Information to Support Application

934/1000 chars

In an 8-week Crab pulsar experiment at Jodrell Bank Observatory, my Python expertise grew as I used a 42-ft radio telescope, observed pulsars, and programmed to analyze their properties. This experience deepened my passion for space and illustrated the synergy between radio astronomy and coding.
At the University of Manchester, my role as a PASS Leader developed my leadership, tutoring, and mentoring skills by helping first-year students navigate university life. My involvement with the Astronomy Society was particularly enriching. Participating in activities like the water rocket workshop and weekly stargazing sessions, I improved my understanding of fluid dynamics, built a successful two-stage rocket, and learned to operate sophisticated astronomical equipment, acquiring knowledge in various celestial coordinate systems.
These activities fostered my practical expertise and a profound appreciation for the universe.

Course Specific Questions

Core - statement of interest	Studying a master's programme in Astrophysics is my deliberate determination after considering my academic and career aspirations. Ever since my childhood experience of observing the universe with a radio telescope situated near Miyun in Beijing, I have been admiring the resplendent Milky Way and holding a fascination with astrophysics; thus, I chose to study astrophysics in my undergraduate years. Specifically, my enthusiasm was further kindled during my engaging participation in the undergraduate summer camp hosted by the Chinese Academy of Sciences' Yunnan Astronomical Observatory. The invaluable opportunity to interact with esteemed researchers and observe their work allowed me to discover my profound passion for compact objects, particularly the transitions from neutron stars to black holes and from white dwarfs to neutron stars. Under such a circumstance, a Ph.D. studies in astrophysics became extremely attractive to me. To prepare myself for the sophisticated research in this domain, I had better upgrade my expertise in astrophysical knowledge and research methods at the master's level.
Core - reasons for applying	My undergraduate study in astrophysics fueled a deeper fascination, urging me to delve further into the field. During my participation in the undergraduate summer camp hosted by the Chinese Academy of Sciences' Yunnan Astronomical Observatory, my interactions with esteemed researchers and observation of their work allowed me to discover my profound passion for compact objects, particularly the transitions from neutron stars to black holes and from white dwarfs to neutron stars. This experience made Ph.D. studies and a career in astrophysics extremely attractive to me., driving my ambition to refine my knowledge and research skills at the master's level. The MASt programme is my optimal choice, esteemed for its global reputation and educational excellence. The programme promises an enriching setting to advance my abilities and zeal. I am eager to explore its modules and

	collaborate with distinguished students and faculty.
Astronomy - Extra Materials WP	Uploaded

Application Information

Academic Awards

No awards entered

Employment History

No employment history entered

Other Applications Made

No other applications entered

Personal Information

Identifying Information

Full name	Zhong, Mr Wenrui (*Wenrui*)	**Date of birth**	08 Dec 2002
Previous name		**Legal gender**	Male

Contact

Email	wenrui.zhong@student.manchester.ac.uk	**Phone**	07442667382 (1st)
Skype address		**Home address**	Room 1204, Unit 2, Building 9, Zone 3, Guanghua New City, No. 2 Guangtai East Road, Nanmofang Street, Chaoyang District, Beijing, Beijing, 100124, China
Contact address	Room 1506, Building 10, 6 Nobel Way, Manchester, Greater Manchester, M1 7FA, United Kingdom		
Valid until		**Valid until**	

Dependants

Partner	**WILL NOT** bring partner	**Child**	**WILL NOT** bring children

Disability

Disability	No
Further information	

Adjustment for Interview

Adjustment required	No
Details	

College Preferences

College	St Catharine's College (1st) Christ's College (2nd)

Current Membership

College	Not College member

Visa Requirement

Visa type	I hold a Student visa

Study Visas

Applicant previously **STUDIED** in the UK

Visa type	Student Visa (including Tier 4)	**Start date**	15 Sep 2021
Qualification level	Level 06: Undergraduate degree (e.g. Bachelor's), Grad Certificate, Grad Diploma	**End date**	30 Oct 2024
Visa type	Student Visa (including Tier 4)	**Start date**	02 Aug 2019
Qualification level	Level 03: A Levels	**End date**	02 Nov 2021
Visa type	Student Visa (including Tier 4)	**Start date**	14 Aug 2018
Qualification level	Level 02: GCSEs	**End date**	05 Sep 2019

Funding Application

Not wish to apply for any funds

I have personal finances/intend to take out a loan that will cover my course fees and living costs

Mastercard Foundation

Your Funding

Funding Sources

No funding sources entered

Declaration

The information you have provided forms the legal basis of your application to the University of Cambridge. We reserve the right to refuse admission in the event of any misrepresentation by you. Submission of an application does not imply an offer of admission.

- The University of Cambridge, the Cambridge Colleges, the Gates Cambridge Trust and the Cambridge Commonwealth, European and International Trust (and their collaborators) will use your personal information for the purpose of processing your applications for admission and funding and deciding whether to offer you a place for the course you have applied for. For further information on the use of your personal information during the application process, please see How we use your personal information (for applicants).
- I certify that all the information given in this application is complete and accurate. I also understand that if I have given false or misleading information, the University of Cambridge will not admit me as a Postgraduate student and may take legal action against me.
- I certify that I am the original and sole author of all work submitted as part of this application, except where clearly indicated otherwise.
- I understand that if my application is unsuccessful, the papers relating to it will be destroyed and cannot be returned.

I confirm that I have read, understand and agree to the above declarations.

MANCHESTER 1824

The University of Manchester

Confirmation of Registration

Date 09 October 2023

Person Id	10830318
Name	Wenrui Zhong
Date of Birth	08-DEC-2002
Home Address	18C 5 sharp street west WanChai HongKong
Term Address	1223 Vita Student Building 9 Circle Square 6 Nobel Way Manchester GREATER MANCHESTER M1 7AU
Start of Registration	20-SEP-2021
End of Registration	07-JUN-2024
School	Department of Physics & Astronomy
Course	BSc(Hons) Physics with Astrophysics
JACS Codes	F300,F510
Classification	Undergraduate
Mode of Attendance	Full-Time

THE UNIVERSITY OF MANCHESTER Registrar, Secretary & Chief Operating Officer

Mr. Patrick Hackett
Registrar, Secretary and Chief Operating Officer

MANCHESTER 1824
The University of Manchester

Academic Interim Transcript

Student ID: 10830318
1.1 Surname : Zhong
1.2 Firstname : Wenrui
1.3 Birthdate : 08-12-2002
1.4 HESA ID : 2112043185832

Academic Program History

2.2 Program : MPhys(Hons) Physics with Astrophysics
4.1 Mode of Attendance : Full Time
Active in Program : 27-08-2021
End Date : 07-06-2024
2.2 Program : BSc(Hons) Physics with Astrophysics
4.1 Mode of Attendance : Full Time
Program Change : 07-09-2021

Beginning of Undergraduate Record

21/22 Year

PHYS 10071	Mathematics 1	10.00	96
PHYS 10101	Dynamics	10.00	87
PHYS 10121	Quantum Physics and Relativity	10.00	83
PHYS 10191	Introduction to Astrophysics and Cosmology	10.00	79
PHYS 10471	Random Processes in Physics	10.00	69
PHYS 10000	1st Year Physics Tutorial		
PHYS 10010	1st Year Maths Tutorial		
PHYS 10030	1st Year PASS		
PHYS 10180	Year 1 Lab Work (All Yr)	20.00	73
PHYS 11000	Health and Safety Induction Course		
PHYS 10302	Vibrations & Waves	10.00	56
PHYS 10342	Electricity & Magnetism	10.00	72
PHYS 10352	Properties of Matter	10.00	61
PHYS 10372	Mathematics 2	10.00	81
PHYS 10692	Physics of the Solar System	10.00	85

22/23 Year

PHYS 20101	Introduction to Quantum Mechanics	10.00	70
PHYS 20141	Electromagnetism	10.00	65
PHYS 20161	Introduction to Programming for Physicists	10.00	75
PHYS 20171	Mathematics of Waves and Fields	10.00	71
PHYS 20491	Galaxies	10.00	89
PHYS 20000	2nd Year Physics tutorial		
PHYS 20180	Year 2 Lab Work (All Yr)	20.00	71
MATH 20502	Fluid Mechanics	10.00	71
PHYS 20252	Fundamentals of Solid State Physics	10.00	81
PHYS 20312	Wave Optics	10.00	72
PHYS 20352	Statistical Mechanics	10.00	59
PHYS 20692	Astrophysical Processes	10.00	88

R = Resit Mark C = Compensated Pass Granted PRO = Progressed P = Pass F = Fail

END OF TRANSCRIPT

Date Produced: 26 October 2023

Registrar, Secretary and Chief Operating Officer

In calculating the overall mark for degree classification, the marks for each year of study are combined in a weighted average as given below

Table: Weightings 1

BSc and MPhys Programmes	Year 1	Year 2	Year 3	Year 4
All three-year programmes	10%	30%	60%	-
All four-year programmes (**except** year 3 abroad)	6%	19%	37.5%	37.5%
All four-year programmes (**with** year 3 abroad)	8%	23%	23%	46%

Students who have been admitted directly to the second or third year of a programme will not have year average marks for all years, and hence the table above for combining the year average marks is modified. Those years which they have done contribute in the same proportion as for other students on the same programme, but the absolute values of the weights are increased to total 100%. For a student admitted to the second year of a BSc programme, for instance, the 2nd and 3rd years will contribute 33.3% and 66.7% respectively.

The classification criteria are normally the following:

- **Ordinary degree**: A satisfactory work and attendance record, a knowledge of basic physics, and competence in using experimental equipment.
- **Third class honours degree**: The ability to apply knowledge of basic physics to solve straightforward problems and to work effectively in the laboratory.
- **Lower second class honours degree**: An extensive knowledge of physics and the ability to apply this knowledge to solve problems involving several steps of analysis; the ability to tackle laboratory problems with confidence and to seek reliable and accurate solutions.
- **Upper second class honours degree**: An extensive knowledge and sound understanding of physics and the ability to apply this knowledge and understanding to new and unfamiliar problems; the ability to develop and apply strategies for tackling laboratory problems which lead to reliable and accurate solutions.
- **First class honours degree**: An extensive knowledge and deep understanding of physics, and the ability to solve theoretical and laboratory problems that require insight and initiative.

The relation between the degree classification and the overall mark is normally as indicated in the following table; credit requirements and the treatment of borderline candidates are detailed below.

First class honours	70.0-100%
Upper second class honours	60.0-69.9%
Lower second class honours	50.0-59.9%
Third class honours	40.0-49.9%

MPhys and MMaths&Phys candidates:

An MPhys or MMath&Phys candidate will be awarded a first, upper or lower second-class degree if they have

- an overall mark in the appropriate range (see above) *and*
- 40% or above in third- and fourth-year course units totalling at least 200 credits, including project work.

A master's degree candidate for a first- or upper-second-class honours degree, whose total of credits passed at 40% falls short of the total specified above by up to 20 credits, will be awarded a class of degree one lower than indicated by their overall mark, provided at least 40% has been obtained for project work.

Third-class master's degrees are not awarded. A candidate who does not satisfy the criteria for the award of a second class MPhys or MMath&Phys will be awarded a BSc on the basis of their marks in the first three years.

BSc Candidates:

A BSc candidate will be awarded a first, upper or lower second class BSc degree if they have

- an overall mark in the appropriate range (see above) *and*
- 40% or above in individual third-year course units totalling at least 80 credits, including laboratory work and BSc dissertation.

A BSc candidate will be awarded a third class degree if they have

- an overall mark in the range 40.0-49.9% *and*
- 40% or above in individual third-year course units totalling at least 60 credits, including laboratory work and BSc dissertation.

A BSc candidate will be awarded an ordinary degree if they have failed to satisfy the criteria above, but have 40% or above in third-year course units totalling at least 60 credits. The ordinary degree is only awarded with the titles "Physics", and "Mathematics and Physics".

A BSc candidate for a first- or second-class degree, whose total of credits passed at 40% falls short of the total specified above by up to 20 credits, will be awarded a class of degree one lower than indicated by their overall mark, provided at least 40% has been obtained for laboratory and dissertation work as relevant to the programme.

In order to determine if the requirement of 40% or above in laboratory work/BSc dissertation/MPhys Project work has been met in order to progress or graduate, the mark before any late penalty is applied will be used. However, the late penalty mark will be applied in calculating the year average and in counting in the number of credits passed in order to progress or graduate.

12.5 Consideration of candidates at borderlines

Students who have an overall mark in a boundary zone, and so have narrowly missed the criteria for a particular degree classification, are said to be at a borderline. The "boundary zone" is up to 2% below the lower bound for each degree class listed above, except that the third-class boundary zone is up to 3% below (i.e. 37.0% -39.9%).

The examiners consider borderline candidates with a view to awarding the next higher class of degree according to the procedures set out in the **University Degree Regulations**. These include:

Consideration by mark distribution**:**
If a student has gained marks at or above the level required in units totalling

- 80 credits in year 3 (BSc classification) or
- 75 credits in year 4 (MPhys or MMath&Phys classification),

then they will be awarded that class.

If a borderline candidate has marks that do not satisfy these criteria, then their marks may be reviewed by an external examiner who can make a recommendation on the degree class, as described in the degree regulations.

Academic reference for **Mr Wenrui Zhong**

MASt in Astrophysics

Referee Details

Name	Professor Andrew Murray	**Job title**	Professor of Atomic Physics
Email	andrew.murray@manchester.ac.uk	**Department**	Dept of Physics & Astronomy
Phone		**Institution**	The University of Manchester
Relationship	Personal Tutor	**City**	Manchester
Known for	Around 3 years	**Country**	United Kingdom

Reference

Academic ranking	Among the top 20% in year (i.e., in the top 8 if the group size was 40) around 400 students
Student potential	Distinctly original/creative/independent of thought
Course suitability	Very Suitable

Reference provided as uploaded file. Please see the next page.

Professor Andrew J Murray
Photon Science Institute
School of Physics & Astronomy
University of Manchester
Manchester M13 9PL, UK
20th November 2023.
Phone No. (UK) 0161 2754139.
Email: Andrew.Murray@manchester.ac.uk

To: Postgraduate Admissions Office,
University of Cambridge
Cambridge, CB2 1TN
United Kingdom

*Regarding: Application by **Mr Wenrui Zhong** for a placement on the MASt in Astrophysics (Michaelmas Term 2024 entry) at the University of Cambridge.*

I have been asked by ***Mr Wenrui Zhong*** ('Alan' Zhong) to write an academic reference for his application to you for a placement on the *MASt in Astrophysics* at the University of Cambridge. I know Wenrui as he is one of my personal tutees in the Department of Physics and Astronomy at the University of Manchester, where he is an undergraduate student studying for a degree in Physics with Astrophysics. Wenrui has completed the first two years of his course and is in his third year, and he has applied to you for a position on the MSc programme.

Wenrui is an excellent student, and has achieved overall marks that places him within the top 15% of students in our department. He has obtained first class marks in many of the subjects he has taken, including those that are mathematically challenging. As an example in his first year he obtained 96% and 81% in the two *Mathematics* course, 87% in *Dynamics*, 83% in *Quantum Mechanics and Relativity,* 79% and 85% in the two *Astrophysics* courses and 72% in the *Electricity and Magnetism* course. His second year marks follow the same trend, with his highest marks in *Galaxies* (89%) and *Astrophysical processes* (88%). He also achieved first class marks in the undergraduate laboratories, showing he has excellent abilities in the more practical aspects of the course. It should be noted that marks of 70% and above constitutes first class marks in Manchester, and his average so far is around 75%. Based on these marks I am confident he will obtain a 1st class degree at the end of his studies.

Wenrui arrived with high A-level results (A* in mathematics, A* in further maths and A* in physics), and has worked consistently and well throughout his time here. I have observed him as one of my personal tutees, which includes marking work he handed in each week, discussing this work during tutorials, and talking about his ambitions for the future. Wenrui always hands work in on time, and I found his solutions to be well thought out and carefully considered. He contributes well in group discussions, and demonstrates a clear aptitude for physics with maturity in his outlook.

Wenrui has a keen interest in all aspects of physics and astronomy. He works well with others in tutorial groups and he has a desire to carry out research in future. As such I believe he is well suited to your programme. I have no doubt that his commitment to his work and to others will be reflected in the tasks he undertakes in the future.

I hence recommend ***Mr Wenrui Zhong*** to you as a bright, able and motivated individual, and I am confident he will work hard and fit in well should you accept him for this degree.

Should you need to contact me further about this reference, please feel free to do so at the above address.

Yours faithfully

A. J. Murray

Andrew Murray
Professor of Atomic Physics.

Academic reference for **Mr Wenrui Zhong**

MASt in Astrophysics

Referee Details

Name	Dr Peter Millington	**Job title**	Senior Research Fellow
Email	peter.millington@manchester.ac.uk	**Department**	Department of Physics and Astronomy
Phone		**Institution**	The University of Manchester
Relationship	Personal Tutor	**City**	Manchester
Known for	September 2023 to present	**Country**	United Kingdom

Reference

Academic ranking	Not in any of the above categories The cohort is 329.
Student potential	Displays some originality/creativity/independence of thought
Course suitability	Very Suitable

Reference provided as uploaded file. Please see the next page.

Department of Physics and Astronomy
School of Natural Sciences
The University of Manchester
Oxford Road
Manchester
M13 9PL

www.physics.manchester.ac.uk

Dr Peter Millington
Senior Research Fellow
UKRI Future Leaders Fellow
+44 (0) 161 30 68704
peter.millington@manchester.ac.uk

FAO: MASt Astrophysics Selection Committee
University of Cambridge
The Old Schools
Trinity Lane
Cambridge
CB2 1TN

21 November 2023

To whom it may concern,

Re: Wenrui Zhong

I hereby give my firm support for Wenrui Zhong's application for the University of Cambridge MASt Astrophysics programme.

I am writing in my capacity as a UKRI Future Leaders Fellow and Senior Research Fellow in the University of Manchester Particle Theory Group, and Wenrui's personal tutor as of September 2023.

Our interactions have regrettably been limited in number so far. Nevertheless, I have found Wenrui to be thoughtful, conscientious, proactive and well organised. These are skills that put Wenrui in good stead for postgraduate study, something that Wenrui has expressed a firm desire to pursue.

Wenrui is in the third year of our BSc Physics with Astrophysics programme. This programme includes core physics courses, alongside modules focusing on Physics of the Solar System, Galaxies, and Astrophysical Processes. Wenrui's marks in these Astrophysics modules are all in the high 80 per cents, evidencing Wenrui's technical ability and enthusiasm for the subject. These modules are complemented with a double-weighted element of practical work, focused again on Astrophysics. In both years 1 and 2, Wenrui achieved first-class marks in these practical elements. These results place Wenrui on track for a first-class degree. This year, Wenrui will study courses that include Nuclear Fusion and Astrophysical Plasmas, Exoplanets, Cosmology, and Stars and Stellar Evolution.

The University of Manchester BSc Physics with Astrophysics programme will have prepared Wenrui well for your MASt Astrophysics programme, and I am confident that Wenrui would capitalise fully on the opportunities that your programme would provide and flourish as a postgraduate.

If you have any questions, require any additional information, or would like to discuss Wenrui's application further, please do not hesitate to contact me.

Yours faithfully,

Dr Peter William Millington MPhys PhD MInstP
Senior Research Fellow and UKRI Future Leaders Fellow
Particle Theory Group, Department of Physics and Astronomy, The University of Manchester

UNIVERSITY OF CAMBRIDGE

We thank you for your time spent taking this survey.
Your response has been recorded.

Below is a summary of your responses Download PDF

Institute of Astronomy

Important: please read before continuing
In this form, you will be asked a series of questions to help us gather information about your **previous** university study. The questions relate to your previous study, not the course that you are currently applying to. Depending on department procedures, relevant contextual data may have a small impact on some funding opportunities, so if your application is eligible for University funding, we encourage you to fill in this form.

You will be given the opportunity to tell us about any events or circumstances that have had an impact on your education, and limited your ability to perform in your studies. **You do not need to provide personal or detailed information about these circumstances**, we only ask you give details of the **impact** that they have had on your studies.

Please only provide the information that you are asked for in the form, and leave the text box blank if you cannot/ do not wish to respond. You should only provide information in the form if you feel comfortable to do so. Your application will not be disadvantaged if you choose not to respond to the questions, and your academic merit will be assessed based on the information you provide in other parts of the application. Once you have completed this form, you will need to download a PDF copy of your answers to upload to the applicant portal. You will be given the option to download the PDF at end of the form, and you will also receive a copy by email. This

the PDF at end of the form, and you will also receive a copy by email. This will be sent to you as soon as the form is submitted.

Your first name:

Wenrui

Your surname:

Zhong

Your email address:

wenrui.zhong@student.manchester.ac.uk

Confirm your email address:

wenrui.zhong@student.manchester.ac.uk

The following questions relate to your experience of studying at undergraduate/ bachelor's level.

Your undergraduate/ bachelor's institution:

University of Manchester

Did you undertake your degree full-time or part-time?

- (●) **Full-time**
- ( ) Part-time (for any part of the degree)

When choosing your university, were there any factors other than grades that you felt limited your choice of institution?

e.g. not being able to live away from home, financial considerations, concerns about fitting in

My interest in astrophysics was greatly influenced by my experience observing the solar eclipse in the US in 2017. This event not only expanded my understanding of celestial phenomena but also highlighted the importance of practical skills in astronomy. Attracted to Manchester's strong experimental education in physics and astrophysics, I saw it as an ideal place to further develop these skills. Additionally, the university's connection to the Jodrell Bank Observatory, a leading center for radio astronomy, promised unique hands-on opportunities. The presence of renowned scientists like Professor Brian Cox, known for his contributions to public science education, further highlighted the university's commitment to excellence in both research and teaching. Additionally, the presence of Nobel Prize winners in the Physics department, Professor Andre and Professor Konstantin for their work on graphene, emphasized the university's commitment to cutting-edge research and innovation.

Characters remaining: 11

Did you have any essential regular commitments that impacted the extent to which you could dedicate yourself to your studies? If so, please explain the impact of this on your studies.
e.g. caring responsibilities, being a single parent or guardian, employment during studies

No

Characters remaining: 998

Did you experience any serious disruption to your studies that prevented you from studying for at least 3 months over the course of a year? If so, please explain the impact of this on your studies. It is not necessary to provide details about the nature of the disruption.
e.g. illness, bereavement

No

Characters remaining: 998

The following questions relate to your previous experience of university study at all levels (undergraduate and/or postgraduate).

Some students get off to a slower start than others in their studies, and later show an upward progression in their marks.

Were there any circumstances that you feel initially inhibited your academic performance? If so, please provide details of the impact on your studies, and the change in circumstances that allowed you to improve your performance.

No

Characters remaining: 998

Please use the space below to let us know about anything else that has had an impact on your studies or educational pathway. You might like to explain any incomplete qualifications or course changes.

I believe there has no significant impact on my studies

Characters remaining: 944

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Wenrui Zhong

Add: Room 1506, Building 10, 6 Nobel Way, M1 7FA
Tel: 07442667382 | **Email**: wenrui.zhong@student.manchester.ac.uk

EDUCATION BACKGROUND

The University of Manchester 09/2021-06/2024

- **Department:** Department of Physics & Astronomy
- **Degree:** Bachelor of Science (Honours) in Physics with Astrophysics
- **GPA:** 74.917/100
- **Relevant Courses:** *Quantum Mechanics, Special Relativity, Astrophysical Processes, Galaxies and Mathematics of Waves and Fields*

D'Overbroeck's College 09/2018-06/2021

- **A-Levels:** *Math(A*), Further Math (A*), Physics(A*)*
- **GCSEs:** 9 in Math and Physics, 8 in Further Math and Chemistry
- **Achievements:** merit in British Mathematics Olympiad Year 13; merit in Kangaroo Competition Year 12; Gold in Senior Math Challenge in Year 11.

SKILLS

- **Languages:** Native in Chinese; Fluent in English; and Fluent in Cantonese
- **Software:** Python, Spider, DS9, Maerstro, Latex, Google Documents, and MS Office.

LAB & PROGRAMMING EXPERIENCE

Eight Weeks of Crab Pulsar Experiment 09/2023-10/2023

- Operated the 42-ft radio telescope at Jodrell Bank Observatory on-site, observing and recording pulses of various pulsars over eight weeks.
- Developed Python programs to calculate pulsar dispersion measures, determine pulsar periods using Fourier analysis, and analyze the Crab pulsar's period evolution.

200 Hours of Lab Work with 10 Experiments, and the 4 Astrophysical Ones (as follow) 09/2022-05/2023

- **Cephid Variable**: collected multiple images from Hubble Telescope Deep Space Survey, and measured the luminosity variation and its period of the cepheid variable to predict the distance of the object galaxy. (02/2023-03/2023)
- **Tully-Fisher Experiment**: picked 18 different galaxies from the Spitzer Survey of Stellar Structure in Galaxies, and evaluated the relationship between luminosity and rotational velocity of the galaxy with DS9 software to prove the validity of Tully-Fisher relations. (11/2022-12/2022)
- **Galactic Hydrogen**: used the 6.4-meter radio telescope in Jodrell Bank to analyse the galactic plane, constructed the flat rotational curve for a galaxy, and predicted the existence of dark matter. (10/2022-11/2022)

2 Programming Projects on Python during the *Programming for Physicists* Course 09/2022-01/2023

- **Bouncy Ball**: wrote a program capable of making a series of calculations, such as bouncing time regarding a bouncy ball bouncing above some minimum height.
- **79Rb Decay**: determined the half-lives and decay constants of both 79Sr and 79Rb from activity data, obtained the uncertainties on these values, and produced graphics to support analysis.

EXTRA-CURRICULAR EXPERIENCE

PASS Leader, **The University of Manchester** 09/2022-06/2023

- Collaborated with 2 other PASS Leaders to provide academic and university life guidance to a group of first-year students.
- Gained experience in peer tutoring and mentoring.

Member, **Astronomy Society, The University of Manchester** 11/2021-06/2023

- Joined multiple events, for example, a stargazing trip and water rocket workshop, and built a rocket powered by pressurized gas in a water bottle.

Member, **Special Topic Leaflet Group, The University of Manchester** 10/2021-11/2021

- Created a scientific leaflet on Pulsars, covering the history of pulsars and their properties.
- Distributed these leaflets among high school students to arouse their interest in Physics.