CONTACT

Professor Yin-Zhe Ma (MASSAf)
Department of Physics
Stellenbosch University
Room 1003, Merensky Building
111 Merriman Ave
Matieland
Western Cape, South Africa

Tel : +27 21 808 3372
Cell: +27 81 835 8122
Email-1: mayinzhe@sun.ac.za
Email-2: mayinzhe.pi@gmail.com
ORCID: 0000-0001-8108-0986
Google Scholar: https://tinyurl.com/3ptzxbj4
URL: https://physics.sun.ac.za/astro/

EDUCATION

B.S. in Physics, Nanjing University, China 2002-2006
(Top 3% of the ranking)

M.S. in Theoretical Physics, Chinese Academy of Sciences, China 2006-2008
Advisors: Profs. Rong-Gen Cai (Academician) and Xuelei Chen

Ph.D. in Astronomy, University of Cambridge, United Kingdom 2008-2011
Institute of Astronomy (IoA) and Trinity College Cambridge
Advisors: Profs. George Efstathiou F.R.S. and Anthony Challinor
Thesis: Cosmology with CMB and Large-Scale Structure

POSITIONS (MAJOR)

CITA National Fellow, Department of Physics and Astronomy 2011-2014
University of British Columbia, Vancouver, Canada

Research Associate, Jodrell Bank Center for Astrophysics 2014-2015
The University of Manchester, Manchester, United Kingdom

Senior Lecturer, School of Chemistry and Physics 2015-2017
Associate Professor, School of Chemistry and Physics 2018-2021
Full Professor, School of Chemistry and Physics 2021-2023
University of KwaZulu-Natal, Durban, South Africa

Full Professor & **(Founding) Head of Astrophysics Division** 2023-
Stellenbosch-Groningen Research Chair on Computational Astronomy 2024-
Department of Physics, Stellenbosch University, South Africa

POSITIONS (ADJUNCT & VISITING)

Guest Research Professorship, Shanghai Astronomical Observatory 2015-2016
Visiting Fellow, University of Manchester 2015-2019
Senior Overseas Visiting Fellow, Tsinghua University 2018
Adjunct Professor, Purple Mountain Observatory, China 2017-2022
Adjunct Professor, National Astronomical Observatory of China 2019-2021
Peng HuanWu Visiting Professorship, Institute of Theoretical Physics, CAS 2022
Honorary Full Professor, University of KwaZulu-Natal 2023-2026

BIBLIOGRAPHIC DATA

140 refereed publications (**70** Leading and Corresponding authors)
Total citation: **33562** (ADS/NASA; most accurate), **32971** (GoogleScholar)
h-index: **48** (ADS/NASA), **54** (GoogleScholar)
Post-PhD m-factor **3**.**0** (Distinguished individual in R1 University/Laboratory)

FELLOWSHIPS AND GRANTS

PI, Cambridge Overseas Trust, Uni. of Cambridge (GBP 9k/yr for 3 yrs) 2008-2011
PI, Rouse Ball/Eddington Fund, University of Cambridge (GBP 1000) 2009, 2010
PI, CITA National Research Fellowship (CAD 52,500/yr for 3 yrs) 2011-2013
PI, Postdoctoral Travel Award, University of British Columbia (CAD 1.5k) 2013
PI, University of KwaZulu-Natal Start-Up funds (ZAR 500k) 2015
PI, NRF/Knowledge, Interchange and Collaboration grant (ZAR 25k) 2016
PI, NRF/South Africa-China bilateral workshop grant (ZAR 400k) 2016
PI, University of KwaZulu-Natal Publication grant ($\sim$ZAR 180k/yr) 2016-2023
PI, NRF/Competitive Support for Unrated Researcher (ZAR 618k/401k/459k) 2017-2019
Co-I, South Africa-Switzerland Bilateral grant (ZAR 650k/yr for 5 yrs) 2017-2021
PI, CAS/SKA Strategic Funding (CNY 800k/yr for 5 yrs) 2017-2021
PI, NRF/Incentive Funding for Rated Researcher (ZAR 40k/yr for 5 yrs) 2017-2022
PI, NRF/Blue Skies Concept Research Grant (ZAR 200k) 2018

FELLOWSHIPS AND GRANTS cont.

PI, NRF/BRICS Astrophysics Conference (ZAR 307k)	2018
PI, NSFC/Oversea Chinese scholar collaboration fund (CNY 180k)	2019-2020
Co-I, UKZN/Research Flagship project (ZAR 2,110k/yr for 3 yrs)	2019-2021
PI, NRF/South Africa-China flagship program (ZAR 500k/444k)	2020-2021
PI, NRF/Blue Skies Full Research Program (ZAR 820k/764k/445k)	2020-2022
PI, NRF/NItheCS Research Program for Cosmology (ZAR 386k)	2022
PI, CAS/Peng HuanWu Visiting Professorship (CNY 90k)	2022
PI, NRF/SARAO Group Research Grant (ZAR 536k/467k/467k)	2023-2025
PI, NRF/NItheCS Research Program for Cosmology (ZAR 250k)	2023
PI, NRF/Competitive Program for Rated Researcher (ZAR 432k/225k/336k)	2023-2025
PI, NRF/Incentive Funding for Rated Researchers (ZAR 50k)	2024
PI, Stellenbosch University Establishment Fund (ZAR 1500k)	2024-2026
PI, NRF/MOST Joint Research Program (ZAR 300k)	2024-2025
PI, NRF/European Research Council (ERC) Partnership (ZAR 150k)	2024-2025
PI, Stellenbosch University Subcommittee-B Fund (ZAR 240k)	2024-2025

"NRF"-National Research Foundation of South Africa; "SARAO"-South Africa Radio Astronomy Observatory; "NSFC"–National Science Foundation of China; "CAS"–Chinese Academy of Sciences
"GBP"–British Pounds (£); "CNY"–Chinese Yuan (¥), "ZAR"–South Africa Rands (R); "CAD"–Canadian dollars (C$)

AWARDS AND HONORS

Guang-Hua Scholarship, Nanjing University (CNY 1,000)	2003
Yao-Liang Elite Scholarship, Nanjing University (CNY 8k)	2004
–award to only 8 students for entire University undergrads	
First Class Scholarship (top 3% students), Nanjing University (CNY 3k)	2005
Best Popular Science Article, "Nature and Sci& Techi" Magazine, China	2010
Excellent Overseas Student, Ministry of Education of China (USD 5k)	2011
–award to distinctive oversea Chinese students	
Grand Prize and Most Engaging Prize of 3-minute Competition, UBC	2012
Most Engaging Speech, Graduate Union, University of British Columbia	2012
National Research Foundation Researcher Rating	
–C1 (Established Researcher)	2017-2022
–B3 (International Acclaimed Researcher)	2023-2028
Gruber Cosmology Prize, The Peter and Patricia Gruber Foundation	2018
–award to ESA Planck team which I am a core-team member	
Vice-Chancellor Research Award, UKZN (ZAR 15k)	2018
–award to distinctive faculty member below age 40	
Elected as a **Member of Academy of Sciences of South Africa (MASSAf)**	2022
–for distinguished research achievement and international impact	
UKZN Top 5 most cited researchers award	2022
Elected to the Council of Royal Society of South Africa (RSSAf)	2022
Elected as a Fellow of Royal Society of South Africa (FRSSAf)	2023

RESEARCH INTERESTS

Radio Astronomy: 21-cm Intensity Mapping (single-dish and interferometer), Dark Matter searches, HI galaxy survey
Cosmology: Cosmic Microwave Background Radiation, Epoch of Reionization, Sunyaev-Zeldovich effect, Large-Scale Structure
Multi-wavelength Astronomy: Intergalactic and Circumgalactic Medium (IGM, CGM)

LEADERSHIP ROLE IN ASTRONOMY PROJECTS

Leadership Roles in Institutional Collaboration

Chair of UKZN-NAOC Computational Astrophysics Centre	2016-2021
–establish strategic parternship with NAOC with joint postdoc program	
Stellenbosch-Groningen Research Chair on Computational Astronomy	2024-2029
–establish strategic parternship with Kapteyn Astronomy Institute, and recruit 10 PhD students jointly supervised by the two sides	

Leadership Roles in Astronomy Collaborations

Planck satellite (International) core team member 2013-2019
–Co-leading kinetic Sunyaev-Zeldovich project and Inflation project
Six-Degree-Field(6dF) and TAIPAN (Australia) galaxy survey 2013-2022
–Co-leading velocity field power spectrum project
SKA *Cosmology*, *EoR* and *HI* Science Working Group member 2015-present
Hydrogen Epoch Reionization Array (HERA): "Builder"(Significant PI) 2018-present
–Leading Quasi-redundant Calibration and cross-correlation projects
Rubin Observatory (Large Synoptic Survey Telescope) South Africa PI 2019-present
–involving in Dark Energy Science Collaboration team
CMB-Stage 4 member 2021-present

Leadership Roles in Telescope Proposals

PI: FAST, *Filament between galaxy clusters* (3-hrs) 2019
PI: MeerKAT, *Searching for axion dark matter with MeerKAT* (10-hrs) 2021
I have also participated more than 10 proposals as Co-I.

RESEARCH SKILLS

Programming: Fortran 90/77, C, Python, Parallel program, HPC, Mathematica, Maple
Software Package: Matlab, CAMB, CosmoMC, HEALPix, MultiNest, 21cmFAST
Statistical Tools: Bayesian Parameter estimation, Maximum Likelihood, Machine Learning

ACADEMIC EDITORSHIP AND REFEREESHIP

Journal Editor:

Research in Astronomy and Astrophysics (IOPscience, IF: 1.8) since 2019
Fundamental Research (ScienceDirect, IF: 6.2) since 2024

Journal Referee:

Physica Scripta (IF: 1.194) since 2011
Research in Astronomy and Astrophysics (IF:1.8) since 2012
Journal of Cosmology and Astro-particle Physics (IF:4.734) since 2013
Science China Physics, Mechanics and Astronomy (IF:2.237) since 2014
Monthly Notices of the Royal Astronomical Society (IF:4.961) since 2014
The Astrophysical Journal (IF:5.533) since 2014
International Journal of Modern Physics D (IF:2.476) since 2015
Progress in Astronomy (in Chinese) since 2016
New Astronomy (IF:0.938) since 2016
Nuclear Physics B (IF:3.678) since 2017
Scientific Reports (IF:4.259) since 2017
Physical Review D (IF: 4.4) since 2019
Astrophysics and Space Science (IF: 1.89) since 2020
International Journal of Modern Physics A (IF: 1.153) since 2020
European Physical Journal C (IF: 4.843) since 2020
Physical Review Letters (IF: 8.385) since 2020
Physics of the Dark Universe (IF: 4.473) since 2021
Communications Physics (Springer Nature, IF: 6.497) since 2023

Telescope Proposal Assessor:

Giant Metrewave Radio Telescope (GMRT) proposal since 2024

KEYNOTE/ INVITED TALKS IN CONFERENCES

"*Puzzles in Modern Cosmology*"
–China Overseas Postdoctoral Conference, Shanghai 2013
"*Puzzles in Modern Cosmology*"
–"Intrinsic Decoherence in Nature" International conference, Vancouver 2013
"*Anthropic Principle*"
–"Time and Life in the Universe" International panel, Peter Wall Inst. Canada 2013
"*How much cosmological information can be measured?*"
–China-SA bilateral conference on radio astronomy, Guizhou/China 2017
"*Cosmology Now*", High Energy Astrophysics in Southern Africa, Johannesburg/SA 2017

KEYNOTE/ INVITED TALKS cont.

"*Testing quantum effect with pulsar-BH system*"
–"Quantum Black Holes in the Sky" Conference, Perimeter Institute 2017
"*Fundamental Physics with South Africa SKA*"
–SKA Annual conference, Shanghai 2018
"*The kinematic Sunyaev-Zeldovich effect: New window for the Universe*"
–Cosmic Flows conference, Stellenbosch, South Africa 2020
"*Cosmological uses of Fast Radio Bursts*"
–The 369th Symposium of IAU General Assembly, South Korea 2022
"*Cosmology: A Golden Era*"
–African Astronomical Society (AfAS) Annual Meeting, South Africa 2023
"*An introduction to HERA and its current upper limits from Phase I observations*"
–21-cm Cosmology Workshop, Shenyang, China 2023
"*Machine Learning in Cosmology*"
–Centre for High-Performance Computing Annual Conference, South Africa 2023
"*Dark Matter in Radio Astronomy*"–Symposium on Science at PAUL 2024

CONFERENCES & COLLOQUIA

I have given more than 200 oral presentations in conferences and meetings. I have also given more than 100 invited seminars and colloquia in USA, United Kingdom, Germany, France, Belgium, Canada, Israel, South Korea, Australia, South Africa, Spain, India, Vietnam, Mauritius, Switzerland, Austria, Italy, Singapore, Malaysia, Hong Kong SAR of China, and mainland China.

SUPERVISON

Completed Primary Supervision of Graduate Students

Simon Mulokoshi (Honours, University of KwaZulu-Natal) 2016
Floyd Asa (Honours, University of KwaZulu-Natal) 2017
Nondumiso Khumalo (Honours, University of KwaZulu-Natal) 2018
–moved to a masters program
Phumlani Phakathi (Honours & Masters, University of KwaZulu-Natal) 2016-2019
–moved to do a PhD program
ZhenXing Fu (Masters, Purple Mountain Observatory) 2018-2020
–one publication
–PMO Excellent Student (2020), USTC Outstanding graduate (2021)
Elimboto Yohana (PhD, University of KwaZulu-Natal) 2016-2019
–two publications, moved to a lecturer at Dar Es Salaam University
Ayodeji Ibitoye (PhD, University of KwaZulu-Natal) 2017-2021
–one publication, moved to a postdoc position
Mthokosizi Mdlalose (PhD, University of KwaZulu-Natal) 2018-2022
–moved to a lecturer position
Tamirat Gobo (PhD, University of KwaZulu-Natal) 2019-2021
–one publication, moved to a SKA postdoc position at UWC
Tashvir Sithapersad (Honours, University of KwaZulu-Natal) 2020
–moved to a masters program
Yun-Fan Zhou (Masters, Purple Mountain Observatory) 2020-2022
–two publications, went to do a PhD at NAOC/China
–PMO Excellent student (2020, 2021), PMO First-class student (2022)
Hong-Gang Yang (Masters, Purple Mountain Observatory, China) 2021-2023
–moved to a PhD program at the University of Edinburgh
Gang Li (PhD, Purple Mountain Observatory, China) 2019-2023
–moved to a Postdoc at Zhejiang University
Siyabonga Zungu (masters, University of KwaZulu-Natal) 2020-2023
Chandan G. Nagarajappa (PhD, University of KwaZulu-Natal) 2019-2023
Xin Tang (maters student, Purple Mountain Observatory, China) 2021-2024
–moved to a PhD program at the University of Sussex

Completed Co-Supervision of Graduate Students

Zhong-Liang Tuo (PhD, Institute of Theoretical Physics, Beijing) 2011-2013
–one publication
Bo Tang (PhD, Institute of Theoretical Physics, Beijing, one publication) 2011-2013
Xiao-Dong Li (PhD, Institute of Theoretical Physics, Beijing) 2011-2013
–two publications, moved to a postdoc position and then faculty

SUPERVISON cont.

Cheng Cheng (PhD, Institute of Theoretical Physics, Beijing) 2011-2013
–two publications, moved to a postdoc position
Yang Liu (Master, Simon Fraser U), Master Thesis 2012-2013
Michael Sitwell (PhD, U of British Columbia, one publication) 2012-2013
Yue Liu (PhD, University of Massachusetts) 2013-2014
Lucas Olivari (PhD, University of Manchester) 2014-2017
–five publications, moved to a postdoc position at Sao Paulo
Tianyue Chen (PhD, University of Manchester) 2015-2019
–five publications, moved to a postdoc at MIT, EPFL, then staff
Charles Walker (PhD, University of Manchester) 2015-2019
–two publications, moved to a postdoc at Max Planck Inst., then staff
Junsong Cang (PhD student, Institute of High-Energy Physics) 2018-2022
–completed four publications
–moved to a postdoc@Scuola Normale Superiore di Pisa

Current Primary Supervision of Graduate Students

Chang-Xiang Mao (PhD student, Purple Mountain Observatory, China) 2020-2024
Brandon Bisschoff (PhD student, University of KwaZulu-Natal) 2022-2026
Phillip Badenhorst (PhD student, Stellenbosch University) 2024-2026
Guifan Pan (PhD student, Stellenbosch University) 2024-2026
Hemanth Potluri (PhD student, Stellenbosch U. & Groningen U.) 2025-2028
Fatima Saiyed (PhD student, Stellenbosch U. & Groningen U.) 2025-2028
Koustav Konar (PhD student, Stellenbosch U. & Groningen U.) 2025-2028
Bram Alferink (PhD student, Stellenbosch U. & Groningen U.) 2025-2028
Jelte Bottema (PhD student, Stellenbosch U. & Groningen U.) 2025-2028

Mentoring Postdoctoral Fellows

Dr. Yi-Chao Li (University of KwaZulu-Natal) 2016-2018
–(current) Associate Professor of Physics, North East Uni. of China
Dr. Di-Fu Shi (University of KwaZulu-Natal) 2017-2018
Dr. Cheng Cheng (Tsinghua University & University of KwaZulu-Natal) 2017-2021
–(current) Full Research Professor at Xinjiang Observatory, China
Dr. Prabhkar Tiwari (National Astronomical Observatory China) 2017-2021
Dr. Denis Tramonte (University of KwaZulu-Natal & Purple Mountain Obs.) 2017-2022
–(current) Assistant Professor at Xi'an JiaoTong-Liverpool Uni. (XJTLU)
Dr. Anthony Walters (University of KwaZulu-Natal) 2018-2020
Dr. Wei-Ming Dai (University of KwaZulu-Natal) 2018-2022
–(current) Lecturer of Physics at Ningbo University, China
Dr. Piyanat Kittiwist (University of KwaZulu-Natal) 2019-2021
Dr. Yogesh Chandola (Purple Mountain Observatory China) 2019-2024
Dr. Hao Chen (Purple Mountain Observatory) 2021
–(current) Permanent Staff Scientist at Zhijiang Laboratory, China
Dr. Guo-Jian Wang (U. of KwaZulu-Natal & Stellenbosch U.) 2021-2025
Dr. Ayodeji Ibitoye (University of KwaZulu-Natal) 2022-2023
Dr. Heba Abdulrahman (University of KwaZulu-Natal) 2022-2023
Dr. Michael Sarkis (Stellenbosch University) 2024-2025
Dr. Sheean Jolicoeur (Stellenbosch University) 2024-2025
Dr. Wen-Qing Guo (Stellenbosch University) 2024-2027

MENTORING OTHERS ON GRANT APPLICATION

Mentored masters and PhD students to obtain competitive scholarships

Mr. Elimboto Yohana, DAAD Scholarship, ZAR 130k/yr for 3 yrs 2016
Mr. Phumlani Phakathi, NASSP master bursary, ZAR 150k/yr for 2 yrs 2017
Mr. Mthokozisi Mdlalose
–SKA Bursary, ZAR 200k/yr for 3 yrs 2018-2020
–UKZN Talent and Equity Scholarship, ZAR 150k 2021
Mr. Brandon Bisschoff
–NITheP PhD bursary, ZAR 100k/yr for 3 yrs 2019
–EPFL 100 Africa PhD Program, 80k Swiss Francs for 5 yrs 2021
Ms. Nondumiso Khumalo, SAAO Masters bursary, ZAR 200k/yr for 2 yrs 2020-2021
Mr. Siyabonga Zungu, NASSP Masters bursary, ZAR 150k/yr for 2 yrs 2020-2021

Mentored postdoctoral fellows to obtain prestigious fellowship

Dr. Denis Tramonte
- –South Africa Claude Leon Fellowship, ZAR 275k/yr for 2 years 2017
- –CAS Presential International Fellowship, ZAR 250k/yr for 2 yrs 2021
- –NSFC Research Fund for International Scholar, CNY 200k 2022
- –Ministry of Sci. & Tech. China Foreign Expert grant, CNY 150k 2022

Dr. Yogesh Chandola
- –FAST Research Fellowship, CNY 200k/yr for 3 yrs 2019
- –NSFC Research Fund for International Scholar, CNY 200k 2020
- –Ministry of Sci. & Tech. China Foreign Expert grant, CNY 300k 2021

Dr. Anthony Walters
- –NRF Young Scientist Exchange Program, CNY 100k 2019
- –NRF free-standing fellowship, ZAR 250k/yr for 2 yrs 2020

Dr. Zi-ang Yan
- –German Center for Cosmological Lensing Fellowship, EUR 50k/yr for 3 yrs 2020

Dr. Ayodeji Ibitoye
- –CAS/ANSO Fellowship for early career scientist, CNY 240k for 1 yr 2022

TEACHING EXPERIENCE

Physics Honours Program Coordinator
- –coordinate the program including offering, student registration, project selection, advice of module, and individual consultation 2022-

Module Developer and Lecturer
- –develop the whole module, lecture, mark the tests and exams

"Astrophysics" 4th-yr physics major at University of KwaZulu-Natal 2015-2016
"Advanced Astrophysics" 4th-yr physics major at University of KwaZulu-Natal 2017-2022

Lecturer
- –lecture the module, do the tutorials, mark the tests and exams

1st-yr undergraduate "Modern Physics" for non-physics majors at UKZN 2016-2021
2nd-yr undergraduate "Quantum Physics" for physics major at UKZN 2016-2018
1st-yr undergraduate "Mechanics" for physics and non-phys. majors at UKZN 2017-2022
1st-yr undergraduate "Thermophysics" for physics major at UKZN 2023
3rd-yr undergraduate "Electromagnetism" for physics major at Stellenbosch 2024

Example Class Teacher

3rd-yr undergraduate "Cosmology" for physics major at Manchester U. 2015
- –instruct students to solve problems in cosmology lectures

Laboratory Supervisor

1st-yr undergraduate physics and non-physics majors at U. of KwaZulu-Natal 2016
- –supervise students to conduct 1st-yr physics experiment

Guest Lecturer

Graduate lectures "IGM and 21-cm Cosmology" at Tsinghua University 2018
- –develope and lecture the whole graduate course for 12 hrs

Graduate lectures "21-cm Physics" in Brazil National Institute of Space 2018
- –lecture 4-sessions for the "2018-INPE Summer School"

ACADEMIC SERVICE

University Service

Organizer of astronomy lunch discussion in University of British Columbia 2013-2014
Organizer of weekly astronomy colloquium in University of British Columbia 2012-2014
Organizer of weekly astrophysics seminar at University of KwaZulu-Natal 2018-present
Faculty PI of "Big Data in Science and Society" project at UKZN 2019-2021
- –organized cross-discipline people to work on machine learning

Judge of UKZN annual postgraduate students research symposium (PRIS) 2020-2021
Founding Head of Astrophysics Division, Stellenbosch University 2023-present
- – I established the Astrophysics Division in Physics department, recruited new faculty and structured the graduate research program

Academic Community Service

BRICS country "21-cm Cosmology" collaboration	2017-present
Chair of NRF Chinese-South African Forum of Astronomy	2017-present
Council Member, BRICS Association of Gravity and Astrophysics	2019-2024
Panel member for Physics, Astronomy, Mathematics and ICT of NRF	2020-2023
Science Committee Member of African Astronomical Society (AfAS)	2023-present
Several (external) Universities faculty hire committee	2023-present
MeerKAT Large Area Synoptic Survey (MeerKLASS) Advisory Committee	2023-present
Academy of Sciences of South Africa (ASSAf) Membership Committee	2023-present

Grant Review for ...

National Research Foundation (South Africa)	
– Bilateral and Multi-lateral Grants	2017, 2024
– Researcher Rating	2017
– Research Chair Initiative	2020
Dutch Research Council Innovational Research Incentives Scheme(Vidi)	2019

Conference Organization

LOC member, Canadian Astronomy 2013 Annual Meeting (CASCA)	2013
Chair, South Africa-China bilateral on Cosmology	2016
SOC member, "Cosmology on Safari" International Conference	2017, 2019 & 2023
Chair, Second BRICS Symposium on Astrophysics	2018
SOC member, Ninth International Fermi Symposium	2020
SOC member and Outreach Program Coordinator of the 183th-Nobel Symposium "Predictability of Science in the Age of AI"	2022
Chair, China-South Africa 21-cm cosmology online Forum	2022
SOC member, African Astronomical Society (AfAS) Annual Meeting	2023-2024

Membership of Professional Society

Royal Astronomical Society (RAS)	since 2009
American Astronomical Society (AAS)	since 2010
Canadian Astronomical Society (CASCA)	since 2012
South Africa Institute of Physics (SAIP)	since 2015
International Astronomical Union (IAU)	since 2020
Member of Royal Society of South Africa (RSSAf)	since 2022

I have also been an external examiner for 10 masters and 5 PhD students' thesis.

PUBLIC ENGAGEMENT

Public speeches for general audiences:

"Inflation after WMAP 2008 results", Cambridge Astronomical Society	2009
"Doing a PhD in Astronomy", UK Space Conference	2009
"Cosmology: from observable to invisible Universe", UK Space Conference	2009
"The large scale nature of the Universe", Cambridge Astronomy Evening	2010
"Two roads to modern cosmology", Trinity College Cambridge	2011
"Life in the Universe", St. John's college, University of British Columbia	2012
"Higgs Particle and the Universe", St. John's college, UBC/Canada	2012
"Life in the Universe", UBC postdoctoral symposium	2013
"Our Cosmic Environment", St. John's College, University of British Columbia	2013
"Two roads to Modern Cosmology-with Planck 2015 results", Manchester U.	2015
"Life in the Universe", QianNan Normal College/China	2018
"The Hubble conundrum: A Physical Solution", University of KwaZulu-Natal	2021
Several high-school talks & Campus open day in Durban, South Africa	2017-
"Cosmology: A Golden Era", University of the Western Cape	2022
Organising the 183rd Nobel Symposium Outreach Event in South Africa	2022
"What we will never know?" Science Cafe at Toyota US Woordfees Festival	2023

PUBLIC ENGAGEMENT cont.

Press Release & Media Interview:

Media Interview on weighting mass of Milky Way and Andromeda 2014
–e.g. “New Scientists”, “Metro News”, “VICE” (Canada), CCTV (China)
SouthAfrica BroadCast (SABC) Interview on Missing baryons 2015
https://www.youtube.com/watch?v=WpXLIcYnFFw
People’s Daily Online interview for China-South Africa Astronomy Bridge 2018
Broadcast Brazil Interview on 21-cm cosmology 2018
Press Release on HERA leadership and milestone limit for EoR epoch 2021
Magazine Interview for South Africa Institute of Physics 2022
Nature (Journal) Interview for Fast Radio Bursts during 369th IAU Symposium 2022
Press release for “Excellence in Africa” 100 Africa’s PhD program 2022
CGTN Interview for “Nobel in Africa” Outreach seminar at Western Cape/SA 2022
https://www.youtube.com/watch?v=p9CZIDbHE7s&t=32s
Press release on being elected to Academy of Science of South Africa (ASSAf) 2022
https://tinyurl.com/5x2d9y9r
Trinity Colleg Cambridge “The Fountain” Issue 32, Summer 2023 coverage 2023
https://www.trin.cam.ac.uk/alumni/publications/the-fountain/
CGTN Movie on “Faces of Africa–Echoes of the Skies” 2023
https://www.youtube.com/watch?v=mUrcHMmd_qE&t=498s
Press Release of Strengthening Stellenbosch University Astronomy Research 2023
http://www.sun.ac.za/english/Lists/news/DispForm.aspx?ID=10142

REFEREES

Lord Martin Rees(OM, FRS)
(Long-term senior mentor)
Astronomer Royal
ex-President of Royal Society
ex-Master of Trinity College, Cambridge
University of Cambridge
Institute of Astronomy, Madingley Road
Cambridge, United Kingdom, CB3 0HA
Email: mjr36@cam.ac.uk
Phone: +44(0)-122-333-7520
Fax: +44-(0)1223-337523
Web: https://people.ast.cam.ac.uk/~mjr/

Dr. Rob Adam (MASSAf)
(Senior colleague and career mentor)
Strategic Advisor to the director of South Africa Radio Astronomy Observatory
ex-Director of South Africa Radio Astronomy Observatory
ex-Director General of Department of Science and Technology of South Africa
South Africa Radio Astronomy Observatory
2 Fir Street, Black River Park
Observatory, 7925
Cape Town, South Africa
Email: r.adam@sarao.nrf.ac.za
Phone: +27(0)82 572 7178
Web: https://en.wikipedia.org/wiki/Rob_Adam

Professor Clive Dickinson
(Postdoctoral mentor & long-term research collaborator)
Head of the Sun, Stars and Galaxies (SSG) Group
University of Manchester
Jodrell Bank Centre for Astrophysics
School of Physics and Astronomy
Oxford Road
Manchester, United Kingdom, M13 9PL
Email: Clive.Dickinson@manchester.ac.uk
Phone: +44(0)161-275-4232
Fax: +44(0)161-275-4247
Web: http://www.jb.man.ac.uk/~cdickins/

REFEREES cont.

Professor Patricia Whitelock (Fellow of TWAS, MASSAf)
(Senior colleague and career mentor)
Staff Scientist and ex-Director of SAAO
South Africa Astronomical Observatory (SAAO)
Honoary Professor at the University of Cape Town
PO Box 9
Observatory Road, 7935 Observatory
Cape Town, South Africa
Email: paw@saao.ac.za
Phone: +27(0)21 460 9318
Web: http://www.ast.uct.ac.za/ast/staff/patricia-whitelock

Professor Ludovic Van Waerbeke
(Long-term research collaborator)
University of British Columbia
Department of Physics and Astronomy
6224 Agricultural Road
Vancouver, V6T 1Z1, BC, Canada
Email: waerbeke@phas.ubc.ca
Phone: 1-(604) 822-5515
Fax: 1-(604)822-5324
Web: https://phas.ubc.ca/~waerbeke/index.html

Professor Rene Breton
(Long-term research collaborator)
University of Manchester
Jodrell Bank Centre for Astrophysics
School of Physics and Astronomy
Oxford Road
Manchester, United Kingdom, M13 9PL
Email: rene.breton@manchester.ac.uk
Phone: +44(0)-161-275-4195
Fax: +44(0)161-275-4247
Web: https://www.renebreton.org

1 Summary of Publication (by January 13, 2025)

1.1 Statistics

- **140** peer-reviewed journal publications (**70+30+40**)
  A list: **70 Leading-author** and **corresponding-author** publications. (The **corresponding-author** paper is usually my student's or postdoc's project which I initialised the idea, supervised them to conduct the research, and guided through each step of calculation and wrapped up with scientific writing)
  B list: **30 small-group** (≤ 15 authors) collaborative publications
  C list: **40 large-group** (> 15 authors) collaborative publications (e.g. Planck, HERA, SKA)
- **7** conference proceedings
- **11** Astro2020 Decadal Survey Science White papers
- h-index: **48** (NASA/ADS metric (most accurate): `https://tinyurl.com/yyll8dpo`)
  55(Google Scholar metric: `https://tinyurl.com/2zxtpncu`)
- Total citation. NASS/ADS: 33344; Google Scholar: 39672
- Normalised citation: 915.1

1.2 Major Research Impact[1]

1. **The single-dish and interferometer radio astronomy technique for 21-cm intensity mapping**: A1, A9, A10, A13, A14, A17, A18, A21, A27, A28, A34, B2, B3, B4, B5, B3, B9, B18, B21, B27, C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C12, C13, C14.

2. **Exquisite large-scale structure cross-correlation methods**: A4, A5, A6, A12, A16, A19, A26, A30, A35, A39, A40, A44, A53, B1, B6, B14, B15, B16, B20, B22, B25, B28.

3. **Estimators of peculiar velocity and kinematic Sunyaev-Zeldoviche effects**: A32, A33, A41, A45, A46, A47, A48, A51, A54, A57, A59, A60, A63, B24, B26, B30.

4. **Examining theories of cosmology with cosmic microwave background and large-scale structure data**: A2, A3, A10, A11, A20, A22, A23, A29, A31, A38, A42, A43, A49, A50, A52, A55, A56, A58, A61, A62, A64, A65, A66, A67, A68, A69, A70, B7, B8, B10, B11, B12, B17, B19, B29, C11, C18, C19, C22, C39.

1.3 14 most significant papers

A7 **Solar gamma ray probe of local cosmic ray electrons**. Hong-Gang Yang, Yu Gao, **Yin-Zhe Ma**, Roland M. Crocker, **2023**, Physical Review D (Letter) 108, L061304
Proposed a novel and generic way of testing cosmic ray electron spectra with Solar inverse-Compton scattering effect

A13 **Searching for axion dark matter with MeerKAT Radio Telescope**. Yun-Fan Zhou, Nick Houston, Gyula I. G. Jozsa, Hao Chen, **Yin-Zhe Ma**, Qiang Yuan, Tao An, Yogesh Chandola, Ran Ding, Fujun Du, Shao-Guang Guo, Xiaoyuan Huang, Mengtian Li, Chandreyee Sengupta, **2022**, Physical Review D, 106 , 083006
The very first work of using interferometric mode of MeerKAT telescope to search for potential radio signal from Axion dark matter and place unique constraint on Axion decay rate in mass range 4.20-4.35μeV. The first author is a master student of mine, and I supervised this research for his master thesis.

[1]The number refer to entry in the complete list (Sec. 2).

A17 **The Correlation Calibration of PAPER-64 data**. Tamirat G. Gogo, **Yin-Zhe Ma**, Piyanat Kittiwisit, Jonathan L. Sievers, Aaron R. Parsons, Jonathan C. Pober, Daniel C. Jacobs et al., **2022**, Monthly Notices of the Royal Astronomical Society, 510, 1680-1696
Invented a completely new method to calibrate radio interferometers, and applied it to the "Precision Array for Probing the Epoch of Reionization" (PAPER) data.

A20 **Reconciling Hubble Constant Discrepancy from Holographic Dark Energy**. Wei-Ming Dai, **Yin-Zhe Ma**, Hong-Jian He, **2020**, Physical Review D (Rapid Communication), 102, 121302
Proposed a novel way to reconcile the local distance ladder measurements and CMB measurement of H_0 by using holographic principle. The model beautifully resolves the tension and is verifiable and falsifiable by future data.

A21 **The neutral hydrogen distribution in large-scale haloes from 21-cm intensity maps**. Denis Tramonte, **Yin-Zhe Ma**, **2020**, Monthly Notices of the Royal Astronomical Society, 498, 5916-5935
The first paper detected the 21-cm emission of neutral hydrogen in stacked dark matter halo at high significance, directly constrained HI profile.

B16 **A Search for Warm/Hot Gas Filaments Between Pairs of SDSS Luminous Red Galaxies**. Hideki Tanimura, Gary Hinshaw, Ian G. McCarthy, Ludovic Van Waerbeke, **Yin-Zhe Ma**, Alexander Mead, Alireza Hojjati, Tilman Troster, **2019**, Monthly Notices of the Royal Astronomical Society, 483, 223-234
The first paper detected the warm-hot ionised gas signal (10^5–10^7 K) in cosmic filaments.

A30 **Planck intermediate results. LIII. Detection of velocity dispersion from the kinetic Sunyaev-Zeldovich effect**. N. Aghanim et al., **2018**, Astronomy and Astrophysics, 617, A48
The first detection of temperature dispersion of kinetic Sunyaev-Zeldovich effect caused by galaxy clusters. I led a team of 80 people for this project.

C39 **Planck 2015 results. XX. Constraints on inflation**. P. A. R. Ade et al., Planck Collaboration, **2016**, Astronomy and Astrophysics, 594, 20P
A crucial paper of Planck scientific result. I heavily contributed to Section 12 (statistical anisotropy).

A40 **Probing the diffuse baryon distribution with the lensing-tSZ cross-correlation**. **Yin-Zhe Ma**, Ludovic Van Waerbeke, Gary Hinshaw, Alireza Hojjati, Douglas Scott, and Joe Zuntz, **2015**, Journal of Cosmology and Astroparticle Physics, 09, 046 (14 pages)
Showed a strong and pioneer observational evidence that a significant fraction of ionised baryons (>30%) lies outside virial radii of dark matter halo.

B25 **Evidence of the missing baryons from the kinetic Sunyaev-Zeldovich effect in Planck data**. Carlos Hernandez-Monteagudo, **Yin-Zhe Ma**, Francisco-Shu Kitaura, Wenting Wang, Ricardo Genova-Santos, Juan Macias-Perez, Diego Herranz, **2015**, Physical Review Letters, 115, 191301
The first reconstruction of cosmic baryon fraction from kinetic Sunyaev-Zeldovich effect. The paper is highlighted in the front cover of Physical Review Letters.

A54 **Cosmic bulk flows on $50h^{-1}$ Mpc scales: A Bayesian hyper-parameter method and multishells likelihood analysis**. **Yin-Zhe Ma**, and Douglas Scott, **2013**, Monthly Notices of the Royal Astronomical Society, 428, 2017-2029 (13 pages)
A critical paper to resolve large bulk flow puzzle.

A62 **Testing a direction-dependent power spectrum with observations of cosmic microwave background**. **Yin-Zhe Ma**, George Efstathiou and Anthony Challinor, **2011**, Physical Review D, 83, 083005 (8 pages)
The first paper to define an unbiased, minimal-variance direction-dependent estimator for all quadrupolar primordial anisotropy for CMB sky. The formalism is latter heavily used by *Planck* and many other studies.

A63 **Peculiar velocity field: constraining the tilt of the Universe**. **Yin-Zhe Ma**, Christopher Gordon and Hume Feldman, **2011**, Physical Review D, 83, 103002 (7 pages)
A conceptually novel idea to connect large bulk flow with "incompleteness" of cosmic inflation, and to put a limit for number of e-folds of inflation (duration).

A68 **Features of holographic dark energy under the combined cosmological constraints**. **Yin-Zhe Ma**, Yan Gong and Xuelei Chen, **2009**, European Journal of Physics C, 60, 303-315 (13 pages)
The first comprehensive constraints on holographic dark energy with the latest observational data, gained 98 citations by January 13, 2025.

2 Complete Journal Publication List (reverse chronological)

A: Leading-author and Corresponding-author papers
Contribution: For leading author papers, I initialized the idea, carried out the research, communicated with collaborators for their opinions, wrote up the draft and corresponded with the journal. The corresponding author papers are the students' or junior postdoc's research projects under my supervision. I am responsible for proposing the idea, laying out critical steps, guiding their computation to the end, and editing the paper draft.

A1 Wei-Ming Dai, **Yin-Zhe Ma**, **2025**, The Astrophysical Journal Supplement Series, 276, 33, arXiv: 2411.16899
Expanded Generalized Needlet Internal Linear Combination (eGNILC) Framework for the 21-cm Foreground Removal
https://doi.org/10.3847/1538-4365/ad9604

A2 Xin Tang, **Yin-Zhe Ma**, Wei-Ming Dai, Hong-Jian He, **2024**, Physics of the Dark Universe, 46, 101568, arXiv: 2407.08427
Constraining holographic dark energy and analyzing cosmological tensions
https://doi.org/10.1016/j.dark.2024.101568

A3 Chandan G. Nagarajappa, & **Yin-Zhe Ma**, **2024**, Monthly Notices of the Royal Astronomical Society, 529, 3289-3300, arXiv: 2403.02115
Constraining primordial non-Gaussianity using Neural Networks
https://doi.org/10.1093/mnras/stae679

A4 Gang Li, **Yin-Zhe Ma**, Denis Tramonte, Guo-Liang Li, **2024**, Monthly Notices of the Royal Astronomical Society, 27, 2663-2671, arXiv: 2311.00826
Cross-correlation of cosmic voids with thermal Sunyaev-Zel'dovich data
https://doi.org/10.1093/mnras/stad3396

A5 Ayodeji Ibitoye, Wei-Ming Dai, **Yin-Zhe Ma**, Patricio Vielva, Denis Tramonte, Amare Abebe, Aroonkumar Beesham, Xuelei Chen, **2024**, The Astrophysical Journal Supplement Series (ApJS),

270, 16, arXiv: 2310.18478
Cross-correlation between the thermal Sunyaev-Zeldovich effect and the Integrated Sachs-Wolfe effect
https://doi.org/10.3847/1538-4365/ad08c5

A6 Charles R. H. Walker, Laura G. Spitler, **Yin-Zhe Ma**, Cheng Cheng, M. Celeste Artale, & Cameron Hummels, **2024**, Astronomy and Astrophysics, 683, A71, arXiv: 2309.08268
The Dispersion Measure Contributions of the Cosmic Web
https://doi.org/10.1051/0004-6361/202347139

A7 Hong-Gang Yang, Yu Gao, **Yin-Zhe Ma**, Roland M. Crocker, **2023**, Physical Review D (Letter) 108, L061304, arXiv: 2309.04784
Solar gamma ray probe of local cosmic ray electrons
https://journals.aps.org/prd/pdf/10.1103/PhysRevD.108.L061304

A8 Guo-Jian Wang, Cheng Cheng, **Yin-Zhe Ma** Jun-Qing Xia, Amare Abebe, and Aroonkumar Beesham, **2023**, The Astrophysical Journal Supplement Series, 268, 7, arXiv: 2306.11102
CoLFI: Cosmological Likelihood-free Inference with Neural Density Estimators
https://doi.org/10.3847/1538-4365/ace113

A9 Yogesh Chandola, Chao-Wei Tsai, Di Li, Chandreyee Sengupta, **Yin-Zhe Ma**, Pei Zuo, **2023**, Monthly Notices of the Royal Astronomical Society, 523, 3848-3862, arXiv: 2305.16786
GMRT HI mapping of mid-infrared bright Blue Compact Dwarf Galaxies W1016+3754 & W2326+0608
https://doi.org/10.1093/mnras/stad1618

A10 Wen-Qing Guo, Yichao Li, Xiaoyuan Huang, **Yin-Zhe Ma**, Geoff Beck, Yogesh Chandola, Feng Huang, **2023**, Physical Review D, 107, 103011, arXiv: 2209.15590
Constraints on dark matter annihilation from the FAST observation of the Coma Berenices dwarf galaxy
https://journals.aps.org/prd/pdf/10.1103/PhysRevD.107.103011

A11 Junsong Cang, **Yin-Zhe Ma**, Yu Gao, **2023**, The Astrophysical Journal, 949, 64 (6 pages), arXiv: 2210.03476
Implications for primordial black holes from cosmological constraints on scalar-induced gravitational wave
https://iopscience.iop.org/article/10.3847/1538-4357/acc949/pdf

A12 Denis Tramonte, **Yin-Zhe Ma**, Ziang Yan, MatteoMaturi, Gianluca Castignani, Mauro Sereno, Sandro Bardelli, Carlo Giocoli, Federico Marulli, Lauro Moscardini, Emanuella Puddu, Mario Radovich, Ludovic Van Waerbeke, and Angus H. Wright, **2023**, The Astrophysical Journal Supplement Series, 265, 55 (31 pages), arXiv: 2302.06266
Exploring the mass and redshift dependence of the cluster pressure profile with stacks on thermal SZ maps
https://iopscience.iop.org/article/10.3847/1538-4365/acbcca/pdf

A13 Yun-Fan Zhou, Nick Houston, Gyula I. G. Jozsa, Hao Chen, **Yin-Zhe Ma**, Qiang Yuan, Tao An, Yogesh Chandola, Ran Ding, Fujun Du, Shao-Guang Guo, Xiaoyuan Huang, Mengtian Li, Chandreyee Sengupta, **2022**, Physical Review D, 106, 083006, arXiv: 2209.09695
Searching for axion dark matter with the MeerKAT radio telescope
https://journals.aps.org/prd/pdf/10.1103/PhysRevD.106.083006

A14 Yun-Fan Zhou, Chandreyee Sengupta, Yogesh Chandola, Ivy Wong, Tom C. Scott, **Yin-Zhe Ma** and Hao Chen, **2022**, Monthly Notices of the Royal Astronomical Society, 516, 1781-1787 (7 pages)
HIPASS detections of southern ultradiffuse galaxies and low surface brightness galaxies
https://doi.org/10.1093/mnras/stac2344

A15 Guo-Jian Wang, Cheng Cheng, **Yin-Zhe Ma**, Jun-Qing Xia, **2022**, The Astrophysical Journal Supplement Series, 262, 24 (14 pages); arXiv: 2207.00185
Likelihood-free Inference with Mixture Density Network
https://iopscience.iop.org/article/10.3847/1538-4365/ac7da1/pdf

A16 Ayodeji Ibitoye, Denis Tramonte, **Yin-Zhe Ma**, Wei-Ming Dai, **2022**, The Astrophysical Journal, 935, 18 (18 pages), arXiv: 2206.05689
Cross Correlation between the Thermal Sunyaev-Zel'dovich Effect and Projected Galaxy Density Field
https://iopscience.iop.org/article/10.3847/1538-4357/ac7b8c/pdf

A17 Tamirat G. Gogo, **Yin-Zhe Ma**, Piyanat Kittiwisit, Jonathan L. Sievers, Aaron R. Parsons, Jonathan C. Pober, Daniel C. Jacobs et al., **2022**, Monthly Notices of the Royal Astronomical Society, 510, 1680-1696
The Correlation Calibration of PAPER-64 data
https://doi.org/10.1093/mnras/stab3516

A18 Elimboto Yohana, **Yin-Zhe Ma**, Di Li, Xuelei Chen, Wei-Ming Dai, **2021**, Monthly Notices of the Royal Astronomical Society, 504, 5231-5243
Recovering 21-cm signal from simulated FAST intensity maps
https://doi.org/10.1093/mnras/stab1197

A19 **Yin-Zhe Ma**, Yan Gong, Tilman Troster, Ludovic Van Waerbeke, **2021**, Monthly Notices of the Royal Astronomical Society, 500, 1806-1816
Probing the cluster pressure profile with thermal Sunyaev-Zeldovich effect and weak lensing cross-correlation
https://tinyurl.com/y2vkpwkm

A20 Wei-Ming Dai, **Yin-Zhe Ma**, Hong-Jian He, **2020**, Physical Review D, 102, 121302 (Rapid Communication)
Reconciling Hubble Constant Discrepancy from Holographic Dark Energy
https://tinyurl.com/y4wnso72

A21 Denis Tramonte, **Yin-Zhe Ma**, **2020**, Monthly Notices of Royal Astronomical Society, 498, 5916-5935
The neutral hydrogen distribution in large-scale haloes from 21-cm intensity maps
https://tinyurl.com/y5k6yjkh

A22 Gong Cheng, **Yin-Zhe Ma**, Fengquan Wu, Jiajun Zhang, Xuelei Chen, **2020**, Physical Review D, 102, 043517
Testing interacting dark matter and dark energy model with cosmological data
https://tinyurl.com/yymnqvr6

A23 Moumita Aich, **Yin-Zhe Ma**, Wei-Ming Dai, Jun-Qing Xia, **2020**, Physical Review D, 101, 063536
How much primordial tensor mode is allowed?
https://tinyurl.com/sfozpqm

A24 Charles Walker, **Yin-Zhe Ma**, Rene Breton, **2020**, Astronomy and Astrophysics, 638, A37
Constraining redshifts of unlocalised fast radio bursts
https://tinyurl.com/y95nhedf

A25 Yu Gao, **Yin-Zhe Ma**, **2020**, Monthly Notices of Royal Astronomical Society, 491, 965–971
Implications of dark matter cascade decay from DAMPE, HESS, Fermi-LAT and AMS02 data
https://tinyurl.com/v3s79xw

A26 Anthony Walters, **Yin-Zhe Ma**, Jonathan Sievers, Amanda Weltman, **2019**, Physical Review D, 100, 103519
Probing Diffuse Gas with Fast Radio Bursts
https://tinyurl.com/uwlyxr7

A27 Elimboto Yohana, Yi-Chao Li, **Yin-Zhe Ma**, **2019**, Research in Astronomy and Astrophysics, 19, 186 (18 pages)
Forecasts of cosmological constraints from HI intensity mapping with FAST, BINGO & SKA-I
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A28 Denis Tramonte, **Yin-Zhe Ma**, Yi-Chao Li, Lister Staveley-Smith, **2019**, Monthly Notices of the Royal Astronomical Society, 489, 385-400
Searching for HI imprints in cosmic web filaments with 21-cm intensity mapping
https://tinyurl.com/sfreeqz

A29 Wei-Ming Dai, **Yin-Zhe Ma**, Zong-Kuan Guo, Rong-Gen Cai, **2019**, Physical Review D, 99, 043524
Constraining the reionization history with CMB and spectroscopic observations
https://tinyurl.com/uht3hnn

A30 N. Aghanim et al., Planck Collaboration **2018**, Astronomy and Astrophysics, 617, A48
Planck intermediate results. LIII. Detection of velocity dispersion from the kinetic Sunyaev-Zeldovich effect
https://tinyurl.com/y8n5782m

A31 Xiaodong Xu, **Yin-Zhe Ma**, Amanda Weltman, **2018**, Physical Review D, 97, 083504
Constraining the interaction between dark sectors with future HI intensity mapping observations
https://tinyurl.com/ycmvor78

A32 **Yin-Zhe Ma**, Guo-Dong Gong, Ning Sui, Ping He, **2018**, Monthly Notices of the Royal Astronomical Society, 475, 379-390
Constraining the optical depth of galaxies and velocity bias with cross-correlation between kinetic Sunyaev-Zeldovich effect and peculiar velocity field
https://tinyurl.com/yan2tbcx

A33 Yi-Chao Li, **Yin-Zhe Ma**, Mathieu Remazeilles, Kavilan Moodley, **2018**, Physical Review D, 97, 023514
Measurement of the pairwise kinematic Sunyaev-Zeldovich effect with Planck and BOSS data
https://tinyurl.com/y8ylop2m

A34 Yi-Chao Li, **Yin-Zhe Ma**, **2017**, Physical Review D, 96, 063525
Constraints on Primordial non-Gaussianity from Future HI Intensity Mapping Experiments
https://tinyurl.com/yam2tzqs

A35 **Yin-Zhe Ma**, **2017**, Nuclear Physics B, 920, 402-418
Constraining the ionized gas evolution with CMB-spectroscopic survey cross-correlation
https://tinyurl.com/ydggo97a

A36 **Yin-Zhe Ma**, & Shuang-nan Zhang, **2016**, Physics Education (IOP), 51, 065011 (6 pages)
Hubble Expansion is not a Velocity
https://tinyurl.com/zb4mabb

A37 **Yin-Zhe Ma**, Douglas Scott, **2016**, Physical Review D, 93, 083510 (8 pages)
How much cosmological information can be measured?
http://tinyurl.com/z2qveke

A38 Yi Wang, & **Yin-Zhe Ma**, **2016**, Nuclear Physics B, 906, 367-380 (5 pages)
CMB Cold Spot from Inflationary Feature Scattering
http://tinyurl.com/ha9j3gj

A39 P. A. R. Ade et al., Planck Collaboration, **2016**, Astronomy and Astrophysics, 586, 140 (14 pages)
Planck intermediate results. XXXVII. Evidence of unbound gas from the kinetic Sunyaev-Zeldovich effect
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A40 **Yin-Zhe Ma**, Ludovic Van Waerbeke, Gary Hinshaw, Alireza Hojjati, Douglas Scott, and Joe Zuntz, **2015**, Journal of Cosmology and Astroparticle Physics, 09, 046 (14 pages)
Probing the diffuse baryon distribution with the lensing-tSZ cross-correlation
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A41 **Yin-Zhe Ma**, Min Li, and Ping He, **2015**, Astronomy and Astrophysics, 583, 52 (7 pages)
Constraining cosmology with pairwise velocity estimator
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A42 Yan Gong, **Yin-Zhe Ma**, Shuang-nan Zhang, and Xuelei Chen, **2015**, Physical Review D, 92, 063523 (11 pages)
Consistency test on the cosmic evolution
http://tinyurl.com/ppdozqm

A43 **Yin-Zhe Ma** and Yi Wang, **2014**, Journal of Cosmology and Astroparticle Physics, 09, 041 (14 pages)
Reconstructing the Local Potential of Inflation with BICEP2 data
http://tinyurl.com/psevjdn

A44 **Yin-Zhe Ma** and Aaron Berndsen, **2014**, Astronomy and Computing, 5, 45-56 (12 pages)
How to combine correlated data sets – A Bayesian hyperparameter matrix method
http://tinyurl.com/plh9clg

A45 **Yin-Zhe Ma** and Jun Pan, **2014**, Monthly Notices of the Royal Astronomical Society, 437, 1996-2004 (9 pages)
An estimation of local bulk flow with maximum likelihood method
http://tinyurl.com/py97es5

A46 **Yin-Zhe Ma**, Douglas Scott, **2014**, Astronomy and Geophysics, 55 (3): 3.33-3.36 (4 pages)
Velocities hasten to tell us about the Universe
Editor's highlight as the front cover of the June issue 2014
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A47 **Yin-Zhe Ma** and Gong-Bo Zhao, **2014**, Physics Letters B, 735, 402-411 (10 pages)
Dark energy imprints on the kinematic Sunyaev-Zel'dovich signal
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A48 Andrew Johnson, Chris Blake, Jun Koda, **Yin-Zhe Ma**, Matthew Colless, Matthew Colless, Martin Crocce, Tamara M. Davis, Heath Jones, John R. Lucey, Christina Magoulas, Jeremy Mould, Morag Scrimgeour, Christopher M. Springob, **2014**, Monthly Notices of the Royal Astronomical Society, 444, 3926-3947 (22 pages)
The 6dF Galaxy Survey: Cosmological constraints from the velocity power spectrum
http://tinyurl.com/qfh763f

A49 Yi Wang and **Yin-Zhe Ma**, **2014**, SCIENCE CHINA, Physics, Mechanics & Astronomy, 57(8): 1466-1470 (5 pages)
Precision of Future Experiments Measuring Primordial Tensor Fluctuation
http://tinyurl.com/o4mfrfe

A50 Michael Sitwell, Andrei Mesinger, **Yin-Zhe Ma**, Kris Sigurdson, **2014**, Monthly Notices of the Royal Astronomical Society, 438, 2664-2671 (8 pages)
The Imprint of Warm Dark Matter on the Cosmological 21-cm Signal
http://tinyurl.com/qbsbz6l

A51 **Yin-Zhe Ma**, James E. Taylor and Douglas Scott, **2013**, Monthly Notices of the Royal Astronomical Society, 436, 2029-2037 (9 pages)
Independent constraints on local non-Gaussianity from the peculiar velocity and density fields
http://tinyurl.com/ofblmyr

A52 **Yin-Zhe Ma**, Qing-Guo Huang and Xin Zhang, **2013**, Physical Review D, 87, 103516 (10 pages)
Confronting Brane Inflation with Planck and pre-Planck data
http://tinyurl.com/oyx9daw

A53 **Yin-Zhe Ma**, Gary Hinshaw and Douglas Scott, **2013**, The Astrophysical Journal, 771, 137 (11 pages)
WMAP Observations of Planck SZ clusters
http://tinyurl.com/qgp58kl

A54 **Yin-Zhe Ma**, and Douglas Scott, **2013**, Monthly Notices of the Royal Astronomical Society, 428, 2017-2029 (13 pages)
Cosmic bulk flows on $50h^{-1}$ Mpc scales: A Bayesian hyper-parameter method and multishells likelihood analysis
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A55 Miao Li, Xiao-Dong Li, **Yin-Zhe Ma**, Xin Zhang, Zhenhui Zhang, **2013**, Journal of Cosmology and Astroparticle Physics, 09, 021 (26 pages)
Planck Constraints on Holographic Dark Energy
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A56 Cheng Cheng, Qing-Guo Huang, **Yin-Zhe Ma**, **2013**, Journal of Cosmology and Astroparticle Physics, 07, 018 (13 pages)
Constraints on single-field inflation with WMAP, SPT and ACT data – A last-minute stand before Planck
http://tinyurl.com/oxj7bl7

A57 Rong-Gen Cai, **Yin-Zhe Ma**, Bo Tang, Zhong-Liang Tuo, **2013**, Physical Review D, 87, 123522 (9 pages)
Constraining the Anisotropic Expansion of Universe
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A58 J.Alberto Vazquez, M. Bridges, **Yin-Zhe Ma**, M.P. Hobson, **2013**, Journal of Cosmology and Astroparticle Physics, 08, 001 (15 pages)
Constraints on the Tensor-to-Scalar ratio for non-power-law models
http://tinyurl.com/ntn3mun

A59 **Yin-Zhe Ma**, Enzo Branchini and Douglas Scott, **2012**, Monthly Notices of the Royal Astronomical Society, 425, 2880-2891 (12 pages)
A comparison of galaxy peculiar velocities filed with the PSCz gravity field-A hyper-parameter method
http://tinyurl.com/qbjn8fj

A60 **Yin-Zhe Ma**, Jeremiah P. Ostriker and Gongbo Zhao, **2012**, Journal of Cosmology and Astroparticle Physics, 06, 026 (9 pages)
Cosmic Mach Number as a sensitive test of growth of structure
http://tinyurl.com/pv2vqoe

A61 Cheng Cheng, Qing-Guo Huang, Xiao-Dong Li, **Yin-Zhe Ma**, **2012**, Physical Review D, 86, 123512 (9 pages)
Constraints on the primordial gravitational waves with variable sound speed from current CMB data
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A62 **Yin-Zhe Ma**, George Efstathiou and Anthony Challinor, **2011**, Physical Review D, 83, 083005 (8 pages)
Testing a direction-dependent power spectrum with observations of cosmic microwave background
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A63 **Yin-Zhe Ma**, Christopher Gordon and Hume Feldman, **2011**, Physical Review D, 83, 103002 (7 pages)
Peculiar velocity field: constraining the tilt of the Universe
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A64 George Efstathiou, **Yin-Zhe Ma** and Duncan Hanson, **2010**, Monthly Notices of the Royal Astronomical Society, 407, 2530-2542 (13 pages)
Large-Angle Correlations in the Cosmic Microwave Background
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A65 **Yin-Zhe Ma**, Wen Zhao and Michael L. Brown, **2010**, Journal of Cosmology and Astroparticle Physics, 10, 007 (36 pages)
Constraints on the standard and non-standard early Universe models from CMB B-mode polarization
http://tinyurl.com/nhp5qst

A66 **Yin-Zhe Ma**, Yan Gong and Xuelei Chen, **2010**, European Journal of Physics C, 69, 509-519 (11 pages)
Couplings between holographic dark energy and dark matter
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A67 **Yin-Zhe Ma** and Xin Zhang, **2009**, Journal of Cosmology and Astroparticle Physics, 03, 006 (20 pages)
Brane Inflation revisited after WMAP five-year results
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A68 **Yin-Zhe Ma**, Yan Gong and Xuelei Chen, **2009**, European Journal of Physics C, 60, 303-315 (13 pages)
Features of holographic dark energy under the combined cosmological constraints
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A69 **Yin-Zhe Ma** and Xin Zhang, **2008**, Physics Letters B, 661, 239-245 (6 pages)
Possible theoretical limits on holographic quintessence from weak gravity conjecture
http://tinyurl.com/ne3lmsa

A70 **Yin-Zhe Ma**, **2008**, Nuclear Physics B, 804, 262-285 (24 pages)
Variable Cosmological Constant model: the reconstruction equations and constraints from current observational data
http://tinyurl.com/nfarfn8

B: Small-group collaboration (less than 15 authors)
Contribution: I initialized the idea, collaborated with researchers to carry out the research, and edit the paper draft.

B1 Ayodeji Ibitoye, Furen Deng, Yichao Li, **Yin-Zhe Ma**, & Xuelei Chen, **2024**, The Astrophysical Journal in Press, arXiv: 2411.09437
HI Intensity Mapping cross-correlation with thermal SZ fluctuations: forecasted cosmological parameters estimation for FAST and Planck

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4 Miscellaneous

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