

WEI CHIEH (MASON) NG

Massachusetts Institute of Technology

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EDUCATION

Massachusetts Institute of Technology (MIT) Sep 2018 - May 2024 (Expected)

Ph.D. Candidate in Physics

Advisor: Professor Deepto Chakrabarty; GPA: 4.60/5.00

Thesis: Multifaceted UNDERstanding of Accreting Neutron stars and their Environments (MUNDANE)

The University of Auckland 2017

Bachelor of Science (Honours) in Physics

Advisor: Professor Richard Easter; GPA: 8.63/9.00

Thesis: Inflationary Model Selection ft. Dark Matter in the CMB

The University of Auckland 2014 - 2016

Bachelor of Science

Majors: Physics and Mathematics; GPA: 8.74/9.00

RESEARCH EXPERIENCE

During my undergraduate career, I have worked on modeling the emergent spectra and magnetic field configurations of stellar atmospheres (O/B stars and Sun-like stars), model selection with cosmic inflation to understand the conditions in the early universe, and studying properties of the circumgalactic medium to gain insights into galaxy evolution. These research stints were conducted at The University of Auckland, Swinburne University of Technology, and the Australian National University.

Massachusetts Institute of Technology Sep 2018 - present

Graduate Research Assistant, Advisor: Prof. Deepto Chakrabarty

X-ray pulsation searches, timing, spectroscopic, and polarimetric analyses of pulsars (NICER/NuSTAR/IXPE/XMM-Newton/Swift/RXTE/AstroSat data)

PROFESSIONAL SERVICE

I am a referee for The Astrophysical Journal and the Monthly Notices of the Royal Astronomical Society. I am also a contributing graduate student member to the Imaging X-ray Polarimetry Explorer (IXPE) and Neutron star Interior Composition Explorer (NICER) science collaborations.

PUBLICATIONS

Additionally, I am a co-author on 30 publications and 38 Astronomer's Telegrams and GCN Circulars (of which I led 9).

First-author

5) **Mason Ng**, et al. 2023. *X-ray and Radio Monitoring of the Neutron Star Low Mass X-ray Binary 1A 1744-361*. In Review by ApJ. arXiv:2310.01511. DOI: 10.48550/arXiv.2310.01511

4) **Mason Ng**, et al. 2022. *Spectral Evolution of Ultraluminous X-ray Pulsar NGC 300 ULX-1*. ApJ, 940, 138. DOI: 10.3847/1538-4357/ac9965

3) Herman L. Marshall, **Mason Ng**, et al. (IXPE Collaboration + Norbert S. Schulz, Deepto Chakrabarty) 2022. *Observations of 4U 1626-67 with the Imaging X-ray Polarimetry Explorer*. ApJ, 940, 70. DOI: 10.3847/1538-4357/ac98c2

2) **Mason Ng**, Paul S. Ray, Peter Bult, Deepto Chakrabarty, et al. 2021. *NICER Discovery of Millisecond Pulsations and an Ultracompact Orbit in IGR J17494–3030*. ApJ, 908, L15. DOI: 10.3847/2041-8213/abe1b4

1) **M. Ng**, N.M. Nielsen, G.G. Kacprzak et al. 2019. *Kinematics of the OVI Circumgalactic Medium: Halo Mass Dependence and Outflow Signatures*. ApJ, 886, 66. DOI: 10.3847/1538-4357/ab48eb

ACCEPTED OBSERVING PROPOSALS AS PI

I have had four accepted observing proposals with NICER, NuSTAR, and Chandra (two of which were funded at ~ 50 k USD each). I have also had 384 ks of Target of Opportunity observations approved with NICER and Swift.

PRESENTATIONS

I have presented 10 in-person seminar talks (USA, Japan, Singapore, New Zealand), 3 conference talks (USA, Greece, New Zealand), 1 virtual conference talk (Italy), and 4 posters (USA).

TECHNICAL SKILLS

Programming	Python, HTML/CSS, IDL, L ^A T _E X
High Performance Computing	OpenMP, MPI, Slurm

HONORS & AWARDS

Prior to my graduate career, I had 3 large awards and scholarships from my secondary education from private foundations in New Zealand. I was also awarded 6 First in Course Awards as well as 3 undergraduate scholarships (worth an estimated NZD 37000 in total).

Bruno Rossi Prize [shared], High Energy Astrophysics Division of the AAS, as a Member of the NICER Science Team 2022

School of Science Service Fellowship (*Massachusetts Institute of Technology*) 2022

Graduate Service Award, Physics Department (*Massachusetts Institute of Technology*) 2021

TEACHING EXPERIENCE

I have 9 semesters of teaching experience: 6 at The University of Auckland as a grader, providing office hours, as well as short lectures for tutorials/laboratory work for undergraduate classes; 3 at MIT, for two undergraduate astrophysics classes (one semester) and two graduate astrophysics classes (two semesters). I graded assignments, held office hours, and answered questions via Piazza. I am also currently mentoring an MIT undergraduate student and a first-year graduate student in their research projects.

LEADERSHIP & POSITIONS

I am currently serving as the Vice-Chair for the Graduate Research and Development (GRAD) Coalition, the graduate student arm of the GRAD Caucus in the House of Representatives. I have also served on the Graduate Admissions Committee (2020-2022), co-organized the MIT Physics Graduate Application Assistance Program (2020-2022), served in various capacities on the MIT Graduate Student Council External Affairs Board (2019-2023) including as Vice-Chair (2022-2023), served on the MIT Open Space Programming Advisory Committee (2019-present), am a MITvote Graduate Liaison (2018-present), am a volunteer observer for MIT Sidewalk Astrogazers (2018-present), and previously served as the President of the Physics Association of The University of Auckland (2015-2017).

OUTREACH AND PANELS

Gave 11 presentations and participated in Q&A sessions for prospective applicants to physics graduate programs in the United States to over 400 students from all over the world.