

Ziggy Pleunis

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Employment

2024 Jan– **NWO Veni Fellow, University of Amsterdam and ASTRON**
 2021 Sep–2023 Dec **Dunlap Fellow, University of Toronto**
 2020 Sep–2021 Aug **Postdoctoral Researcher, McGill University**

Education

2016 Sep–2020 Aug **PhD Physics, McGill University**
 Thesis awarded the IAU Division D PhD Prize and the J. S. Plaskett medal.
 Supervisor: Prof. Victoria Kaspi
 2014 Sep–2016 Aug **MSc Astronomy and Astrophysics, University of Amsterdam**
 Supervisors: Prof. Jason Hessels, Dr. Cees Bassa
 2010 Sep–2014 Aug **BSc Physics and Astronomy, University of Amsterdam**

Grants and Awards

2024–2027 **Veni Fellowship** (€280,000), Dutch Research Council (NWO).
 2021–2024 **Dunlap Fellowship** (~\$270,000), Dunlap Institute, University of Toronto.
 2022 **Dunlap Seed Funding** (\$18,400), to build slow transient search hardware backend at the CHIME telescope, as co-PI.
 2022 **NSERC Brockhouse Canada Prize**, as part of the CHIME team.
 2022 **AAS Berkeley Prize**, as part of the CHIME/FRB team.
 2021 **IAU Division D PhD Prize**, for most remarkable work in high energy phenomena and fundamental physics.
 2021 **J. S. Plaskett Medal**, for the most outstanding doctoral thesis in astronomy or astrophysics in Canada.
 2021 Finalist, **APS DAP Cecilia Payne-Gaposchkin Dissertation Award**.
 2018–2020 **Schulich Graduate Fellowship** (\$25,000/yr), McGill physics department.

Leadership Experience

CHIME/FRB Collaboration
 2022– Co-PI and hardware lead of the slow transient search: CHIME/Slow.
 2019– Convener of various working groups on operations and scientific topics.
 2020–2021 Responsible for coordinating overall operations of the FRB survey.
 2018 Led the detailing and installation of the 2500-core FRB compute cluster.
 April 2023 **Fast radio burst follow-up workshop, University of Toronto**
 Chair of the scientific and local organizing committees for a two-day hybrid workshop to discuss FRB follow-up strategies with 120+ international researchers. Independently acquired funding through a grant proposal.

Teaching Experience

Supervised 1 graduate student and 8 undergraduate students so far.

	Graduate research supervision
2021 Sep–	Ayush Pandhi (with Prof. Bryan Gaensler; UofT).
	Undergraduate research supervision
2023 Sep–Dec	Affan Khadir (UofT).
2023 May–	Hannah Didehbani (with Dr. Kenzie Nimmo; MIT).
2022 May–	Ishika Bangari (→Data Analyst@UofT), Maxwell Fine (→MSc@UvA), Arianna Lasinski and Jillian Henkel (with Dr. Paul Scholz; UofT).
2019 Sep–2022 Apr	Camryn Mullin (→PhD@UVic) and Amanda Cook (→PhD@UofT; with Prof. Victoria Kaspi; McGill University).
	Instructor
Fall 2022	Astrophysical Transients (graduate course), co-instructor with Prof. Marten van Kerkwijk at the University of Toronto.
	Teaching assistantships
2016–2020	Introductory Astrophysics, Measurements Lab, Astrophysics (graduate course), Optics and Signal Processing at McGill University.
2013–2016	Introduction to Scientific Programming, Physics Lab Work, Academic Skills and Thermal Physics at the University of Amsterdam.

Technical Experience

- Primary author of [fitburst](#) (research article in press) and [dfdt](#), contributor to [DM_phase](#) and [cdmt](#), open-source software packages for the study of fast radio transients.
- Proficient in **Python**, **C** and **Mathematica**; skillful in scientific data analysis and modelling.
- Experience with distributed **high-performance computing**: scripting for computing clusters, handling large amounts of data (i.e., TB scale) and parallel programming of GPUs.

Academic Service

Peer review	Nature, Nature Astronomy, ApJL, ApJ, MNRAS, Universe NRAO observing proposals (gravitational waves and energetic transients; 4 semesters), FAST observing proposals (FRBs and pulsars; 3 years)
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Other Academic Activities

2023	Graduate admission committee, University of Toronto
2022	SURP committee member, Dunlap Institute Organization of the Summer Undergraduate Research Program, including lectures on astronomy and professional development, social activities and a symposium.
2016–2020	Physics TA committee member, McGill University Improved teaching at McGill University's physics department and trained peers to use active learning techniques in the lab and during tutorials.
2016–2020	Astronomy outreach with AstroMcGill, Montreal
2014–2016	Tour guide at the Anton Pannekoek Observatory, Amsterdam

Selected Refereed Publications

54 refereed publications in total, with 4,362 citations and an H-index of 27 (as of February 7, 2024). For a complete list, see [ADS](#) or [arXiv](#).

Publications as Lead Author

A * behind an author's name indicates a student under my supervision.

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| 40+ citations | A. Pandhi*, Z. Pleunis et al. [24 additional co-authors], “Polarization properties of the 128 non-repeating fast radio bursts from the first CHIME/FRB baseband catalog”, submitted to ApJ ; arXiv:2401.17378 |
| 140+ citations | CHIME/FRB Collaboration [58 co-authors; corresponding author: Z. Pleunis], “CHIME/FRB discovery of 25 repeating fast radio burst sources”, ApJ, 947, 83 (2023) |
| 110+ citations | Z. Pleunis et al. [30 additional co-authors], “Fast radio burst morphology in the first CHIME/FRB catalog”, ApJ, 923, 1 (2021) |
| 20+ citations | Z. Pleunis et al. [34 additional co-authors], “LOFAR detection of 110–188 MHz emission and frequency-dependent activity from FRB 20180916B”, ApJL, 911, L3 (2021) |
| 20+ citations | Z. Pleunis et al. [9 additional co-authors], “A millisecond pulsar discovery in a survey of unidentified <i>Fermi</i> γ -ray sources with LOFAR”, ApJL, 846, L19 (2017) |

Ten Most Cited Publications with Significant Contributions

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| 250+ citations | CHIME/FRB Collaboration [74 co-authors], “The first CHIME/FRB fast radio burst catalog”, ApJS, 257, 59 (2021) |
| 500+ citations | CHIME/FRB Collaboration [70 co-authors], “A bright millisecond-duration radio burst from a Galactic magnetar”, Nature, 587, 54–58 (2020) |
| 250+ citations | CHIME/FRB Collaboration [72 co-authors], “Periodic activity from a fast radio burst source”, Nature, 582, 351–355 (2020) |
| 200+ citations | E. Fonseca et al. [40 additional co-authors], “Nine new repeating fast radio burst sources from CHIME/FRB”, ApJL, 891, L6 (2020) |
| 300+ citations | CHIME/FRB Collaboration [56 co-authors], “CHIME/FRB detection of eight new repeating fast radio burst sources”, ApJL, 885, L24 (2019) |
| 100+ citations | A. Josephy et al. [43 additional co-authors], “CHIME/FRB Detection of the Original Repeating Fast Radio Burst Source FRB 121102”, ApJL, 882, L18 (2019) |
| 250+ citations | CHIME/FRB Collaboration [59 co-authors], “A second source of repeating fast radio bursts”, Nature, 566, 235–238 (2019) |
| 250+ citations | CHIME/FRB Collaboration [51 co-authors], “The CHIME fast radio burst project: system overview”, ApJ, 863, 48 (2018) |
| 50+ citations | C. G. Bassa, Z. Pleunis et al. [16 additional co-authors], “LOFAR discovery of the fastest-spinning millisecond pulsar in the Galactic field”, ApJL, 846, L20 (2017) |
| 20+ citations | C. G. Bassa, Z. Pleunis, J. W. T. Hessels, “Enabling pulsar and fast transient searches using coherent dedispersion”, Astronomy and Computing, 18, 40–46 (2017) |

Five Most Cited Publications as a Contributing Author

60+ citations	CHIME/FRB Collaboration [61 co-authors], “Sub-second periodicity in a fast radio burst”, Nature 607, 256–259 (2022)
300+ citations	B. Marcote et al. [53 additional co-authors], “A repeating fast radio burst source localized to a nearby spiral galaxy”, Nature, 577, 190–194 (2020)
70+ citations	P. Chawla et al. [39 additional co-authors], “Detection of Repeating FRB 180916.J0158+65 Down to Frequencies of 300 MHz”, ApJL 896, L41 (2020)
150+ citations	CHIME/FRB Collaboration [54 co-authors], “Observations of fast radio bursts at frequencies down to 400 megahertz”, Nature, 566, 230–234 (2019)
100+ citations	K. Stovall et al. [34 additional co-authors], “PALFA Discovery of a Highly Relativistic Double Neutron Star Binary”, ApJL 854, L22 (2018)

Selected Talks

6 colloquia and seminars; 11 invited and 14 contributed conference talks in total.

Colloquia & Seminars

Feb 2024	Colloquium “Uncovering the diversity of fast radio bursts,” ASTRON, Dwingeloo, the Netherlands.
April 2023	Lunch talk “CHIME/FRB Discovery of 25 Repeating Fast Radio Burst Sources,” UofT, Toronto, Canada.
Dec 2022	Lunch talk “Uncovering the diversity of fast radio bursts,” Sterrewacht, Leiden, the Netherlands.
Nov 2022	Colloquium “ Uncovering the diversity of fast radio bursts ,” Dominion Astrophysical Observatory, Victoria, Canada.
Nov 2021	Seminar “ The CHIME/FRB experiment ,” CASCA Canadian telescope seminar series, virtual.
Oct 2021	Colloquium “The repetition and morphology of fast radio bursts,” the University of Toronto, Toronto, Canada.

Invited Conference Talks

Sep 2023	“The CHIME/FRB experiment,” Flatiron Institute workshop, New York, USA.
May 2023	“Fast radio bursts as probes for Galactic and extragalactic magnetism with DSA-2000,” DSA-2000 meeting, virtual.
Aug 2022	“Fast radio burst detection and differentiation with the CHIME telescope,” IAU General Assembly Division D day, Busan, South Korea.
May 2022	“FRBs with CHIME Past and Future,” Royal Astronomical Society meeting on The new transient radio sky, virtual.
May 2021	“Fast radio burst detection and morphology with the CHIME telescope,” for the J.S. Plaskett Medal, Canadian Astronomical Society meeting, virtual.
April 2021	“Fast radio bursts, repetition and morphology,” American Physical Society meeting, virtual.

- April 2021 “Fast radio burst detection and morphology with the CHIME telescope” for the Cecilia Payne-Gaposchkin Dissertation Award finale, American Physical Society meeting, virtual.
- Feb 2021 “The first CHIME/FRB catalog: Fast Radio Burst morphologies and differentiating repeaters,” Yukawa Institute for Theoretical Physics, Kyoto University, virtual.
- Feb 2019 “Fast radio bursts with CHIME/FRB,” FRB2019, Amsterdam, the Netherlands.
- Dec 2018 “Finding fast radio bursts in real-time with CHIME,” SRitp workshop Fast Radio Bursts, Rehovot, Israel.

Contributed Conference Talks

- Nov 2023 “The discovery, monitoring and modelling of repeating FRB sources from CHIME/FRB,” FRB2023, virtual.
- May 2023 “Fast radio bursts as probes for Galactic and extragalactic magnetism with the SKA and ngVLA,” New Eyes on the Universe: SKA and ngVLA, Vancouver, Canada.
- Oct 2022 “New repeating sources of FRBs from CHIME/FRB,” Cornell FRB meeting, Ithaca, USA.
- Aug 2022 “New repeating sources of FRBs from CHIME/FRB,” FRB2022, Busan, South Korea.
- June 2022 “Fast radio bursts with the LOFAR telescope,” LOFAR family meeting, Cologne, Germany.
- Dec 2021 “[New repeating sources of fast radio bursts from CHIME/FRB](#),” Science at Low Frequencies VIII, virtual.
- July 2021 “[New repeating sources of fast radio bursts from CHIME/FRB](#),” FRB2021, virtual.
- Jan 2022 “Fast radio burst morphology in the first CHIME/FRB catalog,” 237th American Astronomical Society meeting, virtual.
- Dec 2020 “[Fast radio burst morphology in the first CHIME/FRB catalog](#),” Science at Low Frequencies VII, virtual.
- July 2020 “Fast radio burst morphology with CHIME,” FRB2020, virtual.
- July 2016 “First LOFAR millisecond pulsar discovery,” 71st Netherlands Astronomy Conference, Nunspeet, the Netherlands.

Selected Media Appearances

17+ appearances in print, on radio and on television in total.

- Feb 2023 [De Volkskrant](#) wrote about the discovery of 25 repeating FRB sources by CHIME (in Dutch).
- July 2022 Interviewed live on [CTV News](#) about sub-second periodicity in an FRB.
- Aug 2022 Our first catalog of FRBs was reported on by [Sky & Telescope](#).
- Nov 2020 [Vice](#), the [Globe and Mail](#) and the [Associated Press](#) wrote about the FRB-like burst from a Galactic magnetar that we detected with the CHIME telescope. You can hear me talk about this result on CBC radio’s [Quirks and Quarks](#) and on [BNR nieuwsradio](#) (in Dutch).