

CURRICULUM VITAE

Cameron Van Eck

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 CANADA

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Citizenship: Canadian
 Date of Birth: September 14, 1987

EDUCATION

PhD in Astrophysics	Radboud University	January 2013 – October 2017 (Defended 9 Oct 2017)
MSc in Astrophysics	University of Calgary	May 2010 - September 2012
BSc in Astrophysics and Physics (First Class Honours)	University of Calgary	September 2005 - April 2010

EMPLOYMENT HISTORY

Dates	Position	Institution	Supervisor
August 2018 – Present	Research Associate	Dunlap Institute for Astronomy and Astrophysics	Bryan Gaensler
April – May 2020	Sessional Instructor	Department of Astronomy and Astrophysics, University of Toronto	Rachel Freisen
April 2018 – July 2018	Postdoc	University of Calgary	Jo-Anne Brown
January 2013 – October 2017	PhD student	Radboud University	Marijke Haverkorn
May 2010 - September 2012	MSc Graduate Student	University of Calgary	Jo-Anne Brown
September 2009 – April 2010	Research Assistant	University of Calgary	Jo-Anne Brown
Summer 2009, 2008	NSERC USRA student	University of Calgary	Jo-Anne Brown
Summer 2007	NSERC USRA student	University of Calgary	Nasser Moazzen- Ahmadi

SCHOLARSHIPS AND AWARDS

Award Name	Value (\$CAD)	Type	Year Awarded
PhD Awards			
Sir James Lougheed Award of Distinction	\$20,000	Provincial	2013
MSc Awards			
Alberta Innovation – Technology Futures Graduate Student Scholarship	\$7000 (Year 1) \$23,000 (Year 2) + \$1500/year research allowance	Provincial	2010/2011
NSERC Post-Graduate Scholarship M	\$17,500	National	2010
Queen Elizabeth II Graduate Scholarship	(rescinded due to external funding)	Institutional	2010
BSc Awards			
Department of Physics and Astronomy, Venkatesan Silver Medallion	Silver Medal + \$1000	Institutional	2010
Louise McKinney Post-Secondary Scholarships	\$2500	Provincial	2009, 2008, and 2007
Bill and Irene Bell Bursary	\$3500	Institutional	2009
Terentiuk Bursaries	\$2500	Institutional	2009
Physics and Astronomy Undergraduate Scholarship	\$500	Institutional	2008 and 2007
University of Calgary Undergraduate Merit Award	\$2800	Institutional	2008
John D. Petrie Memorial Undergraduate Bursary	\$5000	Institutional	2007
Jason Lang Scholarship (Alberta Scholarship Programs)	\$1000	Provincial	2006
Margaret and Ted Newall Bursary	\$5000	Institutional	2005
Dean's Merit Admission Awards - Faculty of Science	\$1000	Institutional	2005
University of Calgary Admission Scholarships	\$500	Institutional	2005
Alexander Rutherford Scholarship	\$2500	Provincial	2005

RESEARCH CONTRIBUTIONS (incl. list of publications)

Total citations: 633. h-index: 11. Citation counts are current as of 16 Sep 2020, and are taken from the ADS Astronomy Abstract Service.

Online list of articles available at: http://adsabs.harvard.edu/cgi-bin/nph-abs_connect?library&libname=Cameron+Van+Eck&libid=4ad7c760d7

Refereed First-author Journal Publications:

C.L. Van Eck, J.C. Brown, A. Ordog, R. Kothes, T.L. Landecker, B. Cooper, K.M. Rae, D.A. Del Rizzo, A.D. Gray, R. Ransom, R.I Reid, B. Uyaniker “Revisiting Rotation Measures from the Canadian Galactic Plane Survey: the Magnetic Field in the Disk of the Outer Galaxy”. *Astrophysical Journal Supplement*, Volume 253 Number 2. – 1 citation

C. Van Eck, M. Haverkorn, and 14 additional coauthors. “Diffuse polarized emission in the LOFAR Two-meter Sky Survey”, *Astronomy & Astrophysics*, Volume 623 id.A71, 22 pp. published 7 Mar 2019. – 7 citations

Cameron L. Van Eck, “The Power of Low Frequencies: Faraday Tomography in the sub-GHz regime”, *Galaxies*, 6(4), 112, 12pp., published 24 October 2018. – 3 citations

C. Van Eck, M. Haverkorn, and 20 additional coauthors. “Polarized point sources in the LOFAR Two-meter Sky Survey: A preliminary catalog”, *Astronomy & Astrophysics*, Volume 612 id.A58, 18 pp. published 1 June 2018. – 22 citations

C.L. Van Eck, M. Haverkorn, and 19 co-authors. “Faraday Tomography of the Local Interstellar Medium with LOFAR: Galactic Foregrounds Towards IC342”. *Astronomy & Astrophysics*, Volume 597, id.A98, 17 pp. published 10 January, 2017. – 43 citations

Van Eck, C. L., Brown, J. C., Shukurov, A., Fletcher, A. “Magnetic Fields in a Sample of Nearby Spiral Galaxies” *Astrophysical Journal*, Volume 799, Issue 1, article 35, 19 pp. published January 14, 2015. –34 citations

Van Eck, C. L., Brown, J. C., Stil, J. M., Rae, K., Mao, S. A., Gaensler, B. M., Shukurov, A., Taylor, A. R., Haverkorn, M., Kronberg, P. P., McClure-Griffiths, N. M., “Modeling The Magnetic Field In The Galactic Disk Using New Rotation Measure Observations From The Very Large Array”, *Astrophysical Journal*, Volume 728 Number 2, article 97, 14 pp. published Jan 25 2011. – 118 citations

Refereed Co-author Journal Publications:

C. S. Anderson, C.L. Van Eck, and 21 other authors. “Early Science from POSSUM: Shocks, turbulence, and a massive new reservoir of ionised gas in the Fornax cluster”. *Publications of the Astronomical Society of Australia*, Volume 38, article id. e020. Published 23 April 2021.

C.J. Riseley, **C.L. Van Eck**, and 12 other authors. “The POLarised GLEAM Survey (POGS) II: Results from an all-sky rotation measure synthesis survey at long wavelengths”. *Publications of the Astronomical Society of Australia*, Volume 37, article id. e029. Published 17 July 2020. – 1 citation

Heald, George, **Cameron Van Eck**, and 41 other authors. “Magnetism Science with the Square Kilometre Array”. *Galaxies*, 8(3), 53, published 6 July 2020.

A. Thomson, 13 other authors, and **C. Van Eck**. "Through thick or thin: Revealing the magneto-ionic structure of the nearby interstellar medium towards Sharpless 2-27 with Faraday tomography". *Monthly Notices of the Royal Astronomical Society*, Volume 487 Issue 4, p 4751-4767. published 24 May 2019. – 4 citations

Cantwell, T.M., **C.L. Van Eck**, and 23 other authors. "Low-frequency observations of the giant radio galaxy NGC 6251". *Monthly Notices of the Royal Astronomical Society*, Volume 495, Issue 1, pp.143-159. Published 4 May 2020. – 5 citations

Anna Ordog, Rebecca A. Booth, **Cameron L. Van Eck**, Jo-Anne C. Brown, and Thomas L. Landecker. "Faraday Rotation of Extended Emission as a Probe of the Large-Scale Galactic Magnetic Field", *Galaxies*, 7(2), 43, published 27 Mar 2019. – 3 citations

Sobey, C., **Van Eck, C**, and 23 other authors. "Low-frequency Faraday rotation measures towards pulsars using LOFAR: probing the 3D Galactic halo magnetic field". *Monthly Notices of the Royal Astronomical Society*, Volume 484 Issue 3, p 3646-3664. published 25 January 2019. – 27 citations

C. J. Riseley, E. Lenc, **C. L. Van Eck**, G. Heald, B. M. Gaensler, C. S. Anderson, P. J. Hancock, N. Hurley-Walker, S. S. Sridhar, and S. V. White. "The POLarised GLEAM Survey (POGS) I: First results from a low-frequency radio linear polarisation survey of the southern sky", *Publications of the Astronomical Society of Australia*, Volume 35, e043, 27pp., published 17 Dec 2018. – 12 citations

O'Sullivan, Shane P., Brüggem, M., **Van Eck, C. L.**, Hardcastle, M. J., Haverkorn, M., Shimwell, T. W., Tasse, C., Vacca, V., Horellou, C., Heald, G. "Untangling cosmic magnetic fields: Faraday tomography at metre wavelengths with LOFAR". *Galaxies*, 6(4), 126. published 29 Nov 2018 – 7 citations

S. O'Sullivan, **C. Van Eck**, 28 additional coauthors. "The intergalactic magnetic field probed by a giant radio galaxy", *Astronomy & Astrophysics* Volume 622, id.A16, 12 pp. Published 19 February 2019 - 16 citations

A. Neld, **C. Van Eck**, and 15 additional coauthors. "Reliable detection and characterization of low-frequency polarized sources in the LOFAR M51 field", *Astronomy & Astrophysics*, Volume 617, id.A136, 16 pp., published 2 October 2018. – 7 citations

J. S. Farnes, **C. L. Van Eck**, and 11 additional coauthors. "Source Finding in Linear Polarization for LOFAR, and SKA Predecessor Surveys, using Faraday Moments". *Monthly Notices of the Astronomical Society*, Volume 474, Issues 3, 17 pp. published 14 November 2017. – 10 citations

Coppejans, D.L., Koerding, E.G., Knigge, C., Pretorius, M.L., Woudt, P.A., Groot, P.J., **Van Eck, C.L.**, Drake, A.J. "Statistical Properties of Dwarf Novae-type Cataclysmic Variables: The Outburst Catalogue". *Monthly Notices of the Royal Astronomical Society*, Volume 456 Issue 4, p 4441-4454. published January 19, 2016. – 20 citations

Mao, S. A., McClure-Griffiths, N. M., Gaensler, B. M., Brown, J. C., **van Eck, C. L.**, Haverkorn, M., Kronberg, P. P., Stil, J. M., Shukurov, A., and Taylor, A. R. "New Constraints on the Galactic Halo Magnetic Field Using Rotation Measures of Extragalactic Sources toward the Outer Galaxy" *Astrophysical Journal*, Volume 755, Issue 1, article 21, 15 pp. published July 23, 2012. – 45 citations

Oppermann, **Van Eck, C. L.**, and 29 additional coauthors, “An improved map of the Galactic Faraday sky”, *Astronomy & Astrophysics*, Volume 542, article A93, 14 pp. published June 13, 2012. – 183 citations

Dehghany, M., Afshari, M., Abusara, Z., **Van Eck, C.**, & Moazzen-Ahmadi, N., “Isotope effects in the infrared spectra of the polar and nonpolar isomers of N₂O dimer”, *Journal of Molecular Spectroscopy*, Volume 247, Issue 2, p. 123-127. Published Feb 2007. – 62 citations

First author Non-refereed publications:

1. **Cameron Van Eck**. “Testing ionospheric Faraday rotation corrections for LOFAR”, thesis chapter, 11 pp., May 2017.

Note: other thesis chapters have been published/prepared as papers, and are listed separately.

2. **Cameron Van Eck** and Jo-Anne Brown “Modeling the Galactic Magnetic Field using Rotation Measure Observations in the Galactic Disk from the CGPS, SGPS, and the VLA”, *The Dynamic Interstellar Medium: a Celebration of the Canadian Galactic Plane Survey*, eds. R. Kothes, T.L. Landecker, and A.G. Willis, ASP Conference series, vol 438, p. 236, 7 pp. – 3 citations

Co-author non-refereed publications:

West, J. et al, “Cosmic magnetism”, white paper submitted to CASCA Long Range Plan 2020, 5 Nov 2019

Spekkens, K et al, “Canada and the SKA from 2020-2030”, white paper submitted to CASCA Long Range Plan 2020, 8 Nov 2019. – 1 citation

Publications in preparation (includes refereeing):

Enriquez et al., “A search for low frequency radio emission from red and brown dwarfs in TGSS”, submitted to A&A June 28, 2019

Hutschenreuter et al., “The Galactic Faraday depth sky 2020”, submitted to A&A

Thomson et al., “The brightest polarized region in the Southern sky at 400MHz”, submitted to MNRAS

Purcell et al., “RM-Tools: Software for Analysing Polarised Radio Spectra”, expected submission August 2021.

Fine and **Van Eck**, “Corrections for Bandwidth depolarization (working title)”, expected submission early fall 2021.

PhD Thesis:

“Exploring the Threefold Invisible Universe: Low-Frequency Spectropolarimetry with LOFAR as a Probe of Galactic Magnetism”, 140 pages. © 2017.
<http://hdl.handle.net/2066/175872>

Invited presentations:

Summary: 4 invited conference talks, 4 invited colloquia, 2 visitor’s seminars.

Invited colloquium talk (given remotely during COVID-19 quarantine): “Galactic Faraday tomography at low frequencies”, Dominion Radio Astrophysical Observatory, 15 April 2020.

Invited conference talk: “Galactic Faraday tomography at low frequencies”, Magnetic Fields in the Universe VII, Quy Nhon, Vietnam, 17-22 Feb 2020.

Invited conference talk: “New perspectives on Galactic Faraday tomography at low frequencies”, New Perspectives on Galactic Magnetism meeting, Newcastle, UK, 10-14 June 2019. DOI: 10.5281/zenodo.3254756

Invited colloquium talk: “ ‘As if it wasn’t complex enough already’: Exploring Faraday complexity and Faraday tomography.” Nijmegen, the Netherlands, 6 June 2019.

Visitor’s seminar: “Faraday Tomography of the Milky Way with LOFAR”, NRAO Socorro, Feb 2019

Invited conference talk: “The Power of Low-Frequencies: Faraday Tomography of the Milky Way with LOFAR” 6th annual CHANG-ES collaboration meeting, Calgary, Canada, July 30 – August 4, 2018.

Invited conference talk: “The Power of Low-Frequencies: Faraday Tomography of the Milky Way with LOFAR” The Power of Faraday Tomography conference, Miyazaki, Japan, May 28 - June 1, 2018.

Invited colloquium talk: “Finding the Invisible: Searching for Magnetic Structures in the Milky Way” Astronomical Institute, Ruhr-Universität Bochum, Bochum, Germany. January 13, 2015

Invited colloquium talk: “Identifying Relationships between Galactic Magnetic Fields and the Interstellar Medium.” School of Mathematics and Statistics, Newcastle University, Newcastle, UK. March 28, 2014.

Visitor’s seminar: “Identifying Relationships between Galactic Magnetic Fields and the Interstellar Medium.” Max Planck Institut für Radioastronomie, Bonn, Germany. February 14, 2013.

Contributed presentations:

Summary: 14 conference talks as presenter, 3 conferences posters as presenter.

Cameron Van Eck “Faraday Tomography with LOFAR”, GMIMS workshop, Dominion Radio Astrophysical Observatory, 25-26 Oct 2017, talk

Cameron Van Eck and Marijke Haverkorn “Faraday tomography of the local ISM with the Low Frequency Array”, CASCA 2017, Edmonton, Canada, May 29 – June 1, 2017, poster

Cameron Van Eck and Marijke Haverkorn “Faraday Tomography with LOFAR” LOFAR Magnetism KSP Meeting, Manchester, UK. June 21, 2016, talk

Cameron Van Eck and Marijke Haverkorn “Faraday Tomography with LOFAR” CASCA 2016, Winnipeg, Canada. June 1, 2016, talk

Cameron Van Eck and Marijke Haverkorn “Faraday Tomography with LOFAR” 71st Netherlands Astronomy Conference, Nunspeet, the Netherlands. May 24, 2016, talk

Cameron Van Eck and Marijke Haverkorn “Faraday Tomography with LOFAR” LOFAR Science 2016. Zandvoort aan Zee, the Netherlands. April 5, 2016, talk

Cameron Van Eck and Marijke Haverkorn “Faraday Tomography with LOFAR” Science at Low Frequencies II. Albuquerque, NM, USA. Dec 3, 2015, talk

Cameron Van Eck. “Testing Ionospheric Faraday Rotation correction for LOFAR”. Remotely presented to LOFAR Status Meeting, Sep 30, 2015, talk

Cameron Van Eck and Marijke Haverkorn “Faraday Tomography with LOFAR” LOFAR Science 2015, Assen, the Netherlands. June 3, 2015, talk

Cameron Van Eck and Marijke Haverkorn “Faraday Tomography with LOFAR” Workshop on Interstellar Magnetic Fields, Toulouse, France. April 29, 2015, talk

Cameron Van Eck and Marijke Haverkorn “Milky Way Working Group/IC342 field” LOFAR Magnetism KSP Meeting, Nijmegen, the Netherlands. March 9 2015, talk

Cameron Van Eck and Jo-Anne Brown “Connecting galactic magnetic fields to the interstellar medium: Looking for statistical correlations”, Magnetisation of Interstellar and Intergalactic Media: The Prospects of Low-Frequency Radio Observations. Mainz, Germany. July 9-13, 2012, talk.

Cameron Van Eck, Jo-Anne Brown, Andrew Fletcher, and Anvar Shukurov “Connecting galactic magnetic fields to the interstellar medium: Looking for statistical correlations” Canadian Astronomical Society Annual Meeting. Calgary, AB, CA. June 4-7 2012, talk.

Cameron Van Eck, Jo-Anne Brown, Andrew Fletcher, and Anvar Shukurov “Statistical Properties of Magnetic Fields in Galaxies”, APS Division of Plasma Physics 53rd Annual Meeting, Salt Lake City, UT, USA, Nov 14-18, 2011, talk.

Cameron Van Eck and Jo-Anne Brown “A New Empirical Model for the Large-Scale Magnetic Field of the Milky Way”, UKMHD conference, London, UK, June 16-17, 2011, poster.

Cameron Van Eck and Jo-Anne Brown “Modeling the Galactic Magnetic Field using Rotation Measure Observations in the Galactic Disk from the CGPS, SGPS, and the VLA”, The Dynamic Interstellar Medium: a Celebration of the Canadian Galactic Plane Survey, conference held Jun 2010 in Naramata, BC, CA., talk

Cameron Van Eck and Jo-Anne Brown, “The Galactic Magnetic Field as Viewed from the VLA”, 11th Annual Meeting of the Northwest Section of APS, conference held May 2009 in Vancouver, BC, CA., talk

Cameron Van Eck and Jo-Anne Brown, “Magnetic Fields in Space: Measuring the magnetic field of our Galaxy”, Sigma Pi Sigma Quadrennial Congress, Fermilab, IL, USA, Nov 6-8, 2008, conference poster

Public talks:

“Radio Astronomy: A whirlwind tour” – 1hr public lecture + Q&A delivered online for amateur astronomy communities Jan 2021.

Cosmos from Your Couch, Apr 2020: 1hr public Q&A on Youtube (live audience ~50)

North York Astronomical Association monthly meeting, Jan 2020: 1hr talk to audience of ~20 amateur astronomers.

UofT Astro Tours, Dec 2019: 1hr public lecture to audience of ~100.

<https://www.youtube.com/watch?v=JM20vYdb2yI>

Rothney Astrophysical Observatory Open House, April 2018: 20 minute public talk to audience of ~150.

Rothney Astrophysical Observatory Open House, May 2010: 20 minute public talk to audience of ~150.

Refereeing for academic journals

2018: *Galaxies*, 3 papers refereed

2019: *MNRAS*, 1 paper refereed
Galaxies, 2 papers refereed
ApJ, 1 paper refereed

TEACHING EXPERIENCE

Course instructor:

Introduction to Observational Radio Astronomy mini-course (graduate): Spring 2020

A short (8-lecture hour) course on radio astronomy. This course was conceived, proposed, designed, delivered, and graded by myself.

Teaching Assistantships (by course):

Interstellar Medium (undergraduate): 2013, 2014, 2015, 2016

Scientific Programming 2 (Python) (undergraduate): 2014, 2015

Scientific Programming 1 (C) (undergraduate): 2015

Cosmic Magnetism (graduate): 2014

Guest Lectures: Radio Astronomy (undergraduate), 2016

Introduction to Radio Astronomy (undergraduate), 2019

Astronomy Outreach (undergraduate), 2020

Workshops: Python for physicists, a 1 day introduction. July 2018, run twice, ~35 participants

VOLUNTEER/OUTREACH EXPERIENCE/OTHER ACHIEVEMENTS

- I served as the first PhD student representative for the Radboud University Astronomy department from Mar 2016 to Feb 2017; my primary duties in this role were to organize meetings of the PhD students to discuss concerns over department policies, and to present these concerns to the department head.
- I have served as postdoc representative to the astronomy department since September 2019. I have served as representative to the department community climate committee since Jan 2020.
- I have been a member of the LOFAR Magnetism Key Science project since 2013. I have participated in several LOFAR commissioning Busy Days and Busy Weeks, mostly working on problems related to polarization calibration and analysis.
- I was on the local organizing committee for the 2015 annual meeting of the LOFAR Magnetism Key Science Project.
- I organized and delivered two workshops (totaling about 35 participants) introducing the Python programming language to other physicists, in July 2018.
- I was a regular volunteer at monthly public outreach events at the Rothney Astrophysical Observatory (RAO) from January 2009 to September 2012. I also gave invited outreach talks at the RAO in May 2010 and April 2018. During my PhD I returned to the RAO as a volunteer during my summer vacations.
- During my PhD I was also been involved in outreach activities: I gave lectures to amateur astronomers, designed and run (several times) a 1 day practical activity in radio astronomy for high-school students, and given tours of the department radio telescopes.
- I have been a member of the Reddit /r/AskScience panel of experts since Aug 2019. I have been answering science, technology, and astronomy questions regularly on Reddit since 2012.
- I was a volunteer tutor with the Residence Academic Mentoring Program at UofC, a volunteer peer mentoring program aimed at helping undergraduates in need of personal tutoring. I was the Senior Mentor (program co-coordinator) for two years. (Sept 2006 – April 2012 [Mentor], Apr 2007 – Apr 2009 [Senior Mentor])
- I was a founding member of the Society for Scientific Presentations, Elocution, and the Accumulation of Knowledge (SSPEAK), a student club formed with the purpose of helping undergraduates in science learn and practice scientific presentation skills. (July 2011 – April 2012)
- I was a peer tutor with the Physics and Astronomy Student's Association (UofC's physics students club) when they began a volunteer peer tutoring program for students taking undergraduate physics and mathematics courses. (Sept 2010 – April 2012)

PROFESSIONAL REFERENCES/REFEREES

Bryan Gaensler
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Director, Dunlap Institute for Astronomy
and Astrophysics
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Marijke Haverkorn
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Associate Professor, Radboud University
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Jo-Anne Brown
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Jeroen Stil
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