

Department of Physics & Astronomy  
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# Pauline Barmby

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 GitHub: <https://github.com/PBarmby>  
 Group website: <https://nearby-galaxies.github.io>

## Overview

Astrophysicist and science educator with academic leadership experience; interests in science policy and equity, diversity and inclusion. Research specialty in observational extragalactic astronomy: galaxy formation, stellar populations, star clusters, clusters of galaxies, active galactic nuclei, astroinformatics.

## Education

PhD, Astronomy	Harvard University	2001
AM, Astronomy	Harvard University	1998
BSc (Hons), Physics & Astronomy	University of British Columbia	1995

## Experience

Acting Dean	Faculty of Science, Western University	2017–2018
Associate Dean, Graduate & Postdoctoral Studies	Faculty of Science, Western University	2015–2017
Associate Professor	Department of Physics & Astronomy, Western University	2013–present
Assistant Professor	Department of Physics & Astronomy, Western University	2007–2013
Astrophysicist	Smithsonian Astrophysical Observatory	2001–2007

## Fellowships and Awards

Science Leadership Fellow	University of Toronto	2014
Florence Bucke Prize	Western Faculty of Science	2014
Outreach Award (to entire Astronomy group)	Western Faculty of Science	2010
Group Achievement Award (to Spitzer Space Telescope Payload Team)	NASA	2004
Graduate Teaching Award	Harvard University	1997, 1999
Margaret Weyerhauser Jewitt Memorial Fellowship	Harvard University	1996
Canada Scholar	Government of Canada	1990–1995

## Research Grants

Nearby Galaxies Observed with Real & Virtual Telescopes <i>PI</i>	\$120k	NSERC Discovery Grant	2018–2023
The Geography of Galaxies <i>PI</i>	\$8k	Mitacs Globalink	2018
Astroinformatics <i>PI</i>	\$8k	Mitacs Globalink	2014
Assembling the Big Picture of Nearby Galaxies <i>PI</i>	\$135k	NSERC Discovery Grant	2013–2018
Astroinformatics <i>PI</i>	\$84k	Western University ADF	2012–2014
Star Formation Histories of Nearby Galaxies <i>PI</i>	\$125k	NSERC Discovery Grant	2008–2013
Star Formation Histories of Nearby Galaxies <i>PI</i>	\$140k	Ontario Early Researcher Award	2008–2013
Old and New Stars Revealed by Infrared Imaging <i>PI</i>	\$4k	Western University ADF	2008–2009
Star Formation & Star Clusters in Nearby Galaxies <i>PI</i>	\$40k	NSERC Discovery Grant	2007–2008
Mass Loss in Cepheid Variables <i>Co-I</i>	\$28k	Spitzer Science Center	2006–2009
A Complete Map of M31 with IRAC <i>PI</i>	\$74k	Spitzer Science Center	2005–2007
Imaging of the Extended Groth Strip <i>Co-I</i>	\$7k	Chandra X-ray Center	2004–2006
The Most Massive Star Clusters <i>Co-I</i>	\$18k	STScI	2004–2006
Stellar Populations in M101 <i>Co-I</i>	\$16k	STScI	2002–2005
<i>Values are totals over grant lifetime allocated to my research.</i>			
The Giant Elliptical Galaxy Hiding in our Backyard: <i>Co-I</i>	N/A	Chandra X-ray Center	2018–2020
The Resolved X-ray Binary Population of Maffei 1 <i>Co-I</i>			
Canadian Advanced Network for Astronomy Research [community resource at NRC] <i>PI</i>	N/A	Compute Canada Research Platforms and Portals	2018
The Cluster Population of UGC 2885 <i>Co-I</i>	N/A	Space Telescope Science Inst. (STScI)	2017–2019
Far Out: Tracing the Mass in M31 <i>PI*</i>	N/A	Spitzer Science Center	2012
The Local Group Dwarf Spheroidals <i>PI*</i>	N/A	Spitzer Science Center	2008–2011

*PI\*=proposal PI, funding allocated only to US Co-Is per NASA regulation.*

## Telescope Time Awards

PI or Co-I on 40+ successful proposals since 2001, including Canada-France-Hawaii Telescope, Gemini Observatory, Chandra X-ray Observatory, Hubble & Spitzer Space Telescopes. Recent:

SIGNALS: Star formation, Ionized Gas & Nebular Abundances Legacy <i>Co-I</i>	55 nt	CFHT	2018–22
The Giant Elliptical Galaxy Hiding in our Backyard: The Resolved 1-30 keV X-ray Binary Population in Maffei 1 <i>Co-I</i>	125 ks	Chandra	2018
The Giant Elliptical Galaxy Hiding in our Backyard: The Resolved X-ray Binary Population of Maffei 1 <i>Co-I</i>	200 ks	NuSTAR	2018
Wide-field near-infrared imaging of Maffei 1 <i>PI</i>	13.8 h	CFHT	2017
The cluster population of UGC 2885 <i>Co-I</i>	12 orb	Hubble	2017

## Teaching Experience

### Courses taught at Western University

Astronomy 9720	Observational Astrophysics (c)	12 grads	2019
Astronomy 9610	Fundamentals of Modern Astrophysics (c)	9 grads	2014
Astronomy 2022	The Origin of the Universe	190 undergrads	
Physics 1402	Physics for Engineers II	385 undergrads	2013–14
Astronomy 9028	Data and Error Analysis (c)	12 grads	
Astronomy 9610	Fundamentals of Modern Astrophysics (c)	10 grads	
Astronomy 9612	Fundamentals of Computation (c)	12 grads	2012–13
Physics 1402	Physics for Engineers II	370 undergrads	
Astronomy 9610	Fundamentals of Modern Astrophysics (c)	7 grads	
Astronomy 1021	General Astronomy	85 undergrads	2011–12
Physics 1402	Physics for Engineers	180 undergrads	
Astronomy 9610	Fundamentals of Modern Astrophysics (c)	7 grads	
Astronomy 1021	General Astronomy	150 undergrads	2010–11
Astronomy 9610	Introduction to Astrophysics (t)	13 grads	
Physics 1024	Introductory Physics (c)	34 undergrads	2009–10
Astronomy 4602	Gravitational Astrophysics & Cosmology	10 undergrads	
Astronomy 1021	General Astronomy	135 undergrads	
Astronomy 9620	Galactic and Extragalactic IR Astronomy (c)	6 grads	
Astronomy 1021	General Astronomy	135 undergrads	2008–09
Physics 9028	Data and Error Analysis (c)	11 grads	
Astronomy 96xx	Extragalactic Star Formation (reading course)	1 grad	2007–08
Astronomy 4602	Gravitational Astrophysics & Cosmology	10 undergrads	
Astronomy 9620	Galactic and Extragalactic IR Astronomy (c)	6 grads	
Calculus 1000	Calculus I	90 undergrads	

(c) = co-instructor, (t)=team-taught

### Student and postdoctoral supervision at Western University

All students in Astronomy unless otherwise noted.

#### Postdoctoral fellows & research assistants

1. M. Gorski, PDF	Molecular gas in nearby galaxies	2017–present
2. S. Lianou, PDF	Resolved star formation in nearby galaxies	2012–2015
3. J. Taylor, RA	Development of Imagecube	2013
4. M. Azimlu, PDF	HII regions in M31	2009–2011

**PhD students**

1. H. Papei	“Star formation histories of nearby galaxies”	2018–present
2. A. Desouza	“Gas in compact groups of galaxies” (with S. Gallagher; withdrew)	2017–2018
3. R. Arnason	“X–ray sources and machine learning in nearby galaxies”	2014–2018
4. S. Rahmani	“What governs star formation in galaxies? A modern statistical approach”	2012–2016
5. N. Vulic	“X–ray populations in the Local Group: insights with <i>Hubble</i> & <i>Chandra</i> ” (with S. Gallagher)	2012–2016
6. R. Marciniak	(withdrew)	2009

**MSc students**

1. D. Li	“Marked Multi-type Markov Point Process with Asymmetric Interaction” (Statistics, with I. McLeod)	2018–present
2. J. Xu	“The Globular Clusters of Maffei 1” (with S. Gallagher)	2018–present
3. M. Rafiei Ravandi	“Extending the surface brightness profile of the Andromeda galaxy using <i>Spitzer</i> -IRAC”	2013–2015
4. D. Hemachandra	“Characteristics of polycyclic aromatic hydrocarbons in M31” (with E. Peeters)	2012–2014
5. M. Croley	“The M31 abundance gradient”	2011–2013
6. G. Farhani	“HII regions and the star formation rate in NGC 5128 (Cen A)”	2011–2012
7. J. Agar	“Comparisons of M31 globular clusters with and without X–ray sources”	2010–2012
8. N. Vulic	“A stacking analysis of star clusters in M51: the search for X–Ray binaries” (with S. Gallagher)	2010–2012
9. H. Shiu	“Mass-loss rates of AGB stars in metal-poor Local Group dwarf spheroidal galaxies”	2009–2011
10. R. Marciniak	“HII regions in M31”	2008–2009
11. D. Valenzo	(withdrew)	2007

**BSc students**

1. M. Shubat	BSc thesis (Computer Science)	2018–19
2. J. Xie	Mitacs Globalink	2018
3. J.S. Elkerton	BSc thesis	2016–2017
4. W. Ahmed	work-study	2015–2016
5. A. Kiar	Volunteer, USRA	2014–2016
6. A. Hidalgo Valadez	Mitacs Globalink	2014
7. G. Keenleyside	BSc thesis	2013–2014
8. E. Matlovich	work-study	2013
9. R. Odell	USRA	2012
10. F. Jalilian	USRA	2010
11. M. Gracie	USRA	2010
12. H. Shiu	USRA	2009
13. V. Lyttle	summer student	2008
14. N. Hasan	work-study	2008

## Professional Activities

### University service as Science acting dean, 2017–18

Faculty leadership	initiated science policy training for faculty increased Science involvement in Western's Indigenous Strategic Plan led collaborative construction, increased dissemination of Faculty budget plan developed structure and mandate for new Science Technology Services unit initiated renewal: Centre for Environment & Sustainability, Africa Institute oversaw faculty & staff hiring, including 5 leadership appointments
personnel management	leadership & performance evaluation of associate deans, directors, dept. chairs mentorship & performance evaluation of new faculty members
program oversight	participated in research centre and graduate program reviews oversaw launch of data science and data analytics programs
external advocacy	represented Science in ceremonies, government & donor visits; public events
University leadership	participated in Faculty reviews, decanal & provost selection, University Senate served on research institute boards, coordinated inter-Faculty programs

### University service as Science associate dean for graduate and postdoctoral studies, 2015–17

Faculty leadership	contributor to Faculty budget planning, including new research chair proposals led successful hire of graduate recruitment officer adjudicated faculty and staff award nominations, internal research proposals served as Dean's designate on 5 faculty search committees
personnel management	completed performance reviews for probationary faculty and professional staff
program management	oversaw development of 5 new graduate programs supported 6 Science program reviews, reviewed 1 external program
program coordination	facilitated communications between & among Science programs, School of Graduate & Postdoctoral Studies, other Faculties
postdoc coordination	mentored individual postdocs, organized networking events
financial management	provided academic oversight of Faculty of Science graduate funding
University leadership	served on Senate Subcommittee for University Program Review-Graduate, Graduate Education Council Policy, Postdoc Mentoring committees

### Departmental/University service as faculty member

Member	Integrated Science program committee	Western Faculty of Science	2014
Member	workload committee	Western Physics & Astronomy	2014
Member	graduate affairs committee	Western Physics & Astronomy	2013–14
Member	research & awards committee	Western Physics & Astronomy	2013–14
Member	colloquium committee	Western Physics & Astronomy	2012–13
Member	first-year operating committee	Western Faculty of Engineering	2011–14
Member	Appointments committee	Western Physics & Astronomy	2011–12
Chair	Outreach committee	Western Physics & Astronomy	2011–13
Member	NSERC USRA selection committee	Western Faculty of Science	2008–14
Member	Outreach committee	Western Physics & Astronomy	2007–13

**Professional service & memberships**

Co-chair	CASCA/ACURA Long Range Plan for Astronomy (LRP2020)	2019–20
Chair	University of Victoria Physics & Astronomy Academic Program Review committee	2018–19
Member	CASCA Computation & Data Committee	2018–21
Member	International Astronomical Union, Division H (Interstellar Matter and Local Universe) steering committee	2018–21
Member	[US] National Center for Optical-Infrared Astronomy Management Oversight Council	2018–19
Member	Program committee, SciPy conference	2018
Member	Association of Universities for Research in Astronomy (AURA) Oversight Council for Gemini Observatory	2017–18
Member	York Region Astronomy Association advisory board	2017
Co-chair	Astronomy mini-symposium, SciPy conference	2017
Member	CANFAR Science Management Committee	2016–present
Member	Dunlap Institute advisory committee	2016–2018
Chair	Software/Data Carpentry policy committee	2016–2018
Member	Membership committee, International Astrostatistics Association	2016–present
Member	ACURA-CASCA TMT Alternative Site Committee	2016
Director-at-large	Canadian Astronomical Society (CASCA)	2013–15
Member	CASCA Equity and Inclusivity Committee	2015–17
Member	CASCA Long Range Plan Implementation Committee	2014–15
Member	scientific organizing committee (SOC), “Python in Astronomy”	2014–15
Member	Canada-France-Hawaii Telescope Science Advisory Council	2014–15
Member	Users’ Committee, Gemini Observatory	2013–15
Chair	CASCA Ground-based Astronomy Committee	2013–15
Member	CASCA Ground-based Astronomy Committee	2012–13
Chair	SOC, Gemini Science Conference	2012
Member	Canadian Gemini Science Committee	2011–13
Member	local organizing committee, CASCA 2011 general meeting	2010–11
Chair	SOC, CASCA 2011 general meeting	2010–11
Member	SOC, “The Evolving ISM in the Milky Way and Nearby Galaxies”	2007
Member	<i>Spitzer Space Telescope</i> Users’ Panel	2004–07
Member	Canadian Association of Physicists	2018–present
Member	American Association of Physics Teachers	2011–2015
Member	International Astronomical Union	2009–present
Associate	COSPAR	2008–present
Member	Canadian Astronomical Society	2001–present
Member	American Astronomical Society	1997–present

**Consulting**

Science consultant	Ubisoft Toronto	2015
Textbook reviewer	McGraw-Hill	2013
Textbook reviewer	Cambridge University Press, Nelson Canada	2012
Test bank author	Nelson Canada	2011–2012
Textbook reviewer	W.W. Norton, Cambridge University Press	2010
Textbook reviewer	Cambridge University Press, W.H. Freeman	2009

**Peer review**

Reviewer & panel chair	NASA Astrophysics Data Analysis Program	2018
Reviewer	<i>Spitzer Space Telescope</i> director's discretionary time proposals	2017
Reviewer	National Research Council Grants to International Affiliations Program Annual Performance Review	2016, 2017
Member	<i>Spitzer Space Telescope</i> observing proposal review	2016
Reviewer	Society for Teaching and Learning in Higher Education (STLHE) conference	2016
Reviewer	NASA Astrophysics Data Analysis Program	2015
Panel member	Ontario Early Researcher Awards	2014
Reviewer	CEA Eurotalents Program	2014
Reviewer	Research Foundation – Flanders	2013
Reviewer	NASA Postdoctoral Program	2013
Referee	Gemini and Canada-France-Hawaii Telescope proposals (1–2/yr)	2012–present
Referee	NSERC Discovery Grants	2011–present
Reviewer & deputy panel chair	<i>Chandra X-ray Observatory</i> observing proposal review	2011
Member	<i>Spitzer Space Telescope</i> observing proposal review	2011
Member & panel chair	Canadian Time Allocation Committee (CFHT/Gemini/JCMT)	2010–2011
Member	Canadian Time Allocation Committee	2008–2011
Reviewer & deputy panel chair	<i>Spitzer Space Telescope</i> observing proposal review	2008
Referee	Gemini and Canada-France-Hawaii Telescope proposals	2007–2008
Panel member	<i>Spitzer Space Telescope</i> observing proposal review	2006
Member	National Science Foundation grant peer review panel	2005
Member	NASA Office of Space Science grant peer review panel	2002

Referee, *The Astrophysical Journal*, *The Astronomical Journal*, *Astronomy & Astrophysics*, *Publications of the Astronomical Society of the Pacific*, *Monthly Notices of the Royal Astronomical Society*, 2001–present (1–2 papers per year)

**Public education & outreach**

Speaker	Starfest, North York Astronomical Association	2018
Speaker	STEMposium, Western University	2018
Speaker	Humanist Association of London & Area	2017
Host	Western Science total solar eclipse event	2017
Speaker	Hamilton Amateur Astronomers	2017
Speaker	Royal Astronomical Society of Canada London Centre	2016
Speaker	YMCA YMAP program, careers month	2016
Speaker	Western Retired Academics Group	2016
Speaker	Inspiring Young Women in STEM, Western University	2016
Speaker	Sunday Assembly, London	2015
Presenter	Thames Valley Science & Engineering Fair	2014, 2015
Speaker	David Dunlap Observatory, Toronto	2015
Blogger	<i>Science Borealis</i> group <a href="http://scienceborealis.ca/blog/author/pbarmby/">http://scienceborealis.ca/blog/author/pbarmby/</a>	2015–2017
Scientist-in-Residence	London Regional Children's Museum	2012
Speaker	Western "Science Here and Now" series	2012
Organizer	Mars Science Laboratory landing event	2012
Speaker	Royal Astronomical Society of Canada London Centre	2012
Presenter	London District Science Fair	2010–2012
Speaker	Western University "Nobel Prize" series	2011
Speaker	Fraser Valley Astronomers Society	2009
Speaker	Jack Chambers Public School	2009–14
Podcaster	"365 Days of Astronomy"	2009, 2012
Speaker	Cronyn Observatory public "Observatory Night" (1/yr)	2008–present
Speaker	"Virtual Researcher on Call" (1–2 classroom visits/yr)	2008–present
Speaker	"Women in Research," Museum of Science, Boston	2007
Speaker	Center for Astrophysics public "Observatory Night"	2007
Volunteer	Museum of Science, Boston	2003–2004
Volunteer	The MAD Scientist Network 'Ask-A-Scientist' website	1997–2004

**Media interviews**

Gizmodo, WIRED UK	2018
<i>Astronomy</i> magazine, Western Gazette, CBC News Network, CJBK radio	2017
AM980 radio, Western Gazette	2015
<i>Star Spot</i> podcast, Western News	2014
Rogers <i>Western Revealed</i> , York Universe podcast	2013
CIXX radio, <i>Earth</i> magazine, The Weather Network, AM980 radio, Western Gazette, CHRW, The Londoner, Metro, CJBK, Blackburn Radio, The Motts, Mohawk College News, London Free Press, CBC Radio/Ontario Morning, The Globe and Mail	2012
CIXX radio, Canadian Press	2011
<i>Bridges</i> career planning website, Asuza Pacific University journalism students	2010
Western University, Massachusetts Institute of Technology journalism students	2009



## Scientific colloquia & seminars

38 seminars since 1998, at institutions including the Universities of Washington, Victoria, Toledo, Rochester, Toronto, Alberta, Minnesota; Western, McMaster, Trent, Western Washington, Queen's, Michigan State; National Research Council - Herzberg, Gemini Observatory, CFH Telescope.

Slides for recent talks online at <https://figshare.com/search?q=Barmby&quick=1>

## Bibliometrics

118 peer-reviewed publications, 128 conference publications since 1998. Complete list with links to full texts available via <https://orcid.org/0000-0003-2767-0090>.

	NASA ADS (all)	Google Scholar (all)	Google Scholar (since 2013)
Citations	11837	12169	5169
h-index	47	52	31
i10-index	96	105	76

## Publications

Author names in bold are Western University trainees. DOIs are linked to papers.

### Selected publications

1. Barmby, P. "Astronomical observations: a guide for allied researchers" 2018, Open J. Astrophys. submitted.
2. **Kiar, A. K.**, Barmby, P., **Hidalgo, A.** "Deconstructing a galaxy: colour distributions of point sources in Messier 83" 2017, MNRAS, 472, 1074–1087, DOI: [10.1093/mnras/stx2037](https://doi.org/10.1093/mnras/stx2037).
3. **Rafiei Ravandi, M.**, Barmby, P., Ashby, M. L., Laine, S., Davidge, T. J., Zhang, J., Bianchi, L., Babul, A., Chapman, S. C. "The extended disc and halo of the Andromeda galaxy observed with Spitzer-IRAC" 2016, MNRAS, 459, 1403–1414, DOI: [10.1093/mnras/stw652](https://doi.org/10.1093/mnras/stw652).
4. **Rahmani, S.**, **Lianou, S.**, Barmby, P. "Star formation laws in the Andromeda galaxy: gas, stars, metals and the surface density of star formation" 2016, MNRAS, 456, 4128–4144, DOI: [10.1093/mnras/stv2951](https://doi.org/10.1093/mnras/stv2951).
5. **Vulic, N.**, Gallagher, S. C., Barmby, P. "X-rays beware: the deepest Chandra catalogue of point sources in M31" 2016, MNRAS, 461, 3443–3456, DOI: [10.1093/mnras/stw1523](https://doi.org/10.1093/mnras/stw1523).
6. **Agar, J.R.R.**, Barmby, P. "M31 Globular Cluster Structures and the Presence of X-Ray Binaries" 2013, AJ, 146, 135, DOI: [10.1088/0004-6256/146/5/135](https://doi.org/10.1088/0004-6256/146/5/135).
7. Barmby, P., **Jalilian, F. F.** "Comparing Mid-infrared Globular Cluster Colors with Population Synthesis Models" 2012, AJ, 143, 87, DOI: [10.1088/0004-6256/143/4/87](https://doi.org/10.1088/0004-6256/143/4/87).
8. Barmby, P., Ashby, M. L., Bianchi, L., Engelbracht, C. W., Gehrz, R. D., Gordon, K. D., Hinz, J. L., Huchra, J. P., Humphreys, R. M., Pahre, M. A., Pérez-González, P. G., Polonski, E. F., Rieke, G. H., Thilker, D. A., Willner, S. P., Woodward, C. E. "Dusty Waves on a Starry Sea: The Mid-Infrared View of M31" 2006, ApJL, 650, L45–L49, DOI: [10.1086/508626](https://doi.org/10.1086/508626).
9. Barmby, P., Holland, S., Huchra, J. P. "M31 Globular Clusters in the Hubble Space Telescope Archive. II. Structural Parameters" 2002, AJ, 123, 1937–1952, DOI: [10.1086/339667](https://doi.org/10.1086/339667).
10. Barmby, P., Huchra, J. P., Brodie, J. P., Forbes, D. A., Schroder, L. L., Grillmair, C. J. "M31 Globular Clusters: Colors and Metallicities" 2000, AJ, 119, 727–747, DOI: [10.1086/301213](https://doi.org/10.1086/301213).