

Curriculum Vitae (May 2022)

Jayanne English

Home Institution:

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Citizenship: Canadian.

Highlights

Research Interests:

Origin of structure within galaxies, including the formation of halos and other features around galaxies; galaxy kinematics; scientific data visualization.

Positions Held

Professor Positions:

University of Manitoba,

- Associate Professor

Since Apr. 2005

- Assistant Professor

July 2000 - Mar.2005

University of Zurich (UZH)

- Guest Professor

Sept 2017 - June 2018

Post-Doctoral Positions:

- | | | |
|---|---|--------------------------------|
| <ul style="list-style-type: none"> • Space Telescope Science Institute | <ul style="list-style-type: none"> • coordinate the Hubble Heritage Project • independent research in astronomy | <p>1998-2000</p> |
| <ul style="list-style-type: none"> • Queen's University | <ul style="list-style-type: none"> • Canadian Galactic Plane Survey • collaborative research in astronomy | <p>1996-2000
1994-1998</p> |

Education

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|--|--|------------------|
| <ul style="list-style-type: none"> • Australian National University | <ul style="list-style-type: none"> Ph. D. (Astronomy and Astrophysics) | <p>1989-1994</p> |
| <ul style="list-style-type: none"> • University of Toronto | <ul style="list-style-type: none"> B. Sc. (Physics & Astronomy Double Specialist) | <p>1984-1989</p> |
| <ul style="list-style-type: none"> • The Ontario College of Art (and Design University) | <ul style="list-style-type: none"> • Diploma -A.O.C.A. (General Studies) | <p>1980-1984</p> |

Recognitions

- Honors:
 - 2021 Qilak Award for Astronomy Communications, Public Education and Outreach: CASCA and RASC and FAAQ
The annual honour from the *Canadian Astronomical Society (CASCA)*, the professional astronomy society, and two amateur astronomy groups for an outstanding contribution either to the public understanding and appreciation of astronomy in Canada.
- Distinguished Visitorships:
 - Visitorships are invited and financially supported by the institutes. Most recent: University of Zurich (Institute of Computational Science) 09/2017-06/2018; University of Oxford (Sub-department Astrophysics) 07/2015-07/2016.
- Outreach Image-making:
 - 2020 2nd place winner and 2006 1st place winner of National Radio Astronomical Observatory Image Competition.

National and International Professional Service Examples

Review panel member on telescope time assignment committees, for NASA (Hubble, GALEX), Canadian telescope facilities, and the Atacama Large Millimetre/submillimetre Array; review James Web Space Telescope Proposal (2021); Review panel for NASA fellowships (2019-2020); PhD External Examiner (e.g. Queen's University, Canada, 2019).

Research Collaborations

- **Canadian Collaborative Team:**
 - The Canadian Initiative for Radio Astronomy Data Analysis (CIRADA).¹
- **International Collaborative Teams:**
 - Co-investigator of an accepted observing proposal using the MeerKAT observatory in South Africa.
 - Member of the CONTINUUM HALOS IN NEARBY GALAXIES: AN EVLA SURVEY (CHANG-ES) collaboration.
 - Led the Atacama Large Millimetre/submillimetre Array (ALMA) observations acquired for CHANG-ES;
 - Contributed to accepted proposals the Australia Square Kilometre Array Precursor (WALLABY) and the MeerKAT (MHONGOOSE) and Co-I for a WALLABY proposal on MeerKAT.
 - VLA Sky Survey (VLASS) data for the CIRADA.

¹ CIRADA will comprise the infrastructure, computing capability, and expertise needed to convert the enormous raw data streams from next-generation telescopes into sophisticated digital products.

- **International Research Projects:**

- “Kinematics of Rotation Curves of Late Type Galaxies”, Oxford University
- "Rotation Curves and Simulated Galaxies", University of Zurich.
- “Visualization in 3D immersive Virtual Reality”, RIKEN, Japan and IDIA/VisLab, UCT, South Africa.

Grants

- Most Recent (2015-2017): UM University Collaborative Research Program (\$25K) and Interdisciplinary/New Directions Research Collaboration Initiation Grant (\$10K) for “3D visualization of astronomical data using immersive displays”.
- Held National Science and Engineering Research Canada (NSERC) grants.

Development of Academic Programs and Teaching

University of Manitoba: UM teaching responsibilities cover the year 2000 to the present time. The introductory astronomy courses have up to 250 students and the upper year courses a few to a dozen scholars. Co-developed the UM’s first undergraduate and graduate astronomy stream. Responsible for two undergraduate/graduate courses (Galaxies; Scientific Visualization) and undergraduate courses in observational and general astronomy, including online distance education.

University of Zurich: Taught two courses, the graduate level “The Art of Scientific Visualization” and “Galaxies and Cosmology.” at the undergraduate level.

Supervision: 1 research associate, 1 post-doctoral fellow, 1 PhD student, 2 MSc students, 2 undergraduate honours students, several summer interns.

Example of Project Management

Coordination and facilitation of the Hubble Heritage Project at Space Telescope Science Institute for 2 years. The time consisted of 7 members. My responsibilities included implementing policy (e.g. negotiating which institutions got credit and in which ranking), coordination and negotiations with the Office of Education and Public Outreach, and engaging the scientists whose data were used in the images and who were involved in image-making contests. I authored the website, designed the logo, and produced contests for acquiring telescope time. As well as making astronomy images and art directing images, I trained the team in visual techniques.

Examples of Recent Invited Professional Presentations

- “*Cosmos versus Canvas: Using Art to Reveal Science*” with hands-on workshops: Royal Military College, Kingston, Canada (2019), University of Cape Town, South Africa (2019), University of Western Cape, South Africa (2019), Ruhr University, Germany (2018, 2016), University of Zurich, Switzerland (2015), University of Ottawa, Canada (2014), ASTRON, The Netherlands (2014). This has also been delivered via *zoom* on the internet in 2018.
- *Recent and Special Colloquia:*
 - Qilak Keynote Address: Canadian Astronomical Society (CASCA) (2021)
 - “Cosmos and Canvas”: University of Alberta (2021), University of British Columbia (2021), University of Manitoba (2020)
 - “A Constellation of Results from the Continuum Halos in Nearby Galaxies an ELVA Survey.” Oxford University, UK (2016)

Examples of Education and Public Outreach

- *Presentations:*
 - *“Cosmos versus Canvas”*

These talks on astronomy visualization are customised for each occasion. The audience ranges from a dozen attendees to a couple of hundred when live (and double that online).

Royal Astronomical Society of Canada — Ottawa and Winnipeg Chapters(2021), University of Manitoba Virtual Learning for Life Program (2020), Manitoba Museum Planetarium (2020), Royal Astronomical Society of Canada, Edmonton Chapter (2018); University of Zurich (2017); Modern Art Oxford (2017); Green Templeton College, U. Oxford (2016); 7.4 Limited, Oxford (2016); Wadham College, U.Oxford (2016); Rutland Astronomical Society, Oakham, UK (2016); Canadian Space Society, Winnipeg, Canada (2015). Also numerous presentations to visiting high school students.
 - Other recent talks presented at Manitoba Museum Planetarium (2020) and at Leonardo Art Science Evening Rendezvous (LASER) Zurich (2018).
- *Engagement with the Public:*

I was the astronomy columnist on the Canadian Broadcasting Corporation’s (CBC) high profile “Quirks and Quarks” radio show (2000-2002).
- *Media:*

Recent examples include online talks to 8-12 year olds, a number of podcasts in Canada (2019) and South Africa, local and national TV and radio news (2019). Presentation and interview videos include those at Voices from Oxford (2016). Interviews for articles include national (Globe & Mail (2021); SkyNews (2020)) and international venues (“ARTpublika Magazine”,(2020); Undark (2019)).
- *Press and Image Release Highlights:*

My outreach forte is the creation of astronomy images. Some have modest views (hundreds) since they are frontier images that are challenging for science media outlets. However others, that are promoted by NASA have more than a million views. Recent examples of the latter include: “The yin and yang of the visible and invisible in spiral galaxies“ blog contributions (2021) at NASA’s Illuminated Universe and Astronomy Picture of the Day (APOD); NASA APOD “Dancing Ghosts” (2021; ASKAP-EMU “Odd Radio Circle 1” (2020); NRAO “Magnetic Field in Galaxy NGC 5775 -- HST/VLA” (2020); NRAO “Giant Magnetic Ropes in a Galaxy’s Halo” (2019); “NASA’s Fermi Satellite Clocks ‘Cannonball’ Pulsar Speeding Through Space” (2019)². A classic is Hickson Compact Group 31 (2010).

Portfolio website: <https://jayanecosmoscanvas.wordpress.com>
- *Hubble Heritage Project:*

2000-2002 coordinated, authored website, guided visual direction, lead image-maker on some images.

² As an example, this image had accumulated over a million views within a few months.

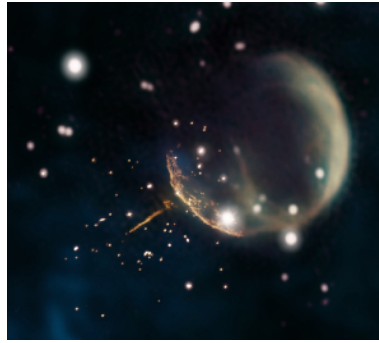
Hickson Compact Group 31

Made for NASA from HST, GALEX and Spitzer data.



CTB1 “Cannonball Pulsar”

Made for NASA from DRAO and VLA radio data & IRAS IR data



Cygnus Region Made for ^{5/6}

CGPS from DRAO radio data & IRAS IR data.



Publications

I have contributed to more than 65 referred articles.

Examples of Contributions to 2021-22 Publications

Zheng, Y., Wang, J., Irwin, J. A., *English, J.* and 8 colleagues. **CHANG-ES XXV: H I imaging of nearby edge-on galaxies - Data Release 4**, Monthly Notices of the Royal Astronomical Society, 513,1329Z

Norris, Ray P., and 16 colleagues (2022). **MeerKAT uncovers the physics of an odd radio circle**, Monthly Notices of the Royal Astronomical Society, 513,1300N

Heald, George H. and 24 colleagues (2022). **CHANG-ES XXIII: influence of a galactic wind in NGC 5775**, Monthly Notices of the Royal Astronomical Society, 509,658H

Norris, Ray P., and 47 colleagues (2021). **The Evolutionary Map of the Universe pilot survey**, Publications of the Astronomical Society of Australia, 38, 46N

Norris, Ray P., and 28 colleagues (2021). **Unexpected Circular Radio Objects at High Galactic Latitude**, Publications of the Astronomical Society of Australia, 38, 3N

Some Favourite Publications

(* indicates that I supervised the author.)

Journal Articles:

English J. (2016). **Canvas and cosmos: Visual art techniques applied to astronomy data (An Invited Review)**. International Journal of Modern Physics D. 0(1730010): 53.

Wiegert T, Irwin J and 22 collaborators including English J. (2015). **CHANG-ES. IV. ³ Radio Continuum Emission of 35 Edge-on Galaxies Observed with the Karl G. Jansky Very Large Array in D Configuration— Data Release 1**. Astronomical Journal, 150(3): 81-103.

³ I have contributed to several CHANG-ES papers including three in 2019 and two in 2020.

*Wiegert T, English J. (2014). ***Kinematic Classification of Spiral Galaxies***. New Astronomy. New Astronomy, 26: 40-61.

Mullan B, Kepley A, Maybhate A, English J et al. (2013). ***Under Pressure: Star Clusters and the Neutral Hydrogen Medium of Tidal Tails***. The Astrophysical Journal. 768: 194-222.

Irwin J, Beck R, Benjamin R, Dettmar R-J, English J et al. (2012). ***Continuum Halos in Nearby Galaxies: An EVLA Survey (CHANG-ES). I. Introduction to the Survey***. The Astronomical Journal. 144: 43-51.

English, J., Koribalski, B., Bland-Hawthorn, J., Freeman, K. C., and McCain, C. F. (2010), ***The Vela Cloud: A Giant H I Anomaly in the NGC 3256 GROUP***, The Astronomical Journal, 139: 102-119.

*Asgekar A, English J, Safi-Harb S, and Kothes R. (2005), ***A Search for Narrow Vertical Structures in the Canadian Galactic Plane Survey***, The Astronomical Journal, 130: 674-697.

*West J, English J, Normandeau M, and Landecker T (2007), ***The Fragmenting Superbubble Associated with the H II Region W4***, The Astrophysical Journal, 656: 914-927.

Rector T, Levay Z, Frattare L, English, J., and Pu'uohau-Pummill, K. (2007), ***Image-Processing Techniques for the Creation of Presentation-Quality Astronomical Images***, The Astronomical Journal, 133: 598-611.

English J, Norris R, Freeman K, and Booth R. (2003), ***NGC 3256: Kinematic Anatomy of a Merger***, The Astronomical Journal, 125: 1134-1149.

English J and Freeman K. (2003), ***Giant H II Regions in the Merging System NGC 3256: Are They the Birthplaces of Globular Clusters?***, The Astronomical Journal, 125: 1124-1133.

English J, Taylor A R, Mashchenko S Y, Irwin J A, Basu S, and Johnstone D. (2000), ***The Galactic Worm GW 123.4-1.5: A Mushroom-shaped H I Cloud***, The Astrophysical Journal, 533: L25-L28.

Conference Paper:

*Ferrand, G, English, J, Irani, P. (2016). ***3D visualization of astronomy data cubes using immersive displays***. arXiv:1607.08874. Canadian Astronomical Society (CASCA 2016)