Curriculum Vitae

Jayanne English

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Highlights

Research Interests: Origin of structure within galaxies, including the formation of halos and other features around galaxies; Intergalactic clouds.

Recent Positions:

University of Manitoba, Dept. of Physics and Astronomy	- Associate Professor since April 2005 - Assistant Professor Sept. 2000- Apr. 2005	2000-2005

Post-doctoral Positions:

– Space Telescope Science Institute	- coordinate the Hubble Heritage Project - independent research in astronomy	1998-2000
– Queen's University	- research with the Canadian Galactic Plane Survey - collaborative research in astronomy	1996-1998 1994-1996

Education:

– Australian National University	Ph. D. (Astronomy and Astrophysics)	1989-1994
– University of Toronto	B. Sc. (Physics & Astronomy Double Specialist)	1984-1989
– The Ontario College of Art	A.O.C.A. (General Studies)	1980-1984

Teaching:

– U of Manitoba	- "Phenomenology of Galaxies" (4th Yr/Graduate) - "Astronomy Research Project" (3rd and 4th Yr) - "Observational Astronomy" (2nd Yr) - "General Astronomy" (1st Yr)	2000-2005
– Queen's University	- "Planets and Life" (2nd Yr)	1996-1997

Outreach:

– CBC Radio 1	Quirks & Quarks columnist	2000-2002
– Space Telescope Science Institute	The Hubble Heritage Project	1998-2000

Major Recent Committees:

– Canadian Time Assignment Committee	NRC Herzberg Institute of Astrophysics, CFHT and Gemini telescopes	2004-
– Programming & Publicity	CAP/CASCA/COMP/BSC Congress 2004	2001-2004
– Chair, High School Outreach	University of Manitoba, Physics and Astronomy	2003-2005
– Undergraduate Curriculum	University of Manitoba, Physics and Astronomy	2000-2004
– Board of Directors	Canadian Astronomical Society	1999-2002

Most Significant Contributions to Research

Note: Students and Postdoctoral Fellow that I have supervised are italicized.

Overview:

Primordial intergalactic clouds are rarer treasures than predicted by the popular cosmological theories. In these theories galaxies form from small proto-galactic clouds that interact with each other and finally merge together to form bigger galaxies. 90% of the matter in the universe, which is detected by gravitational effects, is too dim to be detected as light and is called dark matter. Thus these proto-galactic clouds should consist of dark matter and neutral hydrogen (HI) gas. However the extragalactic HI clouds that are discovered are rarely isolated from galactic neighbours, indicating that the observed clouds are not primordial. Instead the gas clouds can be formed by gravitational tidal forces as 2 galaxies interact. The observed clouds can also be categorized as bona fide dwarf galaxies and gas blown out from the disks of galaxies.

My research explores various sorts of extragalactic HI clouds, near our Galaxy and near others, with a view to not only constrain cosmological scenarios, but to also understand how galaxies form and evolve with time. For example, all galaxies have globular clusters - can these be created in observed HI tidal extensions? Our own Milky Way is surrounded by so-called High Velocity Clouds (HVC) that do not rotate with the rest of the Galaxy - what are these? Do other galaxies have similar clouds? And finally, can these HI clouds be used to learn about dark matter?

Tidal Debris and Intergalactic Clouds

My studies of tidal structures examine whether this debris can host the birth places of globular clusters or whether portions of debris will evolve into starless clouds, similar to HVC.

- **English** & Freeman (2003) and **English**, Norris, Freeman & Booth (2003)
  NGC 3256 is a system in which at least 2 galaxies are merging, producing 2 magnificent tidal tails. Using optical telescopes we detected star clusters that could be new born globular clusters. Additionally our radio data analysis allowed us to discover HI clouds which are massive enough to eventually form globular clusters. These were among the first observations of extra-galactic HI clouds that could be counterparts to the HVC that surround our Milky Way.

- **English**, Koribalski, Bland-Hawthorne, Freeman & McCain (2005)
  The most spectacular object in the NGC 3256 group of galaxies is the Vela Cloud - an intergalactic HI cloud that has the gas mass of a normal galaxy but which appears starless. An irregular structure suspended between galaxies, this cloud probably formed when tidal tails were torn away, from a pair of interacting galaxies, by the combined gravitational pull of the several other galaxies in the group. Using an analysis technique that has not been previously applied to observations of HI tidal debris, I believe that the Vela Cloud's few density enhancements will not form stars. More likely they will evolve into HVC-like clouds, but remain trapped in the group's gravitational potential. Thus they will be difficult to distinguish from primordial HI clouds.

(Continued on the next page)

The Origin of Vertical Structures in Our Milky Way Galaxy:
HI gas emanates in vertical filaments "worming" away from the disk of Our Milky Way Galaxy, into intergalactic space. My studies challenge the pioneering theoretical work that proposed these are related to the formation of groups of stars.

- **English**, Taylor, Mashchenko, Irwin, Basu & Johnstone 2000:
  I led a team of Canadian Galactic Plane Survey (CGPS) consortium members in the study Galactic Worm GW 123.4-1.5. Our observations, collected using NRC's Dominion Radio Astrophysical Observatory Synthesis Telescope were the first to resolve a vertical HI extension into its constituent components. The success of this study contributed to the International/CGPS (I/CGPS) consortium's strategy of observing higher Galactic latitudes, making a major focus the study of phenomena which apparently connects our Galaxy's disk with its halo.

  Our observations revealed that the mushroom-shaped distribution of H I gas in GW 123.4-1.5 (totaling $10^5 \mathcal{M}_\odot$) is inconsistent with the worm being part of a burst superbubble blown by multiple supernovae (SNe) in a star cluster. Additionally our own model of GW 123.4-1.5 requires only a single SN to produce a buoyant cloud. Our paper has also generated an examination of numerical simulations in which GW 123.4-1.5 is created out of gas in reservoirs (Avillez & Mac Low 2001, ApJLet, 551, L57) or by the impact of a HVC falling into the Galactic disk (Kudoh & Shantanu Basu 2004). Subsequent to our paper, colleagues have analyzed vertically emanating structures in other galaxies in terms of buoyant bubbles (Irwin & Chaves 2003).

- *Asgekar* & **English** 2005 :
  Asgekar, an I/CGPS Post-doctoral Fellow supervised by myself and Samar Safi-Harb (U. Manitoba), found that previously catalogued worms do not appear to be coherent structures in the I/CGPS data. I am participating in his current study to test the coherence of vertical structures in other galaxies.

- *West*, **English**, Landecker & Normandeau 2005:
  Cavities evacuated of HI appear in the Galactic disk. These could be conduits channeling hot gas from the disk into the Galaxy's halo and, in that process, creating HI vertical extensions. My master's student, Jennifer West, examined an apparent cavity in the CGPS survey, determining that the object is a giant bubble which is fragmenting. Her's is one of the few studies that analyzes polarization data.

Halo Structure in Other Galaxies:
One can also study the vertical filaments and halos of galaxies other than our Milky Way.

- **English** & Irwin 1997:
  Previous extragalactic studies suggested that star formation activity plays the primary role in the formation of galaxy halos. However in an homogeneous sample of 16 galaxies, observed with the VLA, the prominence of a galaxy's synchrotron halo structure is independent of the star formation rate throughout its disk (Irwin, **English**, & Sorathia 1999). Our study of NGC 3432 provides a specific example of this result while demonstrating that the prevalence of a halo is not correlated with the existence of a diffuse, or filamentary, ionized gas component. We suggest that the interaction with companion galaxy, is responsible for the extended halo.

(Continued on the next page)

- Gallagher et al. 2000 ("NGC 4650a") and C. Palma et al. 2000 ("Seyfert's Sextet"):
  In these Hubble Space Telescope (HST) collaborations we not only examined extended structure in peculiar galaxies, but the sites where globular clusters could form.

- Irwin, Widrow & **English** (2000):
  We performed the first observational test searching for evidence that dark matter exists in the form of cold HI distributed in fractal clouds in an extended halo (Pfenniger, Combes, & Martinet 1994). We find that a class of clouds with realistic characteristics, detectable in our VLA absorption study, are unlikely to be halo constituents. In addition, these observations rule out cold optically thin HI gas as dark matter.

Exploring Structures in Galactic Halos Using an Idealized Spiral:

The new research project that I lead is an "umbrella" endeavour that strives to combine the overview perspective on filaments and HI clouds (provided by studies of other galaxies) with the IGPS view of worms and HVC (that we have due to our location interior to our Milky Way). More specifically, 21 cm observations of nearby spiral galaxies and the Milky Way are compared to an idealized, template galaxy. This model will display, like a visually compiled catalogue, typical positions of vertical filaments and also predict their distribution relative to the global structure of our Milky Way. Since HVC can be studied in more detail in our Galaxy due to their relative proximity, the Dominion Radio Astrophysical Observatory Synthesis Telescope, and especially the proposed Canadian Large Adaptive Reflector (CLAR), will reveal whether any clouds residing in these predicted locations are indeed filamentary.

Using 2 URGP grants from the U. of Manitoba, we initiated a pilot project to produce software to generate an idealized, template galaxy. Our software development resulted in an increase in the flexibility and in the number of tools in Karma, which is a visualization package used by astronomers world-wide, notably by the CGPS, IGPS, and Australia Telescope HIPASS Surveys. Along with Jason Fiege (U. Manitoba) we are currently exploring using genetic algorithms to generate a template model that can be applied to studies of observed galaxies.

A Ph.D. student, Theresa Wiegert, is currently characterizing galaxies observed with radio telescopes, acquired from colleagues in preparation for producing a template. Additionally she will be using classical techniques to determine the amount of dark matter per galaxy. We will analyze data from a successful JCMT Legacy proposal. Our analysis of external galaxies should be complete in 2007, and we will be well-poised to use Canadian Large Adaptive Reflector radio telescope, currently under development by NRC, to detect, if they exist, structures connecting the HVC with the disk of the Milky Way.

Processing Techniques for the Creation of Presentation-Quality Astronomical Images:

- Rector, Levay, Frattare, **English**, & Pu'uohau-Pummill 2005

This submitted paper describes how the colourization of data not only leads to striking images for public outreach, but also efficient data-mining and analysis. It is recommended for the VLA's National Radio Astronomy Observatory's image contest:
http://www.nrao.edu/imagegallery/image_contest/contest_rules.shtml

Other Research Contributions

Grants as Principle Investigator

NSERC	J. English	2002-2007
University Research Grant Program	J. English	2002
University Research Grant Program	J. English	2001
NSERC	J. English	2000-2002
University of Manitoba Start-Up Grant	J. English	2000

Grants as Co-Investigator

IGPS Post-doctoral Fellowship Grant	J. English & S. Safi-Harb	2002-2003
International/Canadian Galactic Plane Survey I/CGPS Phase II	A. R. Taylor et. al.	2001- 2005
Dominion Radio Astrophysical Observatory	A. R. Taylor et. al.	submitted June 2005

Travel Grants

Australia Telescope National Facility **Distinguished Visitor**	2003
University of Manitoba's Research Office	2002
Banff New Media Institute	2002
University of Manitoba's Research Office	2001

Miscellaneous: with Samar Safi-Harb

University of Manitoba **Faculty Development Funds**	2001

Awarded Telescope Time (Highlights)

Observatory	*Proposer List*	*Year*
James Clerk Maxwell Telescope	Wilson, Serjeant, & Isreal plus consortium including English	2005
Australia Telescope National Facility Compact Array	Harnett, Irwin, & English	2003
Hubble Space Telescope	Hunsberger, Charlton, English	2000
VLA	Irwin, Saikia, English	2000, 1998
Dominion Astrophysical Observatory	English, Irwin, Taylor, Green, Basu, Johnstone, & Mashchenko	1998
Australia Telescope National Facility Compact Array	English, Koribalski, Freeman, McCain, Aalto-Bergman, Black, & Booth	1996
Observatoire Mont Mégantic	English & Irwin	1995
Hubble Space Telescope	Zepf, Ashman, English, Freeman, & Sharples	1994

Awards

International/Canadian Galactic Plane Survey Postgraduate Fellowship	Queen's University	1996-1998
2000 Infinity Award for Applied Photograph to the Hubble Heritage Team	The International Center of Photography	2000
Postgraduate Fellowship	Australian National University	1989-1994
H. S. Robertson Scholarship for Astronomy	University of Toronto	1987
Spar Aerospace Scholarship	Students for the Exploration and Development of Space	1985
Corkin-Reeves Scholarship for Photography	Ontario College of Art	1982

Note: Nominated for a University of Manitoba University 1 Teaching Excellence Award 2005

Publications

Notes about Publications:
The order of appearance of the author's name indicates the relative contribution to the paper. That is, as first author, I have set the direction of the research, have done most of the writing, the analysis and data interpretation. In other papers my contribution has been significant, providing analysis that goes beyond the production of figures. Post-doctoral fellows and students that I have supervised are in italics in the following listings.

Articles in Refereed Journals

J. English, B. Koribalski, J. Bland-Hawthorne, K. C. Freeman, & C. McCain, The Vela Cloud: A Giant HI Anomaly in the NGC 3256 Group. *Astronomical Journal*, *submitted August* **2005**

J. L. West, **J. English**, M. Normandeau, & T. L. Landecker, G134.4+3.85: a bursting superbubble above the W4 HII region. *Astrophysical Journal*, *submitted June* **2005**

Rector, T. A., Levay, Z. G., Frattare, L. M., **English, J.**, & Pu'uohau-Pummill, K. Processing Techniques for the Creation of Presentation-Quality Astronomical Images *Astronomical Journal*, *submitted December* **2004**

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

J. English and K. C. Freeman Giant H II regions in the Merging System NGC 3256: Are they the birthplaces of globular clusters? *Astronomical Journal*, 125: 1133-1149, Mar. **2003**

J. English, R. P. Norris, K. C. Freeman, and R. S. Booth NGC 3256: Kinematic Anatomy of a Merger *Astronomical Journal*, 125: 1124-1134, Mar. **2003**

C. Palma, S. G. Zonak, S. D. Hunsberger, J. C. Charlton, S. C. Gallagher, P. R. Durrell, and **J. English**. "The Beginning of the End: Hubble Space Telescope Images of Seyfert's Sextet", The Astronomical Journal, 124: 2425, Nov.**2002**

J. S. Gallagher, L. S. Sparke, L. D. Matthews, L. M. Frattare, **J. English**, A. L. Kinney, E. Iodice, M. Arnaboldi. WFPC2 Observations of the 'Polar Ring' Galaxy NGC 4650A. *Astrophysical Journal*, 568, March **2002**

B. G. Elmegreen, D. M. Elmegreen, M. Kaufman, E. Brinks, C. Struck, M. Thomasson, M. Klarić, Z. Levay, **J. English**, H. E. Bond, C. A. Christian, L. M. Frattare, F. Hamilton, K S. Noll. HST Observations of the Interacting Galaxies NGC 2207 and IC 2163.. Astronomical Journal, 120:630-644, August **2000**

J. A. Irwin, D. J. Saikia, and **J. English**. High Resolution Radio Continuum Observations of Edge-On Spiral Galaxies. *Astronomical Journal*, 119:1592–1607, April **2000**

J. A. Irwin, L. M. Widrow, and **J. English**. An Observational Test of Dark Matter as Cold Fractal Clouds. *Astrophysical Journal*, 529:77-87, January **2000**

S. E. Zepf, K. M. Ashman, **J .English**, K. C. Freeman, and R. M. Sharples. The Formation and Evolution of Candidate Young Globular Clusters in NGC 3256. *Astronomical Journal*, 118:752-764, August **1999**

J. A. Irwin, **J. English**, and B. Sorathia. High-latitude radio emission in a sample of edge-on spiral galaxies. *Astronomical Journal*, 117:2102–2140, May **1999**.

J. English and J. A. Irwin. The ionized gas and radio halo of NGC 3432 (ARP 206). *Astronomical Journal*, 113:2006–2024, June **1997**.

R. L. Kingsburgh and **J. English** Distances for Galactic planetary nebulae. II - A southern hemisphere survey *Monthly Notices of the Royal Astronomical Society*, 259: 651-635, Dec. **1992**

M. L. McCall, R. Hill and **J. English** Small-scale star formation at low metallicity *Astronomical Journal*, 100: 203-193, July **1990**

Letters and Conference Papers in Refereed Journals

J. English and A. R. Taylor. Recycling the ISM: Radio Continuum and FIR Emission in Cygnus *The Dynamics, Structure & History of Galaxies: A Workshop in Honour of Professor Ken Freeman*, *ASP Conference Series, G. S. Da Costa & E. M. Sadler, Eds.,*, 273: 313+, 2002

J. English, A. R. Taylor, S. Y. Mashchenko, J. A. Irwin, S. Basu, and D. Johnstone. Galactic Worm 123.4-1.5: A Mushroom-shaped HI Cloud *Astrophysical Journal Letters*, 533:L25–L28, April **2000**

J. A. Irwin, L. M. Widrow, and **J. English**. Constraints on cold H I in the halo of NGC 3079 from absorption measurements of QSO0957+561. *Publications of the Astronomical Society of Australia*, 16:89–94, April **1999**.

J. English, A. R. Taylor, J. A. Irwin, S. M. Dougherty, S. Basu, C. Beichman, J. Brown, Y. Cao, C. Carignan, D. Crabtree, P. Dewdney, N. Duric, M. Fich, E. Gagnon, J. Galt, S. Germain, N. Ghazzali, S. J. Gibson, S. Godbout, A. Gray, D. A. Green, C. Heiles, M. Heyer, L. Higgs, S. Jean, D. Johnstone, G. Joncas, L. Knee, T. Landecker, W. Langer, D. Leahy, P. Martin, H. Matthews, W. McCutcheon, G. Moriarity-Scheiven, S. Pineault, C. Purton, R. Roger, D. Routledge, N. St-Louis, K. Tapping, S. Terebey, F. Vaneldik, B. Wallace, D. Watson, T. Willis, H. Wendker, and X. Zhang. The Canadian Galactic Plane Survey. *Publications of the Astronomical Society of Australia*, 15:56–59, April **1998**.

J. English. Gas dynamics and globular cluster formation in interacting galaxies. (dissertation summary). *Publications of the Astronomical Society of Australia*, 12:267–267, August **1995**.

Non-refereed Contributions

J. English, B. S. Koribalski, & K. C. Freeman, Studies of an Intergalactic HI Cloud. *International Astronomical Union Symposium*, 217, 41, June **2004**

T. A. Rector, Z. Levay, L. M. Frattare, **J. English**, & K. Pu'uohau-Pummill, Digital Image Processing Techniques to Create Attractive Astronomical Images from Research Data. *American Astronomical Society Meeting*, 204:1903, May **2004**

T. A. Rector, Z. Levay, L. M. Frattare, , **J. English**& , K. Pummill, Digital Image Processing Techniques to Create Attractive Astronomical Images from Research Data. *American Astronomical Society Meeting*, 203:11814, December **2003**

A. Asgekar, **J. English** & S. Safi-Harb, Searching for mushroom-shaped worms in the Canadian Galactic Plane Survey data. *American Astronomical Society Meeting*, 203:7005, December **2003**

A. Asgekar, **J. English**, & S. Safi-Harb, Searching for mushroom-type worms in the Canadian Galactic Plane Survey data. *Journal of the Royal Astronomical Society*, 97:210, **2003**

J. English. "Cosmos vs. Canvas". See:06 issue. http://www.horizonzero.ca, **2003**

C. Palma, S. G. Zonak, S. D. Hunsberger, P. R. Durrell, S. C. Gallagher, J. Charlton, and **J. English**. "HST Images of Seyfert's Sextet: The Candidate Globular Cluster Population". American Astronomical Society Meeting, 199.2102, Jan. **2002**

J. L. West. "Does the Mushroom Affect the Surrounding Medium? Sharpless 184 and the Cauldron" ASP Conf. Ser. 276: Seeing Through the Dust: The Detection of HI and the Exploration of the ISM in Galaxies, 276, 229, December 2002

S. G. Zonak, C. Palma, S. D. Hunsberger, P. R. Durrell, J. Ding, J. Charlton, and **J. English**. "HST Images of Seyfert's Sextet: Candidate Dwarf Galaxies". American Astronomical Society Meeting, 199.2101, Jan. **2002**

J. English and A. R. Taylor. Recycling the ISM: Radio Continuum and FIR Emission in Cygnus *The Dynamics, Structure & History of Galaxies*, *ASP Conference Series, G. S. Da Costa & Helmut Jerjen, Eds.,*, 273:313, **2002**

J. English and A. R. Taylor. "Infrared and Radio Composite of Region in Cygnus", Sky and Telescope, volume 102, number 7, p. 52, July **2001**,

W. P. Blair, **J. English**, H. E. Bond, C. A. Christian, L. M. Frattare, F. Hamilton, Z. Levay, K S. Noll. "The Hubble Heritage Image of the Crab Nebula Supernova Remnant". American Astronomical Society Meeting, 196:3906+, May **2000**

B. G. Elmegreen, D. M. Elmegreen, M. Kaufman, E. Brinks, C. Struck, M. Thomasson, M. Klarić, Z. Levay, **J. English**, H. E. Bond, C. A. Christian, L. M. Frattare, F. Hamilton and K S. Noll. "The Hubble Heritage Image of the Interacting Galaxies IC 2163 and NGC 2207 ". American Astronomical Society Meeting, 195:10407+, Dec **1999**

S. Mashchenko, S. Basu, **J. English**, A. R. Taylor, and J. A. Irwin. On the origin of the Mushroom Cloud. *American Astronomical Society Meeting*, 194:7205+, May **1999**.

A. L. Kinney, J. Gallagher, L. Matthews, L. Sparke, H. E. Bond, C. A. Christian, **J. English**, L. Frattare, F. Hamilton, Z. Levay, and K. Noll. The Hubble Heritage image of the polar-ring galaxy NGC 4650A. *American Astronomical Society Meeting*, 194:0601+, May **1999**.

J. English, A. R. Taylor, and J. A. Irwin. An atomic hydrogen mushroom. *American Astronomical Society Meeting*, 193:8306+, December **1998**.

H. E. Bond, C. A. Christian, **J. English**, L. Frattare, F. Hamilton, A. L. Kinney, Z. Levay, and K. S. Noll. The Hubble Heritage image of the Ring Nebula. *American Astronomical Society Meeting*, 193:1509+, December **1998**.

J. English, J. A. Irwin, and B. Sorathia. A radio continuum survey of edge-on spiral galaxies. *American Astronomical Society Meeting*, 191:8204+, December 1997.

J. English and A. Irwin. The ionized gas and radio halo of NGC 3432 (ARP 206). *Journal of the Royal Astronomical Society of Canada*, 90:332+, **1996**.

K. Freeman, **J. English**, and R. P. Norris. An intergalactic h i cloud : preliminary results. *Journal of the Royal Astronomical Society of Canada*, 90:333+, **1996**.

J. English and J. A. Irwin. Using the Galactic Plane Survey data base to search for exchanges between the disk and halo of the Milky Way. *American Astronomical Society Meeting*, 189:7002+, December **1996**.

J. English and J. Irwin. The ionized gas and radio halo of NGC 3432 (ARP 206). *American Astronomical Society Meeting*, 188:1010+, May **1996**.

J. English, K. C. Freeman, and R. P. Norris. Kinematics of the molecular and ionized hydrogen gas in NGC 3256. In *The First Stromlo Symposium: The Physics of Active Galaxies. ASP Conference Series, Vol. 54, 1994, G.V. Bicknell, M.A. Dopita, and P.J. Quinn, Eds., p.441*, pages 441+, **1994**.

S. Zepf, K. Ashman, D. Carter, **J. English**, K. Freeman, and R. Sharples. The formation of globular clusters in galaxy mergers. *American Astronomical Society Meeting*, 185:7506+, December **1994**.

J. English. Gas dynamics and globular cluster formation in interacting galaxies. *American Astronomical Society Meeting*, 185:6703+, December **1994**.

J. English. A search for globular cluster progenitors in mergers. In *Astronomical Society of the Pacific Conf. Ser. 48: The Globular Cluster-Galaxy Connection*, pages 816+, **1993**.

M. L. McCall, R. Hill, and **J. English** Small-scale star formation at low metallicity NASA, Ames Research Center, The Interstellar Medium in External Galaxies: Summaries of Contributed Papers p 318-320 (SEE N91-14100 05-90) 320-318, July **1990**

M. L. McCall, **J. English**, and I. Shelton The Utso CCD *Journal of the Royal Astronomical Society of Canada* 83: 206-179, June **1989**

Papers in Progress

A. Maybhate, J. Masiero, J. E. Hibbard, J. C. Charlton, C. Palma, K. A. Knierman, and **J. English** An HI Threshold for Star Cluster Formation in Tidal Debris 2005

Contributions to Highly Qualified Personnel

Supervise Thesis	**Theresa Wiegert (Ph.D.)**	**2004-**
Co-Supervise PDF	**Ashish Asgekar**	**May 2002-2004**
Supervise Thesis	**Jennifer West (M. Sc.)**	**2001-2003**
Supervise Research Assistant	John Kim (graduate)	Summer 2002
Supervise Research Assistant	Tim Reid (Undergraduate)	Summer 2001
Supervise NSERC Research Assistant	Jennifer Fallis (Undergraduate)	Summer 2001
Supervise Honours Project	Jennifer West (Undergraduate)	2000-2001
Supervise Intern	Jonathan Sachsman (M. A.)	Summer 2000
Co-supervise Intern	Mehmet Acuner (M. Sc.)	Fall 1999
Co-supervise Research Assistant	Michael Earl (Undergraduate)	Winter 1998
Co-supervise Observing Assistant	Andrew Platt	Feb. 20-28 1995
Other Instructional Contribution	Train visiting astronomers in operation of 74" telescope at Mount Stromlo Observatory	1993

Other Evidence of Impact and Contributions

Invited Professional Lectures

"Cloudia and her sisters: A portrait of a Galactic-sized Neutral Hydrogen Cloud and Smaller Fragments in the NGC 3256 Group of Galaxies"	University of Manitoba	2004
"Dwarfs, Hot Smoke, Giant Worms and other Mythical Features of Our Milky Way Galaxy"	University of Winnipeg	2004
"Cosmos versus Canvas: Tensions between Art and Science in Astronomy Images"	St. Mary's University	2003
"Dwarfs, Hot Smoke, Giant Worms and Other Mythical Features of Our Milky Way Galaxy"	University of Toronto	2002
"Canvas and Cosmos: Image Making in Astronomy"	Australia Telescope National Facility	2001
"Dwarfs, Giant Worms, Hot Smoke, and other Mythical Features of our Milky Way Galaxy" *(plus paper, submitted)*	Astronomical Society of Australia Annual Scientific Meeting	2001
"Cosmos versus Canvas: Tensions between art and Science in Astronomical Images"	5th International Congress of the International Society for the Interdisciplinary Study of Symmetry	2001
"Disk-Halo Interactions: A Galactic Worm Revealed"	University of Maryland	2000
"The DRAO Galactic Plane Survey Project"	"Prospects for the AAO/UKST Galactic Plane Hα Survey" Meeting	1997
"Gas Dynamics and Globular Cluster Formation in Interacting Galaxies"	Carleton University	1996
"	Université de Montréal	1995

Invited Astronomy Image-making Workshops

CASCA Graduate Student Workshop	2004
Australia Telescope National Facility Headquarters (2 workshops)	2003
Paul Wilde Observatory (ATNF), Narrabri	2003
University of Manitoba, Astrogroup	2003

Invited Public Outreach Talks

"Dwarfs, Hot Smoke, Giant Worms and other Mythical Features of Our Milky Way" (CASCA Westar Lecture)	Rolling River First Nations	2004
"Dwarfs, Hot Smoke, Giant Worms and other Mythical Features of Our Milky Way" (CASCA Westar Lecture)	Erickson Collegiate Institute	2004
"Cosmos versus Canvas: Tensions between Art and Science in Astronomy Images"	Royal Astronomical Society of Canada, Halifax Chapter	2003
"Academics as a public resource? Metaphor, discipline and communication."	CAWIS Workshop with Evelyn Fox Keller at U. Manitoba	2003
"Cosmos versus Canvas: Tensions between Art and Science in Astronomy Images"	Brandon University	2003
"Cosmos versus Canvas: Tensions between Art and Science in Astronomy Images"	at Quintessence symposium, Banff New Media Institute	2002
"Cosmos versus Canvas: Tensions between Art and Science in Astronomy Images"	Royal Canadian Institute: for RCI and Royal Astronomical Society of Canada	2002
"Dwarfs, Giant Worms, Hot Smoke, and other Mythical Features of our Milky Way Galaxy"	Presented at Winnipeg Art Gallery for U. Manitoba's Office of Research	2002
"No Virginia, the Hubble Space Telescope doesn't take colour snapshots"	Royal Astronomical Society of Canada (RASC), Winnipeg Chapter	2001
Quirks and Quarks Astronomy Columns	CBC Radio	2000-2002
"Images of the Hubble Heritage Project"	Shoreleave Conference, Baltimore	1999
"Dissolving the Boundary Between Art and Science"	for National Science Week in Australia at ATNF headquarters.	1997
"Beauty and the Educational Beast"	Mathematics, Science, and Technology Education Group, Queen's U.	1997
"Visualization in Astronomy"	RASC, Kingston Chapter	1997
	RASC, Toronto Chapter	1996
	"Physicists in the Nuclear Age" course, Queen's U.	1996

Additional Lectures

"Constructing Truth Using Algorithms"	Third International Symposium on Electronic Art, Sydney Australia	1992

National Committees

Committee Member	Herzberg Institute of Astrophysics Canadian Time Assignment Committee	2004-
Committee Member	CASCA Education & Public Outreach Committee	2002-
Board of Directors	Canadian Astronomical Society (CASCA)	1999-2002
Board Liaison	CASCA Education & Public Outreach Committee	2000-2002
Board of Directors	Canadian Section, International Astronomical Union	1999-2002
Board of Directors	Kingston Artists' Association	1997-1998

Conference Committees

CASCA Program Director	CAP/CASCA/COMP/BSC Congress 2004, U. Manitoba	2001-2004
Joint-Program Organizer	CAP/CASCA/COMP/BSC Congress 2004 Joint-Program, U. Manitoba	2001-2004
Member	CAP/CASCA/COMP/BSC Congress 2004 Local Organizing Committee, U. Manitoba	2001-2004

Thesis Committees

Alyssa Moldowan, M. Sc.	University of Manitoba	2005
Arna May Karick, Ph.D.	University of Melbourne, Australia	2004
Marjorie Gonzalez, M. Sc.	University of Manitoba	2003

Academic Committees

Member	Honours and Majors, U. Manitoba	2005-
Member	Selection Committee, U. Manitoba	2004
Chair	High School Outreach Committee, U. Manitoba	2002-2005
Member	Space Organization, U. Manitoba	2002-
Member	Undergraduate Curriculum Committee, U. Manitoba	2000-2004
Member	Nominating Committee, U. Manitoba	2002-2004
Fund-raising Committee	Queen's University Observatory	1997-1998
Member	Committee of the Observatories, Mount Stromlo & Siding Spring Obs.	1990-1991
Student Representative	Graduate School's Board of Studies, Australian National University	1990-1991

Participation in Societies and Conferences

Current Society Memberships

Canadian Astronomical Society (CASCA)
American Astronomical Society (AAS)
International Astronomical Union (IAU)
URSI Commission J (Radio Astronomers)

Recent Conferences

Title/Theme	Presentation	Year
CASCA 2005 (Montreal)	poster	2005
International Galactic Plane Survey (IGPS) Meeting (Toronto)		2005
CAP/CASCA/COMP/BSC Congress 2004 (Winnipeg)		2004
Space Telescope Science Institute Image-Making Workshop (Baltimore)	oral	2003
International Astronomical Union Meeting (Sydney, Australia)	poster	2003
International Galactic Plane Survey (IGPS) Meeting (Quebec City)	oral	2003
CASCA (Penticton)		2002
IGPS Meeting (Edmonton)	oral	2002
Banff New Media Institute: Quintessence: The Clumpy Matter of Art, Math, and Science Visualization	Invited oral & workshop	2002
Seeing through the Dust (Penticton)		2001
The Dynamics, Structure and History of Galaxies, by invitation in honour of Prof. K.C. Freeman (Dunk Island, Australia)	poster	2001
Intersection of Art & Science, ISIS Congress, (Sydney, Australia)	Invited oral	2001
Astronomical Society of Australia Annual Meeting (Lorne, Australia)	Invited oral	2001
IGPS (Greenbank, Va.)	poster	2001
CASCA (Hamilton)		2001

Public Outreach

Consulting	National Geographic (Milky Way Supplemental Map)	1999
Image-Making	From 1998-2000, as well as coordinating the Hubble Heritage Project (http://heritage.stsci.edu) at Space Telescope Science Institute, I authored the website and helped produce outreach materials. This included art-directing the three colour images from HST data, sometimes playing a leading role in their construction. I continue to construct and disseminate images from HST data, as part of my contribution to research projects. In addition I disseminate results from the I/CGPS to the general public using images I've constructed that emphasize radio synthesis data from DRAO. The images also generate press releases used in magazine articles (e.g. SkyNews, Sky & Telescope, and Equinox) and television (@discovery.ca). After 2000 I continued to make publishable HST images (e.g. Dec 2003 National Geographic) and I/CGPS images (e.g. Dutch and Spanish magazines).	On-going
Broadcast	I was the astronomy columnist for Quirks and Quarks on CBC Radio One. I continue to answer the occasional question on radio and TV.	2000-2002
Special Lectures	I have given numerous public talks on the discoveries of the I/CGPS and the construction of astronomy images. For example, I presented "Dwarfs, Giant Worms, Hot Smoke and Other Mythical Features in the Milky Way" at the Winnipeg Art Gallery for UM's "Get to Know Research at Your University" series in 2002. While many of these talks were given to chapters of the Royal Astronomical Society, in 2004 I became a CASCA Westar lecturer, extending my audience to include the Rolling River First Nations community.	On-going

Art Activities - Highlights

Curation

SoftCopy/HardCopy Workshops and Exhibit	Kingston Artists' Association	1996
Images for Concert by composer J. Gejtman	University of Manitoba	2005