

**Kristine Spekkens**  
**Assistant Professor, Royal Military College of Canada**

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**Citizenship:** Canadian

**Languages:** English/French bilingual

**Education:**

- ◇ Ph.D., Astronomy, Cornell University, Ithaca, NY 2005
- ◇ M.Sc., Astronomy, Cornell University, Ithaca, NY 2004
- ◇ B.Sc. Honours, Astrophysics, Queen's University, Kingston, ON 2000
- ◇ B.Sc., Mathematics, Queen's University, Kingston, ON 1999

**Research Interests:** Spiral galaxy structure/dynamics, dark matter, galaxy formation and evolution, HI morphology of galaxies, single-dish HI surveys, starless halos, HI mass function, galaxy scaling relations, angular momentum in galaxies, disk-halo connection.

**Research Experience:**

- ◇ Assistant Professor, Royal Military College of Canada Jan 2008 – present
- ◇ NRAO Jansky Postdoctoral Fellow, Rutgers University 2005 – 2007  
Collaborators: J. A. Sellwood, T. B. Williams
- ◇ Graduate Research Assistant, Cornell University 2001 – 2005  
Advisor: Riccardo Giovanelli  
Thesis: *Testing Cold Dark Matter Paradigm Predictions with Disk Galaxy Dynamics*
- ◇ Undergraduate Summer Research Assistant, McMaster University summer 2000
- ◇ Undergraduate Thesis Research Project, Queen's University 1999 – 2000
- ◇ Undergraduate Research Fellow, Cdn. Inst. for Theoretical Astrophysics (CITA) summer 1999
- ◇ Research Assistant, Applied Magnetics Group, Queen's University summers 1997, 1998

**Selected Invited Research Talks/Colloquia:**

- ◇ Physics, Engineering Physics and Astronomy Colloquium, Queen's University, ON Mar 2008
- ◇ Astronomy Colloquium, Case Western, OH Nov 2007
- ◇ Astronomy Colloquium, UMass, MA Oct 2007
- ◇ Research Seminar, Dominion Radio Astrophysical Observatory, Penticton, BC May 2007
- ◇ Physics and Astronomy Colloquium, McMaster University, Hamilton, ON Sep. 2006
- ◇ Astronomy Colloquium, University of British Columbia, Vancouver, BC May 2006
- ◇ Lab for mm Astronomy Seminar, University of Maryland, College Park, MD Apr. 2006
- ◇ Seminar, Galaxy Evolution Discussion Group, Oxford University, UK Mar. 2006
- ◇ Astrophysics Seminar, Queen's University, Kingston, ON Nov. 2005
- ◇ Colloquium, NRAO Headquarters, Charlottesville, VA Oct. 2004
- ◇ Colloquium, Arecibo Observatory, Puerto Rico Sep. 2004

### Teaching / Research Supervision Experience:

- ◇ Undergraduate Physics and Astronomy Teaching, RMC 2008 – present  
Winter 2008: PHE352 (Astronomy), PHF452 (Téledétection)
- ◇ Graduate Research Supervision, RMC 2008 – present  
Student: Cameron Arsenault (M.Sc. 2010)
- ◇ Undergraduate Research Co-Supervision, Rutgers University 2007 – 2008  
Student: Amanda Lundberg (B.Sc. 2008)
- ◇ Substitute Lecturer, Department of Astronomy, Cornell 2002
- ◇ Teaching Assistant, Department of Astronomy, Cornell University 2000 – 2002

### Recent Education and Public Outreach Activities:

- ◇ Invited Presentation: *The Formation of Galaxies: Theories and Observations* May 2008  
RASC Kingston Centre Regular Meeting
- ◇ Undergraduate Seminar: *What we know about Dark Matter* Mar. 2007  
New Jersey Institute of Technology, Newark, NJ
- ◇ Invited Presentation: *ALFALFA and the Hunt for Dark Galaxies* Jul. 2006  
ALFALFA Undergraduate Workshop, Union College, Schenectady, NY
- ◇ Invited Presentation: *Shedding Light on Dark Matter* Jul. 2006  
Concordia Retirement Community Astronomy Club, Monroe Twp, NJ
- ◇ Undergraduate Physics Colloquium: *Dark Matter and Disk Galaxy Dynamics* Feb. 2006  
Union College, Schenectady, NY
- ◇ Invited Presentation: *Thinking Big: How Astronomers Study the Universe* Feb. 2006  
Grades 6–8, St. Brigid School, Westbury, NY
- ◇ Expanding Your Horizons Conference Committee Chair 2003 – 2005  
Coordinated university-wide science workshops for grade 7-9 girls, Cornell
- ◇ Ask an Astronomer “expert”: <http://curious.astro.cornell.edu> 2001 – 2005  
Question response, site maintenance and promotion
- ◇ Workshop Leader, Focus for Teens 2001 – 2004  
Annual summer workshops for high-school students, Cornell University

### Professional Activities and Organizations:

- ◇ Manuscript referee: ApJ, AJ, MNRAS 2006 – present
- ◇ External referee, Canadian Time Allocation Committee, Gemini semester 2008B
- ◇ Thesis examination committee, Chemistry and Chemical Engineering, RMC Apr 2008
- ◇ Member, Canadian Astronomical Society (CASCA) 2001 – present
- ◇ Member, American Astronomical Society (AAS) 2002 – present
- ◇ Member, Arecibo Legacy Fast ALFA Survey team 2003 – present
- ◇ Member, Arecibo Galaxy Environment Survey team 2004 – present
- ◇ Coordinator, Monday astrophysics research seminars, Rutgers 2006 – 2007
- ◇ Co-organiser, Galaxy Lunch seminars, Cornell University 2004 – 2005

## Professional Honours and Awards

- ◇ University Faculty Award 2008-2012  
National Sciences and Engineering Research Council (NSERC)
- ◇ Discovery Grant 2008-2012  
NSERC

## Selected Graduate Honours and Awards

- ◇ Cranson W. and Edna B. Shelley Award for Graduate Research 2003  
Department of Astronomy, Cornell University
- ◇ Bryan Patten Research Fellowship 2002  
Department of Astronomy, Cornell University
- ◇ W. L. Mackenzie King Memorial Open Scholarship for Graduate Studies 2001  
Board of Trustees, Mackenzie King Scholarship Trust, Canada
- ◇ Postgraduate Scholarship (declined) 2000  
NSERC

## Selected Undergraduate Honours and Awards

- ◇ Governor General's Silver Medal: best graduating academic standing 2000  
Faculty of Arts and Sciences, Queen's University
- ◇ Prince of Wales Prize: best B.Sc. academic record 2000  
Faculty of Arts and Science, Queen's University
- ◇ Medal in Physics: best graduating academic standing in physics 2000  
Department of Physics, Queen's University
- ◇ CIAU Academic All-Canadian: athletic and academic excellence 2000  
Canadian Inter-university Athletic Union (CIAU)
- ◇ Robert Bruce Scholarship: academic distinction 1997 – 1999  
Faculty of Arts and Science, Queen's University
- ◇ Alumni National Entrance Scholarship 1996 – 1999  
Queen's University
- ◇ Sony of Canada Ltd. Scholarship: academic achievement 1999  
Faculty of Arts and Science, Queen's University
- ◇ A. Vilbert Douglas Physics Scholarship 1999  
Department of Physics, Queen's University
- ◇ R. W. L. Penultimate Year Scholarship: highest B.Sc. standing 1999  
Department of Physics, Queen's University
- ◇ Susan Near Prizes in Physics 1998 – 1999  
Department of Physics, Queen's University
- ◇ H. M. Cave Scholarship in Experimental Physics 1998  
Department of Physics, Queen's University
- ◇ Edna McGill Prize in Physics 1997  
Department of Physics, Queen's University
- ◇ Annie Bentley Lillie Prize in Calculus 1996  
Department of Mathematics, Queen's University

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**Refereed Publications:**

A. Saintonge, K. L. Masters, C. Marinoni, **K. Spekkens**, R. Giovanelli, & M. P. Haynes, "Geometric Tests of Cosmological Models. II. Calibration of Rotational Widths and Disc Scaling Relations", *A&A*, 478, 57, 2008

B. R. Kent, R. Giovanelli, M. P. Haynes, A. Saintonge, S. Stierwalt, T. Balonek, N. Brosch, B. Catinella, R. Koopmann, E. Momjian, & **K. Spekkens**, "Optically Unseen HI Detections Towards the Virgo Cluster Detected in the Arecibo Legacy Fast ALFA Survey", *ApJ*, 665, L15, 2007

**K. Spekkens** & J. A. Sellwood, "Modeling Non-Circular Motions in Disk Galaxies: Application to NGC 2976", *ApJ*, 664, 204, 2007.

R. Auld, R. F. Minchin, J. I. Davies, B. Catinella, W. van Driel, P. A. Henning, S. Linder, E. Momjian, E. Muller, K. O'Neil, S. Sabatini, S. Schneider, G. Bothun, L. Cortese, M. Disney, G. L. Hoffman, M. Putman, J. L. Rosenberg, M. Baes, W. J. G. de Blok, A. Boselli, E. Brinks, N. Brosch, J. Irwin, I. D. Karachentsev, V. A. Kilborn, B. Koribalski, & **K. Spekkens**, "The Arecibo Galaxy Environment Survey: Precursor Observations of the NGC 628 Group", *MNRAS*, 371, 1617, 2006.

**K. Spekkens** & R. Giovanelli, "The Kinematics of Rapidly Rotating Late-Type Spiral Galaxies: I. Photometry, HI and Optical Kinematics", *AJ*, 132, 1426, 2006.

R. Giovanelli, M. P. Haynes, B. R. Kent, P. Perillat, A. Saintonge, N. Brosch, B. Catinella, G. L. Hoffman, S. Stierwalt, **K. Spekkens** and 30 co-authors, "The Arecibo Legacy Fast ALFA Survey: I. Science Goals, Survey Design and Strategy", *AJ*, 130, 2598, 2005.

R. Giovanelli, M. P. Haynes, B. R. Kent, P. Perillat, B. Catinella, G. L. Hoffman, E. Momjian, J. L. Rosenberg, A. Saintonge, **K. Spekkens** and 10 co-authors, "The Arecibo Legacy Fast ALFA Survey: II. Results of Precursor Observations", *AJ*, 130, 2613, 2005.

**K. Spekkens**, R. Giovanelli, & M. P. Haynes, "The Cusp/Core Problem in Galactic Halos: Long-Slit Spectra for a Large Dwarf Galaxy Sample", *AJ*, 129, 2119, 2005.

**K. Spekkens**, J. A. Irwin, & D. J. Saikia, "HI in NGC 5433 and its Environment: High-Latitude Emission in a Small Galaxy Group", *MNRAS*, 352, 1145, 2004.

**Conference Contributions, Proceedings, and Technical Memos:**

**K. Spekkens**, "The Baryonic Tully-Fisher Relation and Dark Matter in Spirals" (invited review), Conference: *The Evolution of Galaxies through the Neutral Hydrogen Window*, Arecibo, PR, 2008.

- K. Spekkens** & J. A. Sellwood, “Non-Circular Motions in Disk Galaxies: a Bar in NGC 2976”, Conference: *Galaxies in the Local Volume*, Sydney, Australia, 2007.
- K. Spekkens** & J. A. Sellwood, “Modeling Non-Circular Motions in Disk Galaxies”, CASCA Annual Meeting, 2006.
- J. A. Sellwood & **K. Spekkens**, “Modeling Non-Circular Motions in Disk Galaxies: Application to NGC 2976”, Conference: *Astrophysical Probes of the Nature of Dark Matter*, Irvine, CA, 2007.
- K. Spekkens**, T. B. Williams, C. R. Keeton & J. A. Sellwood, “Breaking the Disk-Halo Degeneracy in Huchra’s Lens: a Report on the Rutgers Special Performance Verification Project”, South African Large Telescope Newsletter (SALTeNEWS), Nov. 2006.
- K. Spekkens**, “Dark Matter in Galaxies”, Invited Review Talk, Conference: *Dark and Dusty Galaxies: a Symposium in Honor of Riccardo Giovanelli*, Ithaca, NY, 2006.
- K. Spekkens**, E. Momjian, B. R. Kent, S. Stierwalt, R. Giovanelli, & M. P. Haynes, “Follow-up Aperture Synthesis Observations of the ALFALFA Cloud Complex”, ALFALFA team meeting, 2006.
- G. L. Hoffman, J. A. Irwin, **K. Spekkens**, R. Giovanelli, & M. P. Haynes, “Beam Maps as a Function of Azimuth for the ALFA Receiver”, Arecibo L-band Feed Array (ALFA) Technical Memo, Feb. 2006.
- K. Spekkens**, E. Momjian, B. R. Kent, R. Giovanelli, M. P. Haynes, B. Catinella, S. Stierwalt, & A. Saintonge, “ALFALFA Discovery of an HI Cloud Complex in the Virgo Cluster: Aperture Synthesis Observations”, AAS Meeting 207, 2006.
- K. Spekkens** & R. Giovanelli, “Kinematics and Angular Momenta of Massive Late-Type Spirals”, Conference: *Galaxies in the Cosmic Web*, Las Cruces, NM, 2006.
- K. Spekkens** & R. Giovanelli, “Disk Stability and the Fastest Rotators: A Pilot Study”, Conference: *Nearly Normal Galaxies in a LCDM Universe*, Santa Cruz, CA, 2005.
- K. Spekkens** & R. Giovanelli, “Disk Stability and the Fastest Rotators: First Results”, AAS Meeting 205, 2005.
- M. P. Haynes, R. Giovanelli, B. R. Kent, C. M. Springob, K. L. Masters, A. Saintonge, **K. Spekkens**, & S. Stierwalt, “A Digital Archive of Extragalactic HI Spectra and Access to the Arecibo Legacy Fast ALFA Survey”, AAS Meeting 205, 2005.
- K. Spekkens** & R. Giovanelli, “Inner Halo Shapes of Dwarf Galaxies: Reconciling the Cusp/Core Problem”, AAS Meeting 203, 2004.
- R. Giovanelli, M. P. Haynes, **K. Spekkens**, C. M. Springob, K. L. Masters, A. Saintonge, B. Catinella, B. R. Kent, R. J. Maddalena, L. Magnani, & R. A. Koopmann, “Blind Extragalactic HI Surveys with the Arecibo and Green Bank Telescopes: I. Simulations and Strategies for Survey Design”, AAS Meeting 203, 2004.
- M. P. Haynes, R. Giovanelli, C. M. Springob, A. Saintonge, **K. Spekkens**, K. L. Masters, B. Catinella, B. R. Kent, R. J. Maddalena, L. Magnani, & R. A. Koopmann, “Blind Extragalactic HI Surveys with the Arecibo and Green Bank Telescopes: II. Strategies for Map Construction and Signal Detection”, AAS Meeting 203, 2004.

**K. Spekkens** & R. Giovanelli, “Constraints on Inner Halo Structure from Direct Inversion”, ASP Conf. Ser.: IAU Symp. 220: *Dark Matter in Galaxies*, 2004.

**K. Spekkens**, C. M. Springob, R. Giovanelli, M. P. Haynes, & K. L. Masters, “First Results from a Fast HI Mapping Survey”, ALFA Extragalactic Consortium Workshop, Arecibo, PR, 2003.

**K. Spekkens** & J. A. Irwin, “HI in NGC 5433 and its Environment”, CASCA Annual Meeting, 2001.

#### **Selected Education and Public Outreach Conference Contributions:**

**K. Spekkens** and 15 co-authors, “Curious About Astronomy? Ask an Astronomer”, CASCA Annual Meeting, 2003.

V. Carruba and 15 co-authors (including **K. Spekkens**), “Curious About Astronomy? Cornell University’s Ask an Astronomer Website”, AAS Meeting 201, 2002.