CURRICULUM VITAE: Aileen A. O'Donoghue

EDUCATION:

May 1989 **Ph.D. in Physics**, New Mexico Institute of Mining and Technology (NMIMT)
Socorro, New Mexico
Dissertation Title: "VLA Observations of Wide Angle Tail Radio Sources and an Investigation of Flow Models and Bending Dynamics"

October 1987 **M.S. in Physics**, New Mexico Institute of Mining and Technology, Socorro, NM

April 1981 **B.S. in Physics**, Fort Lewis College, Durango, CO

June 1978 **A.A. in Science and Mathematics**, Colorado Mountain College, Glenwood Spgs, CO

POSITIONS:

9/19 – **Priest Professor of Physics**, St. Lawrence University (SLU)
Endowed Chair

8/06 – 8/19 **Priest Associate Professor of Physics**, St. Lawrence University (SLU)
Endowed Chair

8/94 - 8/06 **Associate Professor of Physics**, St. Lawrence University (SLU)
Canton, New York
Courses taught:
Introductory *Astronomy* for non-science students (with lab), *Mission Mars*, an interdisciplinary, project-based, introductory science course for non-science students, *Global Climate*, an interdisciplinary, course on meteorology, climate and climate change for non-science students, *Introductory Astrophysics*, *Modern Physics*, *Classical Mechanics* and *Mathematical Methods of Physics*.

9/01 -6/02 **Visiting Scientist**, Vatican Observatory Research Group (VORG), Tucson, Arizona
Engaged in spectroscopic research on stars under the NStars Project in collaboration with Richard Gray (Appalacian State University) and Chris Corbally (VORG)

6/95 -10/95 **Visiting Associate Professor of Astronomy**, Cornell University,Ithaca, New York
Taught summer introductory astronomy course and engaged in spectroscopic research on galaxies with the extragalactic research group, performing observationsa and analyzing optical Palomar and Kitt Peak Observatories.

1/96 - 5/96 **Visiting Scientist**, NRAO VLA[1],Socorro, New Mexico
Engaged in research on radio galaxies using VLA data.

8/89 - 8/94 **Assistant Professor of Physics**, SLU
Courses taught:
Introductory *Physics* (calculus and non-calculus, with lab), Introductory *Astronomy* (with lab), laboratory for *Conceptual Physics*, Interdisciplinary *First Year, Program* for first year students of all majors, Classical Mechanics

8/88 - 8/89 **Instructor of Physics**, SLU
Taught physics and astronomy courses.

6/88 - 8/88 **Research Assistant**, NMIMT

8/87 - 5/88 **Graduate Instructor of Physics**, NMIMT
Guest Research Associate, Very Large Array Radio Telescope (VLA)
National Radio Astronomy Observatory (NRAO), Socorro, New Mexico
Acted as Site Scientist available to visiting observers for help with observing programs, data reduction, and facility operation.

5/85 - 8/87 **Junior Research Associate**, NRAO VLA
Fellowship position for thesis work. Also acted as site scientist helping visiting observers.

1/85 - 5/85 **Research Assistant**, NMIMT and NRAO VLA
In collaboration with F. N. Owen, made VLA observations and did consequent calibration an imaging of OJ 287 in an investigation of closure errors (*cf*. VLA Scientific Memo #155).

8/83 - 12/84 **Graduate Instructor of Physics**, NMIMT
Taught lecture section of introductory, calculus-based physics course.

5/82 - 8/83 **Research Assistant**, NASA-NMIMT Joint Observatory for Cometary Research (JOCR)
Observed cometary ion tails with a 14 inch Schmidt telescope

8/81 - 5/82 **Teaching Assistant**, NMIMT
Instructed in the introductory physics laboratory.

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[1]National Radio Astronomy Observatory Very Large Array Radio Telescope

GRANTS RECEIVED:

9/15/16 – 8/31/19: National Science Foundation AST Grant #1637271, *Collaborative Research: Enhancing Undergraduate Research Experiences Through Extragalactic Radio Astronomy* in collaboration with the Undergraduate ALFALFA Team, R.A. Koopmann, Union College, P.I.

AWARDS:

Macsherry Family Community Spirit Award, United Way of Northern New York, Watertown, New York, December 2016

Leon LeBeau SOARing Educator Award, SOAR (Stimulating Opportunities after Retirement, Lifelong Learning in the North Country, Potsdam, New York), November 2016

The Perennial Wisdom Medal, The Monuments Conservancy, New York, New York, March 2010

Community-Spirit Award, United Way of Northern New York, 2007

Priest Associate Professor of Physics, St. Lawrence University, 2006-2026

Colorado Mountain College Alumnus of the Year, 2003, awarded by Colorado Mountain College, Glenwood Springs, Colorado

Judge Francis Bergan Career Development Award in Astrophysics, awarded by the Dudley Observatory, Schenectady, New York, for the 1993-1994 academic year.

PUBLICATIONS:

REFEREED JOURNALS

O'Donoghue, A. A., Haynes, M. P., Koopmann, R. A., Jones, M. G., Giovanelli, R., Balonek, T. J., Craig, D. W., Hallenbeck, G. L., Hoffman, G. L., Kornreich, D. A., Leisman, L., and Miller, J. R., *The Arecibo Pisces-Perseus Supercluster Survey: I. Harvesting ALFALFA,* A.J., 2019, **157**, 81-92

Haynes,M. P., Giovanelli, R., Kent, R. K., Adams, A. K., Balonek, T. J., Craig, D. W. Dertig, D., Finn, R., Giovanardi, C., Hallenbeck, G., Hess, K. M., Hoffman, G. L., Huang, S., Jones, M. G., Koopmann, R. A., Kornreich, D. A., Leisman, L., Miller, J., Moorman, C., O'Connor, J., **O'Donoghue,. A.**, Papastergis, E., Troischt, P, Stark, D., and Ziao, L., *The Arecibo Legacy Fast ALFA Survey: The ALFALFA Extragalactic HI Source Catalog*, 2018, Ap. J., **861**, 49-68

Troischt, Parker W., Koopmann, Rebecca A., **O'Donoghue, Aileen A.**, Odekon, Mary Crone, Haynes, Martha P., *The Undergraduate ALFALFA Team: A Collaborative Model for Undergraduate Research in Major Long-term Projects*, 2016, CUR Quarterly, **36**, 4-10.

Haynes, M. P., Giovanelli, R., Martin, A. M., Hess, K. M., Saintonge, A., Adams, E. A., Hallenbeck, G., Hoffman, L. G., Huang, S., Kent, B. R., Koopman, R. A., Papastergis, E., Stierwalt, S., Balonek, T. J., Craig, D. W., Higdon, S. J. U., Kornreich, D. A., Miller, J. R., **O'Donoghue, A. A.**, Olowin, R. P., Rosenberg, J. L., Spekkens, K., Troischt, P., and Wilcots, E., *The Arecibo Legacy Fast ALFA Survey: The α.40 HI Source Catalog, its Characteristics and Their Impact on the Derivation of the HI Mass Function*, A.J., 2011, **142**, 170-198.

Gray, R. O., Corbally, C. J., Garrison, R. F., McFadden, M. T., Bubar, E. J., McGahee, C. E., **O'Donoghue, A. A.**, and Knox, E. R., 2006, *Contributions to the Nearby Stars (NStars) Project: Spectroscopy of Stars Earlier than M0 within 40 pc-The Southern Sample*, A.J., 2006, **132**, 161-170.

Young, A., Rudnick, L, Katz-Stone, D. M., and **O'Donoghue, A. A.**, 2002, *Electron Population Aging Models for Wide-Angle Tails*, New Astronomy Reviews, **46**, 105-107.

Katz-Stone, D. M., Rudnick, L., Butenhoff, C., and **O'Donoghue, A. A.**, 1999, *Coaxial Jets And Sheaths In Wide Angle Tail Radio Galaxies*, Ap. J., **516**, 716-728.

van Zee, Liese, Salzer, John J., Haynes, Martha P., **O'Donoghue, Aileen A.**, and Balonek, Thomas J., 1998, *Spectroscopy of Outlying HII Regions in Spiral Galaxies: Abundances and Radial Gradients,* A. J., **116**: 2805-2833.

O'Donoghue, A. A., Eilek, J. A., and Owen F. N. 1993, *Flow Dynamics of Wide-Angle Tailed Radio Sources*, Ap. J., **408**: 428-445.

O'Donoghue, A. A., Owen, F. N., and Eilek, J. A. 1990, *VLA Observations of Wide-Angle Tailed Radio Sources*, Ap. J. Suppl., **72**: 75-131.

NON-REFEREED

Odekon, Mary Crone, Koopman, Rebecca A., **O'Donoghue, Aileen A.**, Haynes, Martha P., 2015, *Harvesting ALFALFA*, Mercury, 44, 31-36.

Complete listing on NASA Astrophysics Data System: adsabs.harvard.edu/abstract_service.html

MONOGRAPHS:

O'Donoghue, Aileen, (2007), The Sky is Not a Ceiling (Maryknoll, NY: Orbis Books)

MEETINGS PROCEEDINGS:

O'Donoghue, Aileen, 2011, *Using Time Zones and Celestial Navigation to Teach the Phases of the Moon*, in Earth and Space Science: Making Connections in Education and Public Outreach, ASP Conference Series, 433, ed. Jensen *et al* (San Francisco:ASP), 466-469.

O'Donoghue, Aileen, 2011, *Teaching Climate Change*, in Earth and Space Science: Making Connections in Education and Public Outreach, ASP Conference Series, 433, ed. Jensen *et al* (San Francisco:ASP), 355-358.

O'Donoghue, Aileen, 2011, *Teaching Climate Change*, in Earth and Space Science: Making Connections in Education and Public Outreach, ASP Conference Series, 433, ed. Jensen *et al* (San Francisco:ASP), 43-47. (This and the article just above were for different audiences at the same meeting. One for teaching intro astronomy, the other for astronomy public outreach.)

O'Donoghue, Aileen A., Eilek, Jean A., & Owen, Frazer N. 1996, *Observations of Straight-Angle Tailed Radio Sources in Rich Clusters of Galaxies*, in Extragalactic Radio Sources, IAU Symp. 175, ed. R. Ekers *et al* (Dordrecht:Kluwer).

O'Donoghue, Aileen A., 1992, *The Problem of Bending Wide Angle Tail Radio Sources*, in New York State Astronomy (Schenectady, NY: L. Davis Press).

O'Donoghue, A. A., 1986, *What Bends WATS?*, in Radio Continuum Processes in Clusters of Galaxies, Proc. NRAO Workshop 16, ed. C. P. O'Dea and J. M. Uson (Green Bank West Virginia: NRA0).

O'Donoghue, A. A. and Owen, F. N. 1986, *Intensity Maps of Six Wide-Angle Tailed Radio Sources*, in Radio Continuum Processes in Clusters of Galaxies, Proc. NRAO Workshop 16, ed. C. P. O'Dea and J. M. Uson (Green Bank West Virginia: NRAO).

CONFERENCE LECTURES AND POSTER PRESENTATIONS

O'Donoghue, A. A., Hanes, M. P., Koopmann, R. A., Jones, M. G., Hallenbeck, G. L., Giovanelli, R., Hoffman, G. L., Craig, D. W., Extending ALFALFA: *Arecibo L-Band Wide Observations in the Direction of the Pisces-Perseus Supercluster.* Astronomical Society 228th Meeting, Grapevine, Texas, January 2017

O'Donoghue, A., Koopmann, R., Hannes, M., Jones, M., Craig, D., Hallenbeck, G., Rosenberg, J, Venkatesan, A., *The ARECIBO Piseces-Perseus Supercluster Survey: An ALFALFA Undergraduate ALFALFA Team (UAT) Project,* American Astronomical Society 227th Meeting, Kissimmee, Florida, January 2016

O'Donoghue, Aileen, *Using Time Zones and Celestial Navigation to Teach the Phases of the Moon*, Astronomical Society of the Pacific: Cosmos in the Classroom 2010, Boulder, Colorado, August, 2010

O'Donoghue, Aileen, *Teaching Climate Change*, Astronomical Society of the Pacific: Cosmos in the Classroom 2010, Boulder, Colorado, August 2010

O'Donoghue, Aileen, *Teaching Climate Change*, Astronomical Society of the Pacific: Space Science: Making Connections in Education and Public Outreach, Boulder, Colorado, August 2010

O'Donoghue, Aileen, *Using Animatinos to Improve Student Understanding*, Astronomical Society of the Pacific: Building Community: The Emrging APO Profession, Tucson, Arizona, September 2005

O'Donoghue, Aileen, *Collaborative Exams*, in Astro 101: A Continuing Dialog, during the American Astronomical Society 196th Meeting, Rochester, New York, June 2000

O'Donoghue, Aileen, *Studio Astronomy*, American Astronomical Society 193rd Meeting, Austin, Texas., January, 1999

O'Donoghue, Aileen, *From Stargazing to Science: The Value of Astro's "onomy" in Teaching the Content and Nature of Astronomy and Science*, American Astronomical Society 191st Meeting, Washington, D. C., January 1998

O'Donoghue, Aileen, *Abandoning the Standard Textbook: Field Guide and Sky-Centered Astronomy* An International Syposium on Teaching Astronomy to Non-science Majors, Sponsored by the American Astronomical Society of the Pacific, Albuquerque, New Mexico, June 1998

O'Donoghue, Aileen, Eilek, Jean, Owen, Frazer, *Observations of Straight-Angle Tailed Radio Galaxies in Rich Clusters of Galaxies*, International Astronomical Union 175th Symposium, Bolobna, Italy, October 1995

O'Donoghue, Aileen, *The Problem of Bending Wide-Angle Tail Radio Sources*, Astronomical Society of New York, Ithaca, New York, April 1992

O'Donoghue, Aileen, Eilek, Jean, Owen, Frazer, *Total Intensity and Spectral Index Images of Wide-Angle Tailed Radio Sources*, American Astronomical Society 176th Meeting, Albuquerque, New Mexico, June 1990

O'Donoghue, Aileen, *Interesting Problems in Wide-Angle Tail Radio Galaxies*, Astronomical Society of New York, Troy, New York, November 1990

O'Donoghue, Aileen, *VLA Observations of Wide-Angle Tail Radio Sources and an Investigation of Flow Models and Bending Dynamics*, American Astronomical Society 175th Meeting, Washington, D. C., January 1990

O'Donoghue, A. A., 1986, *What Bends WATS?*, NRAO Workshop on Radio Continuum Processes in Clustsers of Galaxies, Green Bank, West Virginia, August 1986

O'Donoghue, A. A. and Owen, F. N. 1986, *Intensity Maps of Six Wide-Angle Tailed Radio Sources*, NRAO Workshop on Radio Continuum Processes inClustsers of Galaxies, Green Bank, West Virginia, August 1986

TECHNICAL MEMOS: O'Donoghue, A. A. and Owen, F. N., 1985, *Closure Errors*, VLA Scientific Memo #155 (Socorro, New Mexico: NRAO-VLA).

SCHOLARLY ESSAYS: O'Donoghue, A., 2010, *Response to "The Humble Heart" by Cynthia Reville Peabody*, Union Seminary Quarterly Review, 63:198-203 (New York: Union Theological Seminary in the City of New York).

O'Donoghue, Aileen, 2007, *Finding God in Machines*, America Magazine, 196, 8, p. 28

BOOK REVIEWS: O'Donoghue, A. A., (1993) Post-use Review: Physics by Paul A. Tilper, American Journal of Physics, Am. J. Phys., **61**: 956-957

O'Donoghue, Aileen (2003) Origins by Tom Yulsman, Astronomy Magazine, 31, 6, p. 104

POPULAR ARTICLES: O'Donoghue, Aileen A., "The Wilderness Above" (2010 --), regular column in *The Adirondac Daily Enterprise* daily newspaper (Saranac Lake, New York), (bi-monthly from November through April)

O'Donoghue, Aileen A., "Mountain Skies" (1999 -- 2002), regular column in *Adirondac* magazine, (bi-monthly, year-round)

PROFESSIONAL ORGANIZATIONS: International Astronomical Union (2012), American Astronomical Society, Royal Astronomical Society of Canada, Astronomical Society of the Pacific, Sigma Pi Sigma (ΣΠΣ), Astronomical Society of New York, Adirondack Public Observatory

PROFESSIONAL SERVICE:

Oct. 2002 – Treasurer, New York Astronomical Corporation
Oct. 2000 – Member, Board of Directors, New York Astronomical Corporation
Oct. 1990 – SLU Institutional Representative, New York Astronomical Corporation
Dec. 2003 – Member, Board of Directors, Adirondack Public Observatory

RESEARCH INTERESTS: Radio observations of HI (atomic hydrogen) emissions, Extended Extragalactic Radio Sources, Radio Jets, Clusters of Galaxies, Galaxies, Radio Astronomy, Optical Spectroscopy, Stellar Classification, Undergraduate Astronomy & General Science Education

RESEARCH GROUPS: Undergraduate ALFALFA Team (UAT), formed to contribute to the Arecibo Legacy Fast ALFA Survey (ALFALFA); a blind survey of the sky visible from Arecibo outside the Milky Way galaxy The UAT continues as a new model of collaboration among undergraduate faculty and students students with the guidance of a research institution (R1) astronomer, Dr. Martha Haynes of Cornell University Astronomy Department. We have held annual workshops since 2006 at Arecibo and Green Bank Observatories. Our current projects include the Arecibo Pisces-Perseus Supercluster Survey (APPSS) for which Arecibo observations have been begun. Also, the UAT Galaxy Groups project that includes optical observations of visible and Hα emission with the WIYN 0.9m Telescope on Kitt Peak to reveal star formation rates and galaxy morphologies.

INVITED LECTURES AND COLLOQUIA

Einstein, Gravity and the Fabric of Our Souls, Thomas E. Golden, Jr., Fellowship in Faith & Science, St. Thomas More Catholic Chapel & Center at Yale University, December 2018 (https://stm.yale.edu/media)

Is Zwicky Galaxy cluster 1044+0949 a Bound Cluster?, Georgia Southern University, Physics Department Colloquim, August 2013

Is Zwicky Galaxy cluster 1044+0949 Really a Cluster/, Clarkson University Physics Department Colloquim, April 2013

Doubt, Faith and a Life in Science, The Samuel Dorsky Symposium on Public Monuments, The Monuments Conservancy, New York, New York, March 2010

The Sky is not a Ceiling, Healthy Hops: Mind, Body, Spirit Program, SUNY Canton, Canton, New York, November 2009

Seeing Dark Galaxies, University of Denver Phyics and Astronomy Department Colloqium, Denver, Colorado, October 2008

Seeing Understanding in an Expanding Universe, Unified Teacher-to-Teacher Science Conference and Workshop, Plattsburgh, New York, March 2008

Looking out for Looking Up, Presentation to the Adirondack Park Agency on behalf of the Adirondack Public Observatory, Ray Brook, New York, July 2005

Spacing out with your Calculator: Measuring the Universe without Leaving your Chair, Math and the Cosmos 2005, Jefferson Community College, Watertown, New York, April 2005

Seeking Understanding in an Expanding Universe, Benedictine College, Atchison, Kansas, Eighth Mary L. Fellin Lecture (on the Liberal Arts from a Feminine Perspective), October 2004

The Songs of Ancient Electrons, Toronto, Ontario, Annual Meeting of the Astronomical Society of the Pacific with the Royal Astronomical Society of Canada and the American Association of Variable Star Observers , June 1999

SAT's and Science Outside the Primary Beam, NRAO VLA Colloqium, Socorro, New Mexico, April 1996

Straight-Angle-Tailed Radio Galaxies and Science Outside the Primary Beam, New Mexico State University Department of Astronomy Colloqium, Las Cruces, New Mexico, April 1996

Observations and Models of Wide Angle Tailed Radio Galaxies, Fort Lewis College Collquium, Durango, Colorado, October 1994

Flow Dynamics of Wide-Angle Tailed Radio Galaxies, Rensselaer Polytechnic Institute Physics Department Colloquium, Troy, New York, March 1994

The Radio Voice of the Universe, Colgate University Natural Science and Mathematics Summer Research Lecture, Hamilton, New York, July 1992

Radio Interferometry and the Problem of Bending WAT's, Colgate University Physics and Astronomy Colloqium, Hamilton, New York, 1992

Radio Astronomy, Union College Physics Colloquium, Schenectady, New York, November 1990

Radio Astronomy of Extragalacitc Objects, Clarkson University Physics Department Colloquium, Potsdam, New York, October 1988