PhD THESES

PhDs Awarded for Research at NATIONAL ASTRONOMY & IONOSPHERE CENTER Calendar Years 1965 – 2005

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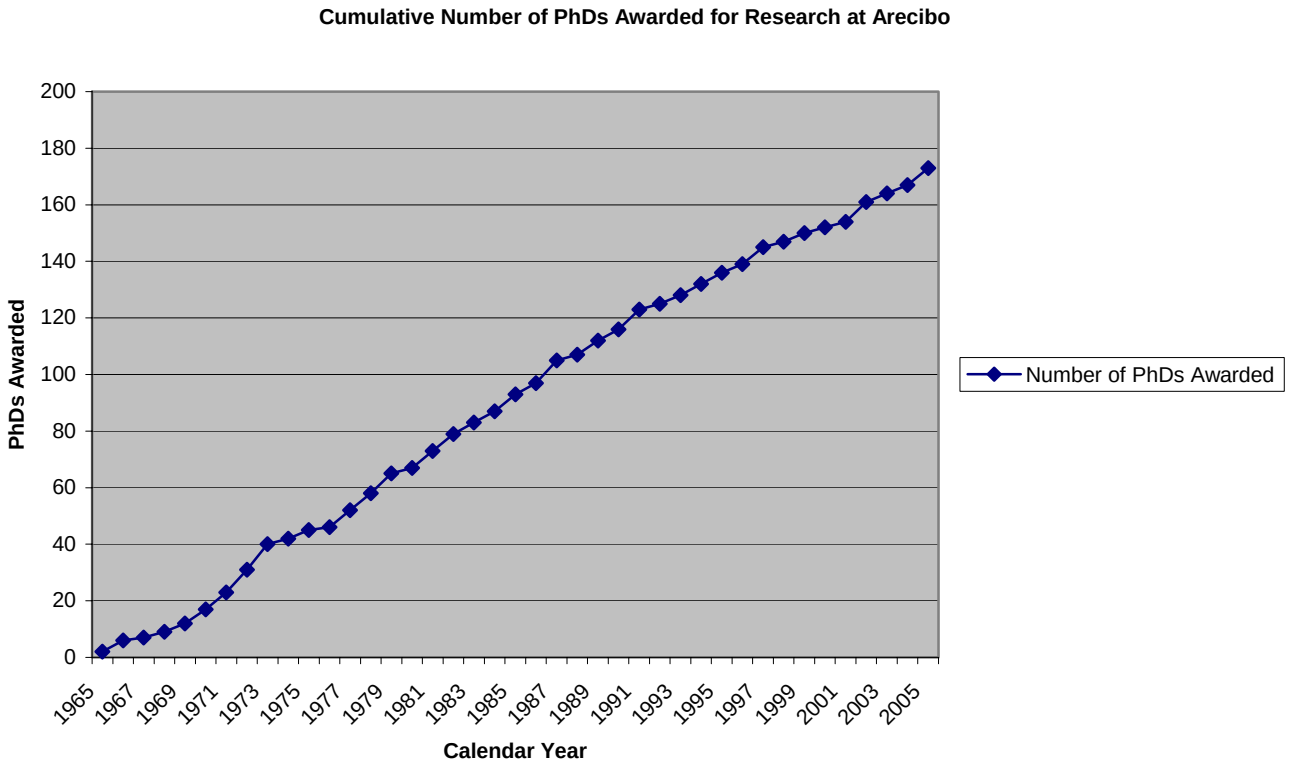
PhDs Awarded for Research at NAIC: Calendar Years 1965 – 2005

One hundred and seventy graduate students have been awarded PhDs for scholarly work done solely or primarily at the NAIC Arecibo Observatory over the last 40 years. These are all people of accomplishment many of whom are leaders in their fields today. In this report we include a list of all these people together with the title of their thesis, the year it was awarded and the name of the awarding institution.

A plot of the cumulative number of awardees is given below showing an unbroken rate of production of these people of achievement over 40 years.



Years	Theses Containing AO Data	Cornell Students
1960s	12	6
1970s	53	27
1980s	47	12
1990s	38	23
2000-2002	11	5
2003-2005	12	7
TOTAL	**173**	**80**

1965:

Carlson, H.C. Jr., *Ionospheric Heating by Magnetic Conjugate Point Photoelectrons as Observed at Arecibo*, Cornell University, 1965.

Hardebeck, Harry E., *Radiometric Observations of Jupiter, Venus and Mars at 430 Mc/s*, Cornell University, 1965.

1966:

Gordon, Mark Aitken, *The polarization and spectral dependence of fine structure in Jupiter radio bursts*, University of Colorado, 1966.

Sutton, John, *The determination of the positions of radio sources*, University of Sydney, 1966.

Thome, George, *A Study of Large-Scale Traveling Disturbances in the Ionosphere Using the Arecibo UHF Radar*, Cornell University, 1966.

Thompson, Thomas William, *A study of radar-scattering behavior of lunar craters at 70 cm*, Cornell University, 1966.

1967:

Nelson, Raymond Francis G.J., *Studies of the ionosphere using transmissions from satellites*, University of Sydney, 1967.

1968:

Jurgens, Raymond Francis, *A study of the average and anomalous radar scattering from the surface of Venus at 70 cm wavelength*, Cornell University, 1968.

Philipson, Warren Rodney, *Geometric calibration of Arecibo 1000-ft reflector*, Cornell University, 1968.

1969:

Broderick, John, *The distribution functions of star clusters*, Brandeis University, 1969.

Counselman, Charles Claude, *Spin-orbit resonance of Mercury*, Massachusetts Institute of Technology, 1969.

Trost, Thomas Frederic, *Thomson scatter study of ionospheric scintillations*, Case Western Reserve University, 1969.

1970:

Behnke, Richard Alan, *Vector Measurements of the ion transport velocity with applications to F-region dynamics*, Rice University, 1970.

Craft, Harold D., *Radio observations of the pulse profiles and dispersion measures of twelve pulsars*, Cornell University, 1970.

Cronyn, Willard Marshall, *Radio scattering in the interplanetary medium*, University of Maryland, 1970.

Donivan, Frank Forbes, *Radio investigations of clusters of galaxies*, University of Florida, 1970.

Lovelace, Richard V.E., *Theory and analysis of interplanetary scintillations*, Cornell University, 1970.

1971:

Backer, Donald C., *Radio intensity fluctuations in pulsars*, Cornell University, 1971.

Campbell, Donald Bruce, *Radar interferometric observations of Venus*, Cornell University, 1971.

Niell, Arthur Edwin, *Flux densities and spectra of extragalactic radio sources*, Cornell University, 1971.

Parrish, Alan de Schweinitz, *Meter wavelength observations of galactic disk radiation*, Cornell University, 1971.

Pedlar, Alan, *Studies of radio recombination lines*, University of Manchester, 1971.

Rufenach, Clifford Leroy, *Radio scintillation observations in the ionosphere and interplanetary medium*, University of Colorado, 1971.

1972:

Condon, James Justin, *Decimetric spectra of extragalactic radio sources*, Cornell University, 1972.

DeNoyer, Linda Kay, *Radio continuum and 21 cm hydrogen line observations of galactic supernova remnants*, Cornell University, 1972.

Hagen, Jon Boyd, *A hybrid autocorrelator and its application to high altitude incoherent scatter*, Cornell University, 1972.

Kantor, Ivan Jelinek, *Plasma waves induced by HF radio waves*, Rice University, 1972.

Mansfield, Victor Neil, *Evolution and structure of HII regions*, Cornell University, 1972.

Mathews, John David, *Ionospheric propagation phenomena*, Case Western Reserve University, 1972.

Richards, David William, *Absolute timing of twelve pulsars*, Cornell University, 1972.

Whitehill, Laird Peter, *Solar System Applications of MIE Theory and of Radiative Transfer of Polarized Light*, Cornell University, 1972.

1973:

Andrade-Sobral, Jose Humberto, *Airglow and incoherent scatter studies of the dynamics of the nighttime ionosphere at Arecibo*, Cornell University, 1973.

Boriakoff, Valentin, *Pulsar radiofrequency observations with a digital pulsar processor*, Cornell University, 1973.

Comella, John Michael, *Average radio spectra of pulsars*, Cornell University, 1973.

Dias, Luiz Alberto Vieira, *Observations of artificially induced enhancements in the ionospheric backscatter spectrum*, Rice University, 1973.

Ioannidis, George A., *The Application of Barker Coded Pulses*, Cornell University, 1972.

Pankonin, Vernon Lee, *Decimeter-wavelength studies of hydrogen and carbon recombination lines toward galactic nebulae*, Cornell University, 1973.

Purcell, George H., *The structure of compact radio sources at 606MHz*, California Institute of Technology, 1973.

Viner, Melvyn Roger, *A 26.3 MHz radio source survey with an absolute fluz scale*, University of Maryland, 1973.

Zamlutti, Carlos Jose, *A Incoherent Scatter Studies of the lower Ionosphere at Arecibo Using Multiple Pulse Techniques*, Cornell University, 1973.

1974:

Aso, Takehitko, *Radio frequency impedance probe and its applications to ionospheric probing*, Kyoto University, 1974.

Ferguson, Dale Curtis, *The emission from pulsars: I. A generalized single-vector polarization model II. A model for the sub-pulse and integrated pulse behavior*, University of Arizona, 1974.

1975:

Cordes, James Martin, *Pulsar microstructure: time scales, spectra, polarization, and radiation models*, University of California at San Diego, 1975.

Durdin, John MacGregor, *The analysis and interpretation of multi-beam radio survey data*, Cornell University, 1975.

Spangler, Steven R., *Radio astronomical observations of UV Ceti stars*, University of Iowa, 1975.

1976:

Pleticha, Dale Joel, *Analysis and application of a multibeam radio astronomy survey*, Cornell University, 1976.

1977:

Bania, Thomas, M., *Carbon monoxide in the inner galaxy and related studies of galactic structure*, University of Virginia, 1977.

Dickey, John M., *Studies of interstellar neutral hydrogen at 21 cm wavelength*, Cornell University, 1977.

Duncan, Lewis M., *The experimental saturation spectrum of parametric instabilities*, Rice University, 1977.

Emery, Barbara Ann, *Seasonal wind variations in the midlatitude neutral thermosphere*, Massachusetts Inst. of Technology, 1977.

Jacobson, Michael Ray, *Far-infrared photometry with an 0.4 meter liquid helium cooled balloon-borne telescope*, Cornell University, 1977.

Silvaggio, Peter Michael, *Experimental determination of molecular absorption coefficients for methane and ammonia at low temperatures and model atmospheres for the major planets*, Cornell University, 1977.

1978:

Haynes, Martha Patricia, *An investigation of the intergalactic medium via the 21 cm line of neutral hydrogen*, Indiana University, 1978.

Krumm, Nathan Allyn, *A study of neutral hydrogen in early-type galaxies in the Virgo Cluster*, Cornell University, 1978.

Ostro, Steven Jeffrey, *The structure of Saturn's rings and the surfaces of the Galilean satellites as inferred from radar observations*, Massachusetts Institute of Technology, 1978.

Peterson, Steven Douglas, *A study of binary galaxies: total mass and the ratio of mass-to-luminosity*, Cornell University, 1978.

Silverglate, Peter Robert, *Radio recombination lines from HII region*s, Cornell University, 1978.

Weisberg, Joel M., *The absorption of pulsar signals by intervening neutral hydrogen*, University of Iowa, 1978.

1979:

Chandler, John F., *Determination of the Dynamical Properties of the Jovian System by Numerical Analysis*, Massachusetts Institute of Technology, 1979.

Djuth, Frank Thomas, *HF-induced plasma waves in ionospheric sporadic E*, Rice University, 1979.

Gordon, David, *A neutral hydrogen survey of blue compact galaxies*, University of Florida, 1979.

Gullahorn, Gordon Edward, *Pulsar timing results from Arecibo Observatory*, Cornell University, 1979.

MacFarlane, Malcolm James, *Galaxy population analysis*, Texas University, 1979.

Snell, Ronald L., *A study of interstellar dark clouds*, Texas University, 1979.

Willson, Robert Frederick, *Radio astronomical observations of regions of star formation*, Tufts University, 1979.

1980:

Fleisch, Daniel A., *Jicamarca radar measurements of winds and turbulence in the stratosphere*, Rice University, 1980.

Helou, George, *Virgo cluster galaxies: neutral hydrogen studies*, Cornell University, 1980.

1981:

Claussen, Mark J., *Polarization properties of main-line OH maser emission from circumstellar shells of late-type variable stars*, University of Iowa, 1981.

Coco, D. S., *Interpreting electron temperature changes in the lower ionosphere*, Rice University, Houston, TX, 1981.

Payne, Harry Edward, *Neutral hydrogen 21 cm line emission-absorption observations of the interstellar medium*, Cornell University, 1981.

Sato, Toru, *Coherent radar measurements of the middle atmosphere and design concepts of the MU radar*, Kyoto University, 1981.

Tepley, Craig Allen, *An investigation of temperature and metallic composition of the lower ionosphere*, Case Western Reserve University, 1981.

Tomko, Albert Andrew, *Nonlinear phenomena arising from radio wave heating of the lower ionosphere*, Pennsylvania State University, 1981.

1982:

Burns, Barbara Ann, *Cratering analysis of the surface of Venus as mapped by 12.6cm radar*, Cornell University, 1982.

Chandler, Michael Owens, *Theory and observations of the low and mid-latitude ionosphere*, University of Michigan, 1982.

Frey, A., *HF produced ionospheric electron density irregularities diagnosed by UHF radio star scintillations*, Rice University, 1982.

La Hoz Vergara, *Cesar Augusto, Studies of the self-focusing instability during ionospheric heating experiments*, Cornell University, 1982.

Noble, Stephen T., *Traveling ionospheric disturbances associates with space shuttle launches*, Rice University, 1982.

Stinebring, Daniel R., *Pulsar polarization: dual-frequency observations and the production of orthogonally polarized radiation*, Cornell University, 1982.

1983:

Breakall, James K., *On the absolute calibration and theoretical justification of high resolution ionospheric results obtained from Arecibo radar measurements*, Case Western University, 1983.

Coster, Anthea Jane, *The temporal evolution of short scale striations in the heated ionosphere*, Rice University, 1983.

Kamoun, Paul Gaston David, *Radar observations of cometary nuclei*, Massachusetts Institute of Technology, 1983.

Kulkarni, Shrinivas Ramchandra, *Studies of galactic HI in 21 cm absorption*, University of California at Berkeley, 1983.

1984:

Allshouse, Roger LeRoy, *The relationship between ionospherically produced ELF/VLF signals and the dynamo current system at Arecibo*, Pennsylvania State University, 1984.

Burnside, Roger George, *Dynamics of the low-latitude thermosphere and ionosphere*, University of Michigan, 1984.

Gwinn, Carl R., *Measurement of pulsar parallax by very long baseline interferometry*, Princeton University, 1984.

Santoru, Joseph, *Low and high latitude ionospheric modification experiments*, University of California at Los Angeles, 1984.

1985:

German, Mark Jeffrey, *Interference detection and correction while performing ionospheric studies with an incoherent scatter radar*, Case Western Reserve University, 1985.

Lunnen, R.J., *Detection of VLF and ELF long-path signals radiated from heated and modulated ionosphere current systems*, Pennsylvania State University, 1985.

Schneider, Stephen E., *Galaxy groups: neutral hydrogen and dynamics*, Cornell University, 1985.

Stofan, Ellen R., *Mapping of the southern Ishta-Terra region and characteristics of selected volcanic structures on Venus*, Brown University, 1985.

Simonetti, John H., *Variations in the Small-Scale Galactic Magnetic Field and Short Time Scale Intensity*, Cornell University, 1985.

Ying, W.P., *Analysis of the D-region incoherent scatter ion line power spectra*, Case Western Reserve University, 1985.

1986:

Colgan, Sean W., *Arecibo emission-absorption studies of the interstellar medium*, Cornell University, 1986.

Kerr, Robert Bruce, *The hydrogen geocorona: simultaneous optical and radar observations at Arecibo*, University of Michigan, 1986.

Rawley, Lloyd Alexander, *Timing millisecond pulsars*, Princeton University, 1986.

Venkataraman, Arun Gudalur, *Pulsar radio emission geometry*, University of California at San Diego, 1986.

1987:

Bicay, Michael David, *A neutral hydrogen survey of galaxies in the Cancer region*, Stanford University, 1987.

Birkmayer, Wolfram Siegfried, *Chirped incoherent scatter radar plasma line measurements*, Cornell University, 1987.

Cornish, Charles Robert, *Observations of inertial period waves and vertical velocities in the tropical middle atmosphere using the MST radar technique*, Cornell University, 1987.

Garwood, Robert Walter, *Studies of the interstellar medium in the inner galaxy at 21 cm*, University of Minnesota, 1987.

Holden, Daniel N., *Radar observations of changes in precipitation size spectra associated with lightning*, Clemson University, 1987.

Magnani, Loris Alberto, *Molecular clouds at high galactic latitudes*, University of Maryland, 1987.

Schmelz, Joan T., *Investigations of extragalactic hydroxyl*, Pennsylvania State University, 1987.

Tanikawa, Takao, *The new roles of cavitors in homogeneous plasmas under strong electromagnetic irradiation*, University of California at Los Angeles, 1987.

1988:

Graf, Paul Hamilton, *A Fabry-Perot for airbone infrared astronomy and the SiII emission from the galactic center*, Cornell University, 1988.

Pidwerbetsky, Alexander, *Simulation and analysis of wave propagation through random media*, Cornell University, 1988.

1989:

Frail, Dale A., *A study of the diffuse interstellar medium through neutral hydrogen absorption observations toward pulsars*, University of Toronto, 1989.

Fruchter, Andrew S., *Pulsars lost and found: The second Princeton-Arecibo millisecond pulsar search*, Princeton University, 1989.

Goodman, Alyssa Ann, *Interstellar magnetic fields: and observational perspective*, Harvard University, 1989.

Kildal, Per-Simon, *Novel ray techniques to synthesize and analyze edge diffraction losses*, Norwegian Institute of Technology, 1989.

Stofan, Ellen R., *Geology of coronae and domal structures on Venus and models of their origin*, Brown University, 1989.

1990:

Eder, Jo Ann, *SO galaxies: their gas content, structure and environment*, Yale University, 1990

Freudling, Wolfram, *A search for streaming motion around the Hercules void*, Cornell University, 1990.

Magri, Christopher, *An Observation Study of Arm Structure in Normal Spiral Galaxies*, Cornell University, 1990.

Melendez-Alvira, Daniel J., *Theory measurements of nighttime horizontal gradients in the mid-latitude F region*, University of Michigan, 1990.

1991:

Blaskiewicz, Michael Mathew, *Observational constraints on pulsars: location of the emission region and pulse shape stability on decade time scales*, Cornell University, 1991.

Campbell, Bruce A., *Radar Polarization Studies of Volcanic and Impact Cratered Terrains on the Earth, Venus and the Moon*, University of Hawaii, 1991.

Clegg, Andrew Wallace, *Radio frequency investigations of the interstellar medium*, Cornell University, 1991.

Isham, B. C., *Chirped incoherent of the HF-modified ionosphere*, Cornell University, 1991.

Phillips, James Anthony, *Pulsar timing at meter and decameter wavelengths*, Cornell University, 1991.

Ruiz, Abraham, *Emision y absorción de OH en regions de formación estelar*, Universidad Nacional Autonoma de Mexico, 1991.

Zhou, Q., *A joint study of the lower ionosphere by radar, lidar, and spectrometer*, Pennsylvania State University, 1991.

1992:

Dighe, K.A., *Medium scale disturbances in the lower ionosphere*, Clemson University, 1992.

Vilece, K.D., *Kinematical study of anti-stokes Langmuir modes and particle precipitation produced by RF heating of ionospheric plasmas*, Massachusetts Institute of Technology, 1992.

1993:

Hinds, J. M., *A study of large-scale Hf-induced thermal self-density striations in the ionosphere*, Clemson University, 1993.

Stacy, Nicholas J.S., *High-Resolution Synthetic Aperture Radar Observations of the Moon*, Cornell University, 1993.

Turek, R. S., *Radar Studies of the Low Latitude Middle Atmosphere: Morphology and Comparison of Various Wind Measurement Techniques*, Utah State University, 1993.

1994:

Chengalur, Jayaram N., *Dynamics of Binary Galaxies: an Observational Study*, Cornell University, 1994.

González, Sixto A., *Radar, satellite, and modelling studies of the low latitude protonosphere*, Utah State University, 1994.

Kaspi, Victoria Michelle, *Applications of pulsar timing*, Princeton University, 1994.

Lundgren, Scott C., *A Multi-Wavelength Study of Rotation-Driven Pulsars*, Cornell University, 1994

1995:

Arzoumanian, Zaven, *Applications Radio observations of binary pulsars: clues to binary evolution and tests of general relativity*, Princeton University, 1995.

Camilo, Fernando, *A Search for Millisecond Pulsars*, Princeton University, 1995.

Vogt, Nicole P., *The Effects of Environment of Mass and Light in Galaxies. A Study of Nine Nearby Clusters*, Cornell University, 1995.

Zepka, Alexandre F., *A Search for X-Ray Emitting Radio Pulsars*, Cornell University, 1995.

1996:

Miller, C.A., *On Gravity Waves and the Electrodynamics of the Mid-Latitude Ionosphere*, Cornell University, 1996.

Moriarty, D. T., *Laboratory Studies of Ionospheric Plasma Processes with the versatile Toroidal Facility (VTF)*, Massachusetts Institute of Technology, 1996.

van Zee, Liese E., *Evolutionary Studies of Low Surface Brightness Galaxies*, Cornell University, 1996.

1997:

Black, Gregory J., *Chaotic Rotation of Hyperion and Modeling the Radar Properties of the Icy Galilean Satellites as a Coherent Backscatter Effect*, Cornell University, 1997.

Castleberg, Paul A., *Lidar Development with Applications to the Stratosphere-Troposphere Exchange and Tropical Aerosol Detection*, Cornell University, 1997.

Lazio, T.J.W., *Genetic Algorithms, Pulsar Planets and Ionized Interstellar Microturbulence*, Cornell University, 1997.

Nordgren, T.E., *A Neutral Hydrogen Study of Close and Wide Galaxy Pairs*, Cornell University, 1997.

Scodeggio, Marco, *The Distances to Nearby Galaxy Clusters*, Cornell University, 1997.

Webster, R.B., *The development of a numerical model of the nocturnal F-region*, Case Western Reserve University, 1997.

1998:

Aponte, Nestor, *Radar Studies of the Equatorial F-Region Energy Balance*, Cornell University, 1998.

Dale, Daniel, *Seeking the Local Convergence Depth*, Cornell University, 1998.

1999:

Franz, T. L., *Rocket Observations of the High-Power HF Modified Ionosphere*, Cornell University, 1999.

García, F. J., *Atmospheric Studies Using ALL-Sky Imaging of Airglow Layers*, Cornell University, 1999.

Rosado-Román, M.J., *A Study of Coherent Scatter from Mid-Latitude Sporadic-E Layers*, Cornell University, 1999.

2000:

Janches, Diego, *Physical and Orbital Properties of Micrometeors Observed Using the 430 MHz Arecibo Observatory Radar*, Pennsylvania State University, 2000.

Lebrón, Mayra Enid, *Estudio del gas alrededor de estrellas masivas jóvenes*, Universidad Nacional Autónoma de Mexico, 2000.

2001:

Bishop, E.L., *Evolution and Dynamics of Ionospheric Intermediate Layers Above Arecibo Observatory*, University of Texas at Dallas, 2001.

McLaughlin, Maura A., *Multiwavelength Studies of Rotation Driven Pulsars*, Cornell University, 2001.

2002:

Collins, Stephen, *Resonance Lidar Development and Mesospheric Observations at the Arecibo Observatory*, Cornell University, 2002.

Darling, Jeremiah K., *The Arecibo OH Megamaser Survey*, Cornell University, PhD thesis, 2002.

Li, Di, *Massive Cores in the Orion Molecular Cloud*, Cornell University, 2002.

Lommen, Andrea N., *Precision Multi-Telescope Timing of Millisecond Pulsars: New Limits on the Gravitational Wave Background and Other Results from the Pulsar Timing Array*, PhD. Thesis, University of California, Berkeley, 2002

Makela, Jonathan, *Midlatitude Ionospheric Studies Using the Global Positioning System and Airglow Cameras*, Cornell University, 2002.

Urbina, Julio, *VHF radar studies of the mid-latitude E-region ionosphere from Camp Santiago, PR*, University of Illinois, Urbana-Champaign, 2002.

Wilford, Chris, *Mathematical Modelling of the Terrestrial Ionosphere: Helium Ion Behaviour*, Univ. of Sheffield, England, July 2002.

2003:

Chandler, A. M., *Pulsar searches: From radio to gamma-rays*, Ph.D. Thesis, Caltech, Aug 2003.

Chatterjee, Shamibrata, *Neutron Star Kinematics: Pulsar Parallaxes, Bow Shock Nebulae and The Interstellar Medium*, Ph.D. Thesis, Cornell University, 2003.

Sabatini, S., *The Dwarf Low Surface Brightness Galaxy Population of the Virgo Cluster*, Ph.D. Thesis, Cardiff University, 2003

2004:

Fernandez, Jsoe, *Interferometric Studies of Polar Mesosphere Summer Echoes over northern Scandinavia*, Ph.D. thesis, University of Nebraska-Lincoln, Lincoln, NE, 2004

Splaver, E.M., *Long-Term Timing of Millisecond Pulsars*, Ph.D. Thesis, Princeton University, Dec 2004

Turner, III, James S., *The New Arecibo HF Interactions Facility Antenna and Feed Structure Design*, Thesis, Master of Science, The Pennsylvania State University, Aug 2004

2005:

Becker, K., *Courting Serendipity: The Search for Transient Radio Signals*, M.S. Thesis, Cornell University, May 2005

Carter, Lynn M., *Investigating Mantling Deposits on Venus and Regoliths on Asteroids Using Radar Polarimetry*, Ph.D. Thesis, Cornell University, Jan 2005

Catinella, Barbara, *Internal Kinematics of Disk Galaxies in the Local Universe*, Ph.D. Thesis, Cornell University, Jan 2005

Masters, Karen L., *Galaxy Flows In and Around the Local Supercluster*, Ph.D. Thesis, Cornell University, 2005.

Spekkens, Kristine, *Testing Cold Dark Matter Paradigm Predictions with Disk Galaxy Dynamics*, Ph.D. Thesis, Cornell University, 2005.

Springob, Christopher, *Cosmological Applications of HI Spectral Line Surveys*, Ph.D. Thesis, Cornell University, 2005.