

Yale Center for Astronomy & Astrophysics email : nitya.kallivayalil@yale.edu
 PO Box 208101 Tel : +1 (203) 436 8842
 New Haven, CT 06520-8101 Fax: +1 (203) 432 5048

CURRICULUM VITAE - NITYA KALLIVAYALIL

Employment

Sept 2010 – present: YCAA Prize Fellow, **Yale Center for Astronomy & Astrophysics**
 Sept 2007 – Aug 2010: Pappalardo Fellow, **MIT Department of Physics**

Education

2007 Ph.D., Astronomy, **Harvard University**
 Thesis: *The Motions of the Magellanic Clouds and the Nature of Galactic Dark Matter*
 (Advisor: Charles Alcock)
 2003 MS Physics, **University of Pennsylvania**
 1997 - 2001 BA Physics, *summa cum laude*, **Mount Holyoke College**, South Hadley, MA
 1995 - 1997 IB (International Baccalaureate) at **United World College of the Atlantic**, UK

Honors and Awards

- Edward L. Fireman Fellowship Prize for best Ph.D thesis, Harvard University, June 2007
- AAS press release, “*Magellanic Clouds May Just be Passing Through*”, Seattle, WA, January 2007
- “*Drifting Clouds*”, Nature Research Highlights, March 2 2006
- AAS press release, “*Spitzer Space Telescope begins to Solve 10-year-old Dark Matter Mystery*”, Denver, CO, July 2004
- Sarah Williston Prize, Mount Holyoke College, 2001
- Rusk Prize for Physics, Mount Holyoke College, 2000
- Elected to Sigma Xi & Sigma Pi Sigma honorary society for Physics, 2000

Teaching

- 2010 Guest Lecturer, IAP term (Independent Activities Period), MIT Physics
- 2004 Teaching Assistant, Phys 514 - “Mechanics, Fluids, Chaos”
- 2003 Teaching Assistant, Astr 001 - “Survey of the Universe”
- 2001 – 2002 Teaching Assistant, Phys 101 - “Classical Physics”

Research Grants

(PI)

- HST/Cycle 23 (\$TBD): “*Proper Motion and Internal Kinematics of the SMC: are the Magellanic Clouds bound to one another?*” 2nd epoch
- HST/Cycle 21 (\$TBD): “*Proper Motion and Internal Kinematics of the SMC: are the Magellanic Clouds bound to one another?*” 1st epoch
- HST/Cycle 17 (\$80,584): “*Continued Proper Motions of the Magellanic Clouds: Orbits, Internal Kinematics and Distance*”
- HST/Cycle 16 (\$108,476): “*Systemic and Internal Motions of the Magellanic Clouds: Third Epoch Images*”

(Co-I)

- HST/Cycle 21 (STBD): *“Proper Motions along the Orphan Stream: Finding the Parent, Orbit and Milky Way Halo Shape”*
- Spitzer/Cycle 9 (\$430,800): *“The Carnegie RR Lyrae Program”*
- HST/Cycle 19 (\$191,632): *“Proper Motions along the Sagittarius Stream: Constraining Milky Way Parameters and Dark Halo Shape”*
- HST/Cycle 19 (\$103,494): *“Modeling the Star Formation Histories and Kinematics of the Magellanic Clouds”*
- HST/Cycle 15 (\$79,126): *“Solving the microlensing puzzle: An HST high-resolution imaging approach”*
- Spitzer/Cycle 2 (\$20,573): *“Spitzer Follow-Up of MACHO LMC Microlensing Events”*
- HST/Cycle 13 (\$67,490): *“Systemic Proper Motions of the Magellanic Clouds from Astrometry with ACS”*

Competitively Obtained Observing Time

- **PI**; HST/Cycle 23: 30 orbits with WFC3 and ACS
- **PI**; HST/Cycle 21: 30 orbits with WFC3 and ACS
- Co-I; HST/Cycle 21: 16 orbits with WFC3 and ACS
- Co-I; 16 hrs, GBT 13A-456: *“Gas Reservoirs in Dwarf-Dwarf Mergers: Fueling Star Formation in Hierarchical Assembly”*
- **PI**; 3 nights on WIYN/ODI: *“A Study of Isolated Interacting Dwarf Galaxy Pairs: Bridges and Tails”* (June 2013)
- Co-I; Spitzer/Cycle 9: 779 hrs with IRAC
- **PI**; 5 nights on WIYN/HYDRA: *“Finding the Parent of the ‘Orphan Tidal Stream’: accretion and structure formation in the Milky Way Halo”* (March 2012)
- Co-I; HST/Cycle 19: 19 orbits with ACS
- Co-I; 2 nights on Keck/DEIMOS, 9 nights on WIYN/HYDRA: *“Chasing Tidal Tails around the Milky Way”* (March/April 2011)
- **PI**; 1.5 nights on Magellan 6.5m/MEGACAM: *“The Phase-Space Structure of Dark Matter in the Milky Way: Final Sagittarius Measurements”* (Nov 2010)
- **PI**; 1.5 nights on Magellan 6.5m/MEGACAM: *“The Phase-Space Structure of Dark Matter in the Milky Way”* (April 2010)
- **PI**; 3 nights on Magellan 6.5m/IMACS: *“A Spitzer-selected Search for AGNs Behind the Magellanic Clouds”* (October 2009)
- **PI**; HST/Cycle 17: 40 orbits with WFC3 & ACS/HRC
- **PI**; 3 nights on MMT 6.5m/Megacam: *“Proper Motions of Sagittarius Stream Members using Megacam & SDSS”* (April 2009)
- **PI**; 1 night on MMT 6.5m/Megacam: *“The Proper Motion of Open Cluster NGC 2420: a Pilot for Determining Sagittarius Stream Proper Motions”* (January 2009)
- **PI**; HST/Cycle 16: 40 orbits with WFPC2
- Co-I; HST/Cycle 15: 20 orbits with ACS/HRC
- **PI**; 4 nights on Magellan 6.5m/PANIC: *“How PANIC can Resolve the Nature of Two MACHO Lenses”* (January 2006)
- Co-I; Spitzer/Cycle 2: 10 orbits with IRAC & MIPS
- Co-I; Spitzer/GTO: 8 orbits with IRAC & MIPS
- Co-I; HST/Cycle 13: 26 orbits with ACS/HRC

Academic Service

- Scientific Chair: Stars, Milky Way & Local Volume LSST Science Collaboration (2013-)
- NOAO Time Allocation Committee (TAC; 2013-)

- Hubble Space Telescope TAC (2012)
- Referee for ApJ, ApJL, AJ, A&A, PASP, MNRAS
- Reviewer for NSF
- Member of AAS & LSST

Scientific Talks

Invited Conference talks and Programs

- “*Proper Motions of the Clouds and their Past Orbits*”, Workshop on the Magellanic Clouds, ICRAR, Perth, Australia, Sept 10-13, 2012
- “*First Galaxies and Faint Dwarfs: Clues to the Small Scale Structure of Cold Dark Matter*”, KITP Program, Feb-March, 2012
- “*Dynamics of the LMC*”, Dynamics from the Galactic Center to the Milky Way Halo, 6-th Harvard-Smithsonian Conference on Theoretical Astrophysics, May 2010

Colloquia and invited talks

- “*The Magellanic Clouds and Stream: Galactic Accretion in Action*”, Brown, May 2012
- “*A 1% Proper Motion Measurement of the LMC*”, Caltech, October 2011
- “*A 1% Proper Motion Measurement of the LMC*”, U Michigan, September 2011
- “*Towards the Study of the Milky Way in 6-D*”, UT Austin, November 2010
- “*How to Disassemble the Galaxy*”, Ohio State, February 2010
- “*Clues about dark matter and galaxy formation: studying the Milky Way in 6-D*”, UVa, November 2009
- “*Using Satellites to Map the Milky Way Halo*”, Yale, October 2009
- “*Studying the Milky Way through Satellites*”, MIT, December 2009
- “*Stellar Streams in the Milky Way: probes of dark matter*”, Cygnus 2009 conference on directional dark matter detection, MIT, June 2009
- “*6-D Mapping of the Milky Way: Theoretical and Observational Techniques to Disassemble the Galaxy*”, Galaxy Evolution Workshop, Napa Valley, CA, February 2009
- “*The Motions of the Magellanic Clouds: New Insights into an Enigmatic System*”, U of Toronto, October 2007
- “*The Motions of the Magellanic Clouds about the Milky Way*”, MIT, September 2006
- “*The Systemic Proper Motions of the Magellanic Clouds and their Orbits around the Milky Way*”, Yale, May 2006
- “*Spitzer Space Telescope Observations of the Aftermath of Five Microlensing Events*”, New Views of the Cosmos Conference, Pasadena, November 2004

Seminars (invited and contributed)

- “*A 1% Proper Motion Measurement of the LMC*”, UPenn, November 2011
- “*New Results on the Proper Motions of the Magellanic Clouds: Orbits, Internal Kinematics, and Distance*”, IAU Symposium 256: The Magellanic System, Keele University, UK, August 2008
- “*Some new constraints on the orbits of the Magellanic Clouds and what they mean for the Milky Way*”, Theoretical Astrophysics Division Seminar, CfA, February 2007
- “*The Motions of the Magellanic Clouds: Towards a Reassessment of some Fundamentals*”, CCPP, NYU, January 2007
- “*Some old and new ideas about the Magellanic Clouds and what they mean for the Milky Way*”, Research Forum, CfA, Cambridge, November 2006
- “*Constraints on the Orbital Evolution of the Magellanic Clouds*”, Wunch Talk, Princeton University, Princeton, November 2006
- “*The Motions of the Magellanic Clouds: Towards a Reassessment of some Fundamental Questions*”, Astrophysics Seminar, Institute for Advanced Study, Princeton, October 2006

- “*The Motions of the Magellanic Clouds: Towards a Reassessment of some Fundamental Questions*”, Lunch Talk, Carnegie Observatories, Pasadena, October 2006
- “*The Motions of the Magellanic Clouds about the Milky Way*”, FLASH Lunch Talk, UC Santa Cruz, September 2006
- “*The Motions of the Magellanic Clouds about the Milky Way*”, Astrophysics Seminar, UC Santa Barbara, September 2006
- “*Spitzer Sheds Light on Dark Matter*”, Summer Talk, CfA, Cambridge, July 2005

Outreach

- Invited Panelist: ‘*Saving Hubble*’ Public Screening and Discussion, Haverford College (2012)
- Invited Panelist: Conference for Undergraduate Women in Physics, Yale Univ., January (2009)
- Invited Panelist: Observatory Night Program on “The Challenges and Rewards for Women in Science”, Harvard University, November (2005)
- Guest Astronomer on *WUML* 91.5 “Sunrise” radio program (2007)

Media Coverage

- ‘*Star Performers: The Magellanic Clouds*’, Scientific American, April 2013
- ‘*Milky Way consumes stars, galaxies*’, Yale Daily News, November 2012
- ‘*Hors d’Oeuvre for the Milky Way*’, Time Magazine, October 2012
- ‘*The Great Galactic Travelers*’, Sky & Telescope, October 2012
- ‘*The New Cosmic Neighborhood*’, Discover Magazine, September 2007
- ‘*Dwarf Galaxies Caught Speeding*’, Smithsonian Magazine, March 2007
- ‘*Magellanic Clouds ‘just passing’*’, BBC News, 2007
- ‘*Speed of Milky Way’s companions poses puzzle*’, Science News, 2007
- ‘*Speedy Discovery Fuels New Milky Way Mystery*’, Space.com, USA Today, 2007
- ‘*Milky Way clouds are speeding through space*’, MSNBC.com, 2007
- ‘*Speeding dwarfs upset galactic family picture*’, NewScientist, 2007
- ‘*Getting to know the galactic neighbors. Astronomers make startling discoveries in our own backyard*’, news@nature.com, 2007
- ‘*Drifting Clouds*’, Nature Research Highlights, March 2 2006
- ‘*Women astronomers detail struggles, triumphs*’, Harvard University Gazette, 2005
- ‘*Women astronomers reflect on rewards, challenges of careers*’, the Torch, 2005

Academic References

- Prof. Charles Alcock, CfA, calcock@cfa.harvard.edu, (617) 495-7100
- Prof. Roeland P. van der Marel, STScI, marel@stsci.edu, (410) 338-4931
- Prof. Marla Geha, Yale, marla.geha@yale.edu, (203) 432-5796
- Prof. Paul Schechter, MIT, schech@achernar.mit.edu, (617) 253-3718
- Prof. Edmund Bertschinger, edbert@mit.edu, (617) 253-4801
- Dr. Michael W. Werner, JPL, michael.w.werner@jpl.nasa.gov, (818) 354-0146