

Kunio M. Sayanagi

Assistant Professor

Atmospheric & Planetary Sciences Department
Hampton University,
23 E. Tyler Street, Hampton, VA 23668

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(757) 728-6745 (Office)

Education:

Ph.D. in Physics (2007)
University of Arizona

M.S. in Physics (2004)
University of Arizona

B.S. in Liberal Arts (2000)
Juniata College

Peer-Reviewed Publications:

- Hueso, R. and 30 Co-Authors. 2016. “*Neptune long-lived Atmospheric Features in 2013-2015 from Small (28 cm) and Large (10m) Telescopes,*” Under Review *Icarus*.
- Sayanagi, K.M., Dyudina, U.A., Ewald, S.P., and Ingersoll, A.P., 2017. “*Cassini ISS Observation of Saturn's North Polar Vortex and Comparison to the South Polar Vortex.*” *Icarus* Vol 285, p.68-82.
- Sanchez-Lavega, A., Fischer, G., Fletcher, L.N., Garcia-Melendo, E., Hesman, B., Perez-Hoyos, S., Sayanagi, K.M., and Sromovsky, L.A., 2016, “*Great Saturn Storm of 2010-2011*” Chapter to be published in: *Saturn in the 21st Century*, Cambridge Univ. Press. In Press, available at: <https://arxiv.org/abs/1611.07669>
- Sayanagi, K.M., Baines, K.H., Dyudina, U.A., Fletcher, L.N., Sanchez-Lavega, A., West, R.A., 2016, “*Saturn's Polar Atmosphere*” Chapter to be published in: *Saturn in the 21st Century*, Cambridge Univ. Press. In Press. In Press, available at: <https://arxiv.org/abs/1609.09626>
- Cosentino, R.G., Simon, A.A., Morales-Juberias R., Sayanagi, K.M. 2015. “*Observations and Numerical Modelling of the Jovian Ribbon,*” *Astrophysical Journal Letters* 810, L10.
- Morales-Juberías, R., Sayanagi, K.M., Simon, A.A., Fletcher, L.N., Cosentino, R.G. 2015, “*Meandering Shallow Atmospheric Jet as a Model of Saturn's North-polar Hexagon,*” *Astrophys. J. Lett.* 806, L18.
- de Pater, I., Sromovsky, L.A., Fry, P.M., Hammel, H.B., Baranec, C. and Sayanagi, K.M., 2015, “*Record-breaking storm activity on Uranus in 2014*”, *Icarus*, Vol 252, p.121–128
- Fischer, G., Ye, S.-Y. Ye, J.B. Groene, A.P. Ingersoll, K.M. Sayanagi, J.D. Menietti, W.S. Kurth, and D.A. Gurnett, 2014, “*A possible influence of the Great White Spot on Saturn kilometric radiation periodicity.*” *Annales Geophysicae*, Vol 32, P.1463-1476.
- Arridge, C.S. et al. 2014, “*The science case for an orbital mission to Uranus: Exploring the origins and evolution of ice giant planets.*” *Planetary and Space Sciences*, Vol. 104, p. 122-140
- Sayanagi, K.M., Dyudina, U.A., Ewald, S.P., Muro, G.D., and Ingersoll, A.P., 2014. “*Cassini ISS Observation of Saturn's String of Pearls*” *Icarus*, Vol 229, p.170-180.
- Sayanagi, K.M., and 8 co-authors, 2013. “*Dynamics of Saturn's Great Storm of 2010-2011 from Cassini ISS and RPWS*” *Icarus*, 223, p. 460-478.
- Diniega, S., Sayanagi, K.M. and 18 co-authors. 2013. “*Mission to the Trojan Asteroids: lessons learned during a JPL Planetary Science Summer School Mission Design Exercise,*” *Planetary & Space Science*, 76, p. 68-82
- Christophe, B. et al., 2012, “*OSS: an Outer Solar System Mission towards Neptune, Triton and KBO*” *Experimental Astronomy*, 34, pp.203-242
- Barnes, J.W. et al., 2012, “*AVIATR – Aerial Vehicle for In-Situ and Airborne Titan Reconnaissance*” *Experimental Astronomy* Vol. 33, p.55-127
- Arridge. C.S. et al., 2011 “*Uranus Pathfinder: Exploring the Origins and Evolution of Ice Giant Planets*” *Experimental Astronomy*, Vol.33, pp. 753-791

Kunio M. Sayanagi

Peer-Reviewed Publications (continued from previous page):

- Squyres, S. et al., 2011, “*Vision and Voyages for Planetary Science in the Decade 2013-2022.*” Committee on the Planetary Science Decadal Survey, Space Studies Board, National Academies Press. ISBN-10: 0-309-22464-0
- Morales-Juberias, R., Sayanagi, K. M., Ingersoll, A. P. and Dowling, T. E., 2011. “*Emergence of Polar-Jet Polygons from Jet Instabilities in a Saturn Model*” *Icarus*. Vol. 211, Issue 2, p. 1284-1293
- Sayanagi, K. M., Morales-Juberias, R., and Ingersoll, A. P., 2010, “*Saturn’s Northern Hemisphere Ribbon: Simulations and Comparison with the Meandering Gulf Stream*” *Journal of Atmospheric Sciences*. Vol. 67, Issue 8, p.2658-2678
- Sayanagi, K. M., Showman, A. P. and Dowling, T. E., 2008, “*The emergence of multiple robust zonal jets from freely evolving, three-dimensional stratified geostrophic turbulence with applications to Jupiter.*” *Journal of Atmospheric Sciences*. Vol. 65, Issue 12, p.3947–3962.
- Sayanagi, K.M. and Showman, A.P. 2007, “*Effects of a Large Convective Storm on Saturn’s Equatorial Jet,*” *Icarus*, Volume 187, Issue 2, p. 520-539

Non-Refereed Publications:

- Sayanagi, K.M., 2008, “Under Jupiter’s Pulsing Skin,” *Nature*, Volume 451, Issue 7177, p. 409-410
- Wong, M.H. et al. 2009, “A Dedicated Space Observatory for Time-Domain Solar System Science.” National Research Council Planetary Decadal Survey 2013-2023 White Paper.
- Orton, G.S. et al. 2009, “Saturn Atmospheric Science in the Next Decade.” National Research Council Planetary Decadal Survey 2013-2023 White Paper.
- Orton, G.S. et al. 2009, “Earth-Based Observational Support for Spacecraft Exploration of Outer-Planet Atmospheres.” National Research Council Planetary Decadal Survey 2013-2023 White Paper.
- Fletcher, L.N. et al. 2009, “Jupiter Atmospheric Science in the Next Decade.” National Research Council Planetary Decadal Survey 2013-2023 White Paper.
- Wesley, A. et al. 2009, “Ground-Based Support for Solar-System Exploration: Continuous Coverage Visible Light Imaging of Solar System Objects from a Network of Ground-Based Observatories.” National Research Council Planetary Decadal Survey 2013-2023 White Paper.
- Fletcher, L.N. et al. “Jupiter Atmospheric Science in the Next Decade.” National Research Council Planetary Decadal Survey 2013-2023 White Paper.
- Agnor, C. et al. 2009, “The Exploration of Neptune and Triton.” National Research Council Planetary Decadal Survey 2013-2023 White Paper.
- Spilker, T. et al. 2010, “Saturn Atmospheric Entry Probe Mission Study”, NASA Report to the Planetary Decadal Survey 2013-2023
- Sayanagi, K.M. contributes as a Science Writer at Ars Technica:
<http://arstechnica.com/author/kunio-m-sayanagi-2/>

Invited Conference Presentations:

- Sayanagi, K.M., 2014, “*Future of Planetary Astronomy: Need for a Post-Hubble Visible/UV Space Telescope*” Forum for New Leaders in Space Science, National Academy of Sciences/Chinese Academy of Science, Beijing, China
- Sayanagi, K. M. et al 2014, “*Cassini ISS Observation of Saturn’s North Polar Vortex and the Hexagon*”, Asia-Oceania GeoSciences Meeting PS08-11-A013, Sapporo, Japan
- Sayanagi, K. M. et al. 2014, “*Polar Atmosphere of Saturn*”, Saturn in the 21st Century Conference, Madison, WI.

Kunio M. Sayanagi

Conference Presentations (Since 2012):

- Sayanagi, K.M., Blalock, J., Fletcher, L.N., Ingersoll, A.P., Dyudina, U., Ewald, S.P., Summer at Saturn's North Pole: Seasonal Changes Seen by ISS & CIRS on Cassini, and VLT on the Ground, AGU Fall Meeting P33B-2137
- Blalock, J., Sayanagi, K.M., Fletcher, L.N., Ingersoll, A.P., Dyudina, U., Ewald, S.P., Analysis of Saturn's Hexagon between 2012 and 2016: Dynamical and Morphological Changes, AGU Fall Meeting P33D-06
- Sayanagi, K.M., Blalock, J.J., Ingersoll, A.P., Dyudina, U.A., Ewald, S.P., Formation of a Bright Polar Hood over the Summer North Pole of Saturn in 2016, American Astronomical Society, DPS meeting #48, id.#501.03
- Rathbun, J., Castillo-Rogez, J., Diniega, S. Hurley, D., New, M., Pappalardo, R.T., Prockter, L., Sayanagi, K.M., Schug, J., Turtle, E.P., Vasabada, A.R., Historical Trends of Participation of Women Scientists in Robotic Spacecraft Mission Science Teams: Effect of Participating Scientist Programs, American Astronomical Society, DPS meeting #48, id.#332.01
- McCabe, R.M., Sayanagi, K.M., Blalock, J.J., Peralta, J., Gray, C.L., McGouldrick, K., Imamura, T. 2016. Analysis of Venusian Zonal Winds Using Venus Express Data, American Astronomical Society, DPS meeting #48, id.#216.05
- Brueshaber, S.R., and Sayanagi, K.M. 2016, Dynamics of Giant Planet Polar Vortices, American Astronomical Society, DPS meeting #48, id.#501.01
- Blalock, J.J., Sayanagi, K.M., Ingersoll, A.P., Dyudina, U.A., Ewald, S.P., 2016, Measurements of Seasonal Changes in Saturn's Zonal Wind and Vertical Wind Shear between 2004 and 2016 from Cassini ISS Images, American Astronomical Society, DPS meeting #48, id.#514.09
- Sayanagi, K.M., Dillman, R., Spilker, T., Darrach, M. and NASA Langley Research Center Engineering Design Studio., 2016, Two-stage 20-bar giant planet atmospheric entry probe design, Outer Planets Assessment Group Meeting, August 2016.
- Sayanagi, K.M. and 11 Co-Authors, 2015, HST and ground-based observations of bright storms on Uranus during 2014-2015, AGU Fall Meeting P41B-2055
- Blalock, J.J., Sayanagi, K.M., 2015, Method for Calculating Uncertainty In Automated Cloud-tracking Wind Measurements, AGU Fall Meeting P41B-2061
- Sayanagi, K. M., Morales-Juberias, R., Blalock, J.J., Cosentino, R.Ingersoll, A. P., Ewald, S. P., Dyudina, U. A., 2014, Effect of the 77 degree N Jet on Saturn's Hexagon Cloud Morphology, American Astronomical Society, DPS meeting #47, id.#311.18
- Rathbun, J.A., Dones, L., Gay, P., Cohen, B., Horst, S., Lakdawalla, E., Spickard, J., Milazzo, M., Sayanagi, K.M., Schug, J. 2015, Historical trends of participation of women in robotic spacecraft missions, American Astronomical Society, DPS meeting #47, id.#312.01
- Hueso, R. and 23 Co-Authors, 2015, Bright features in Neptune on 2013-2015 from ground-based observations with small (40 cm) and large telescopes (10 m), American Astronomical Society, DPS meeting #47, id.#400.02
- Blalock, J.J., Sayanagi, K.M., Ingersoll, A.P., Ewald, S.P., Dyudina, U.A., 2015, Updated Measurements of Saturn's Zonal Wind between 2004 - 2014 from Cassini ISS Images, American Astronomical Society, DPS meeting #47, id.#311.08.
- De Pater and 8 Co-Authors, 2015, Extreme Storm Activity on Uranus 7 Years After Equinox, Asiana-Oceania Geosciences Society Annual Meeting, PS08-06-D4-PM2-324-016.
- Sayanagi, K. M., Ingersoll, A. P., Ewald, S. P., Dyudina, U. A., Blalock, J.J., Cassini Imaging Science at Saturn: Global Atmospheric Dynamics and Cloud Morphology, Japan Geoscience Union Meeting 2015, PPS01-05

Kunio M. Sayanagi

Conference Presentations (Since 2012, continued):

- Wong, M. H., Simon, A. A., Orton, G. S., de Pater, I., Sayanagi, K. M., 2015, Hubble's Long-Term OPAL (Outer Planet Atmospheres Legacy) Program Observes Cloud Activity on Uranus, 46th Lunar and Planetary Science Conference, LPI Contribution No. 1832, p.2606
- Sayanagi, K. M., Ingersoll, A. P., Ewald, S. P., Dyudina, U. A., Blalock, J.J., Morales-Juberias, R., Cosentino, R., Simon, A., 2014, Cassin I ISS Update on Seasonally Evolving Northern Hemisphere, and a new Hexagon Model, AGU Fall Meeting, P21E-05.
- Sayanagi, K. M., Dyudina, U. A., Ewald, S. P., Ingersoll, A. P., 2014, Analysis of Saturn's Polar Vortices with Cassini ISS Images, American Astronomical Society, DPS meeting #46, id.#508.03
- Morales-Juberias, R., Sayanagi, K.M., Cosentino, R.E., Simon, A.A., Numerical Modeling of Saturn's Northern Hexagon as a Meandering Shallow Jet, American Astronomical Society, DPS meeting #46, id.#422.22
- Brueshaber, S. R. and Sayanagi, K. M. 2014, Numerical Simulations of Saturn's Polar Cyclones. Bulletin of American Astronomical Society #46, #422.27
- Blalock, J.J., Sayanagi, K.M., Dyudina, U.A., Ewald, S.P., Ingersoll, A.P., Saturn's Zonal Winds at Cloud Level between 2004-2013 from Cassini ISS Images, American Astronomical Society, DPS meeting #46, id.#511.07
- Sayanagi, K. M., Ingersoll, A. P., Ewald, S. P., Dyudina, U. A., Blalock, J.J., 2014, Cassini ISS Observation of Saturn's North Polar Vortex and the Hexagon, Asia Oceania Geosciences Society, Sapporo, Japan, PS08-11-D1-AM2-CC-004
- Fischer, G., Dyudina, U.A., Sayanagi, K.M., Pagara, J.A., Lightning activity in Saturn's Great White Spot of 2010/2011, EGU General Assembly 2014, Vol. 16, EGU2014-5027
- White, A., Barranco, J. A., Marcus, P., Solari, O., Sayanagi, K. M., Applying Advection-Corrected Correlation Image Velocimetry techniques to Saturn's winds, American Astronomical Society, AAS Meeting #223, id.#247.10
- Sayanagi, K. M., Ewald, S. P., Dyudina, U. A., Ingersoll, A. P., 2013, Updates on Saturn's Northern High-Latitude Cloud Morphology and the Aftermath of the 2010 Giant Storm from Cassini ISS, AGU Fall Meeting SM21C-2201
- Morales-Juberias, R, Simon-Miller, A. A, Dowling, T.E., Sayanagi, K M., Choi, D. S., 2013, Numerical Simulations of a Jovian Ribbon-like Feature, AGU Fall Meeting P21B-1718
- Sayanagi, K.M. and 5 Co-Authors, 2013, Comparison of Atmospheric Dynamics Regimes on Jupiter and Saturn: Modeling and Observation, COSPAR Symposium, Bangkok, Thailand, Vol. 1, p.15
- Sayanagi, K.M., Ewald, S. P., Dyudina, U. A., Ingersoll, A. P., 2013 "Cassini ISS Analysis of Saturn's Northern High-Latitudes and the Aftermath of the 2010 Great Storm", Bulletin of American Astronomical Society #45, #509.06
- Heavens, N. and Sayanagi, K.M., 2013, "Modeling the Transition From Jets to Polar Turbulence in Giant Planet Atmospheres", Bulletin of American Astronomical Society #45, #509.02
- Blalock, J. J., Draham, R. L., Holmes, J. A., Sayanagi, K. M., 2013, "Zonal Wind Speeds, Vortex Characteristics, and Wave Dynamics in Saturn's Northern Hemisphere", Bulletin of American Astronomical Society #45, #312.10
- Fischer and 7 Co-Authors, 2013, Saturn's magnetospheric rotation after equinox and a possible influence by the Great White Spot, European Planetary Science Congress, Vol. 8, EPSC2013-1011
- Delcroix, M. and 5 Co-Authors, 2013, Saturn northern hemisphere's atmosphere and polar hexagon in 2013, European Planetary Science Congress, Vol. 8, EPSC2013-1067-3
- Simon-Miller, A. A., Morales-Juberias, R., Sayanagi, K. M., Read, P. L., Choi, D. S., 2013, "A New Feature on Jupiter: Comparison with Saturn's Ribbon", LPI Contribution No. 1719, p.1110

Kunio M. Sayanagi

Conference Presentations (Since 2012, continued):

- Sayanagi, K.M. and 23 Co-Authors (Including Brody Bourque), 2012, Developing a Standardized Testing Procedure for Cloud Tracking Wind Measurement Methods, AGU Fall Meeting PI3C-1971
- Fischer, G., and 9 Co-Authors, 2012, The influence of the Great White Spot on the rotation of Saturn's magnetosphere (Invited), AGU Fall Meeting SM42C-013
- Fischer, G., Sayanagi, K.M. and 7 Co-Authors, 2012, Thunderstorm and lightning observations during and after the Great White Spot event on Saturn, AGU Fall Meeting AE23A-01313

Professional Appointments:

Visiting Researcher, University of California, Berkeley

- Summer 2013: - Develop cloud-tracking wind measurement method and apply it to Saturn in collaboration with Dr. P. S. Marcus

Assistant Professor, Hampton University

- January 2012-now: - Develop and teach graduate-level planetary science curriculum, supervise and train M.S. and PhD students in their dissertation research. Supervise postdoctoral scholars. Raise research funding.

Visiting Scientist, California Institute of Technology

- June - Dec 2011: - Analyze a new giant storm on Saturn using images acquired by Cassini ISS camera in collaboration with Dr. A. P. Ingersoll

Postdoctoral Scholar, University of California Los Angeles

- 2010 - 2011: - Atmospheric Simulations of Jupiter, Saturn, Titan, and Extrasolar Planets
- Developing validation method for planetary wind measurements in collaboration with Dr. J. L. Mitchell

Postdoctoral Scholar, California Institute of Technology

- 2008 - 2010: - Analyze Jetstreams behaviors on Jupiter and Saturn through Modeling and Cassini Observations in collaboration with Dr. A. P. Ingersoll

Postdoctoral Research Fellow, University of Louisville

- 2007 - 2008: - Stability of Jovian Zonal Jets and super-rotation of Venus/Titan in collaboration with Dr. T. E. Dowling

Post-Graduate Research, University of Arizona

- 2003 - 2007: - Dissertation Topic: Atmospheric dynamics of the Jovian Planets
Adviser: Dr. A. P. Showman

- 2002 - 2003: - Developed Jupiter's deep convection numerical model in collaboration with Dr. A. J. Friedson (Jet Propulsion Lab).
Adviser: Dr. A. P. Showman

- 2001 - 2002: - Developed a data interface for EGOPS Radio Occultation package to perform simulated occultations on observed atmospheric profiles
Adviser: Dr. E. R. Kursinski

NSF Research Experience for Undergraduates Program Fellow, Baylor University

- Summer 1999: - Developed a planetary system formation numerical model.
Adviser: Dr. T. W. Hyde

Kunio M. Sayanagi

External Research Funding:

Total Amount Awarded as PI or Institutional PI: \$1,067,199

Total Amount Awarded: \$5,774,359

Principal Investigator, 2011-2015: \$252,782 funded by NASA Outer Planets Research Program

Proposal Title: *Understanding JUNO's Two Frontiers: Atmospheric Dynamics at Jupiter's Poles and the Water Cloud Base; and Lessons from Cassini at Saturn*

Postdoctoral Affiliate, 2012-2014: \$363,913 funded by NASA Planetary Atmospheres Program

(PI: Jonathan Mitchell, UCLA)

Proposal Title: *Understanding Titan's climate, weather, and winds using a Planetary Climate-modeling Hierarchy*

Principal Investigator, 2012-2015: \$141,079 funded by NSF Astronomy and Astrophysics Program

Proposal Title: *Resolving Outstanding Atmospheric Dynamics Questions on Jupiter and Saturn through Standardized Benchmarking of Planetary Cloud-Tracking Wind Measurements*

Principal Investigator, 2013-2014: \$10,000 funded by Virginia Space Grant Consortium New Investigators Program (Plus \$10,000 cost-share agreement by Hampton University)

Proposal Title: *Cassini Imaging Science Investigation of Saturn's Cloud Dynamics*

Co-Investigator, 2013: \$999,950 funded by NSF HCBU-RISE Program

(PI: William Moore, Hampton University)

Proposal Title: *HCBU-RISE Hampton University: Advanced Physical Modeling and Simulation for 21st Century Scientists*

Principal Investigator / Faculty Advisor, 2014-2016: \$11,000 from Virginia Space Grant Graduate Fellowship Program. (Fellowship Applicant: John Blalock, Hampton University)

Proposal Title: *Seasonal Variability in Saturn's Vertical Wind Shear: Cloud Tracking Wind Measurements Using Cassini ISS Images*

Principal Investigator, 2014-2017: \$145,000 funded by NASA Planetary Atmospheres Program

Proposal Title: *Resolving Outstanding Atmospheric Dynamics Questions on Jupiter and Saturn through Standardized Benchmarking of Planetary Cloud-Tracking Wind Measurements*

Principal Investigator, 2014-2015: \$25,919 funded by Hubble Space Telescope Cycle 22

Proposal Title: *Target of Opportunity Observation of an Episodic Storm on Uranus*

Co-Investigator, 2015-2018: \$109,762 Subcontract from GSFC, NASA Cassini Data Analysis Program

(PI: Amy Simon, NASA Goddard Space Flight Center)

Proposal Title: *Investigations of Saturn's Wind Field, Turbulence, and Vortices*

Co-Investigator, 2015-2020: \$3,747,037 funded by NASA Nexus for Exoplanet System Science Program

(PI: William Moore, Hampton University)

Proposal Title: *Living, Breathing Planet*

Principal Investigator / Faculty Advisor, 2015-2018: \$74,000 from NASA Earth and Planetary Science Fellowship Program. (Fellowship Applicant: John Blalock, Hampton University)

Proposal Title: *Measurement of Seasonal Changes in Saturn's Zonal Wind Profile using Cassini ISS images*

Principal Investigator, 2015-2016: \$38,500 research contract funded by NASA Langley Research Center

Proposal Title: *LaRC Planetary Science Capture Plan Implementation Strategy*

Principal Investigator, 2016-2018: \$259,157 funded by NSF EAGER Program.

Proposal Title: *Undergraduate Astronomy Research and Education through Observation of Jupiter Impact Flashes to Characterize Small-Body Populations in the Outer Solar System*

Kunio M. Sayanagi

Space Mission Participation:

PI, SNAP: Small Next-generation Atmospheric Probe Concept submitted to NASA PSDS3 Program

2016: - Mission concept study for of an atmospheric probe for Uranus

Co-I, Hera Saturn Probe Proposal for ESA's M-class Mission Program

2016: - Provide atmospheric dynamics expertise

Proposal PI: Dr. Olivier Mouis (Institut Universitaire de France)

PI, Hubble Space Telescope Target of Opportunity Observation of Uranus

2014: - Observe Episodic Storm on Uranus; Observation Triggered October 2014

Proposal submitted in partnership with NASA Langley Research Center

Co-I, Jupiter Icy Moon Imager Proposal for ESA's JUICE Mission

2012: - Take Lead on Jupiter Atmospheric Science Investigation Topics on the Proposal

Proposal PI: Dr. Elizabeth Turtle (JHU/APL)

Trojan Asteroid Tour and Rendezvous Mission JPL/Team-X Mission Design Exercise

2011: - Lead the JPL Planetary Science Summer School mission design exercise

Team-X Mentor: Dr. Charles Budney (JPL)

Proposal Team Member, Outer Solar System Mission proposal to ESA's Middle-class Mission Program

2010: - Coauthor Neptune Atmospheric Science section of the proposal

Proposal P.I.: Dr. Bruno Christophe (Onera: French Aerospace Lab)

Proposal Team Member, Uranus Pathfinder proposal to ESA's Middle-class Mission Program

2010: - Coauthor Uranus Atmospheric Science Section of the proposal

Proposal P.I.: Dr. Christopher Arridge (University College London)

Co-I, AVIATR: Aerial Vehicle for In-situ and Airborne Titan Reconnaissance

2010: - Develop Atmospheric Dynamics portion of the science proposal
to NASA's Discovery-class Mission Program

Proposal P.I.: Dr. Jason W. Barnes (University of Idaho)

Invited Participant, Europa-Jupiter System Mission Science Definition Team

2010-2011: - Define Science Goals of NASA's next Outer Planet Flagship Mission
from Jovian Atmospheric Science viewpoint

Project Scientist: Dr. Robert T. Pappalardo (Jet Propulsion Lab)

Decadal Study Contributing Author, Saturn Atmospheric Entry Probe Concept Study

2009-2010: - Provide science input to Engineering Feasibility Study of mission to Saturn
as part of the 2013 Planetary Decadal Survey

Study Leads: Dr. Thomas Spilker (Jet Propulsion Lab), Reta Beebe (New Mexico State U.)

Mission Concept Development, Planetary Dynamics Explorer

2009-present: - Develop concept for a new planetary-dedicated space telescope
to be proposed to NASA's Discovery-class Mission program

P.I.: Dr. Michael H. Wong (UC Berkeley)

Affiliate Team Member, Cassini Imaging Science Subsystem (ISS)

2008-present: - Make atmospheric dynamics measurements using ISS images of Saturn
- Troubleshoot data processing pipeline

Team Lead: Dr. Carolyn C. Porco (Space Science Institute)

Kunio M. Sayanagi

Community Service and Leadership Experience:

Served as a Peer Reviewer for:

Nature,
Nature Astronomy,
Nature Geoscience,
Icarus,
Planetary and Space Science

Served as a Session Convener at:

COSPAR Symposium (2013)
AGU Fall Meeting (2013, 2014, 2015, 2016)
Japan Geoscience Union (2015, 2016, 2017)

Member, Forum for New Leaders in Space Science

2014 - Review and Discuss latest development in Space Science in a joint program
between U.S. National Academy of Sciences and Chinese Academy of Sciences

Official Reviewer, Lessons Learned in Decadal Planning in Space Science, National Research Council

2013 - Review the summary report of the NRC workshop's summary report.

Member, Federal Relations Subcommittee, Division of Planetary Sciences, American Astronomical Soc.

2012 - now - Formulate and Recommend Federal Policies supporting Planetary Sciences.

Steering Committee Member, International Outer Planets Watch

2012 - Coordinate Amateur and Professional Observations of Jupiter and Saturn

Vice President for Advocacy, UCLA Society of Postdoctoral Scholars

2011 - 2012: - Organize social, career and outreach events for UCLA Postdocs

Member, Giant Planets Panel, National Academy Planetary Science Decadal Survey

2009 - 2010: - Compile and author Planetary Science research priority recommendations
to NASA and NSF for 2013-2023 decade

Executive Board Chair, the California Institute of Technology Postdoctoral Association

2009-2010: - Serve as the leader of the Caltech Postdoc Association

Science Writer, Ars Technica <http://arstechnica.com/author/kunio-m-sayanagi-2/>

2008-now: - Write commentaries about latest scientific journal articles

Chair, Physics Graduate Student Council, University of Arizona

2005-2006: - Assisted Graduate Director and Department Head with Curriculum revisions
- Organize Graduate Student Seminar series

Kunio M. Sayanagi

Teaching and Student Supervision Experience:

Assistant Professor, Hampton University

2015-now: - Planetary Science PhD Student, Ryan McCabe (PhD expected 2020)

2013-now: - Planetary Science PhD. Student, John Blalock (PhD expected 2018)

2015-now: - Graduate-level Geophysical Fluid Dynamics (APS662)

2014-now: - Graduate-level Atmospheric Dynamics (APS660)

2013-now: - Graduate-level Atmospheric Physics and Chemistry (APS704)

2012-2013: - General-Education Undergraduate Astronomy (APS105)

The Governor's School Highschool Student Research Mentoring Program

2016-2017: - Julie Zhou (Jupiter Wind Speed Measurements)

2015-2016: - Claire Du (Cassini Orbiter Image Processing)

Summer Undergraduate Research Supervisor, Hampton University

2012, 2013: - Supervise a summer student to develop a tool to track Polar Mesospheric Clouds in images by Aeronomy of Ice in Mesosphere Mission and measure wind

Summer Undergraduate Research Supervisor, University of California Los Angeles

2011: - Supervise a summer student to develop a method to measure the shape of Saturn by analyzing the shadows of Saturn's rings cast on the planet

Summer Undergraduate Research Fellow Mentor, California Institute of Technology

2010: - Supervise a summer student to analyze images of Saturn returned from Cassini spacecraft, and develop a conference presentation authored by the student

Teaching Assistant, Physics, University of Arizona

2001: - Teach two introductory physics laboratory course sections

Teaching Assistant, Astronomy, Juniata College

1997-2000: - Run Observation sessions for introductory astronomy class
- Grade assignments and exams

Public Outreach Activities:

Virginia Living Museum Star Party Presenter (2014)

Back Bay Astronomy Association Guest Speaker (2014, 2015, 2016)

Virginia Peninsula Astronomers and Stargazers, Planetarium Speaker (2012, 2013, 2014, 2015, 2016)

Science Writer, Ars Technica, <http://arstechnica.com/author/kunio-m-sayanagi-2/> (2008-)

University of Louisville Planetarium, "Mission Monday" Presenter (2008)

University of Louisville Planetarium, "Mars Phoenix Landing Event" Commentator (2008)

Kitt Peak National Observatory, Saturn Opposition Event Presenter (2007)

Flandrau Science Museum and Planetarium, Saturn Opposition Event Speaker (2007)

Math and Science Volunteer Presenter, Safford Magnet Middle School, Tucson, Arizona (2005)

Kunio M. Sayanagi

Invited Seminars:

Japan Aerospace Exploration Agency, Institute of Space and Aeronautical Sciences Seminar (2016)
Society of Physics Students Zone 4 Meeting Invited Speaker (2016)
North Carolina A&T University Physics Colloquium (2016)
College of William and Mary Physics Colloquium (2015)
Hampton University Physics Colloquium (2015)
Japan Aerospace Exploration Agency, Institute of Space and Aeronautical Sciences Seminar (2015)
Christopher Newport University Physics, Engineering and Computer Science Seminar (2014)
Florida Institute of Technology, Physics and Astronomy Seminar (2014)
University of Central Florida, Planetary Science Seminar (2014)
University of Florida, Physics Department Seminar (2014)
Western Michigan University Mechanical Engineering Seminar (2014)
Old Dominion University, Center for Coastal Physical Oceanography Seminar (2013)
Baylor University, Department of Physics Seminar (2012)
Georgia Institute of Technology, Earth and Atmospheric Science Seminar (2012)
California Institute of Technology, Saturn Atmosphere Workshop, Invited Presenter (2012)
University of California Los Angeles, Planetary Science Seminar (2011)
Jet Propulsion Lab, Cassini Project Science Group Meeting Invited Presenter (2011)
Hampton University, Atmospheric and Planetary Sciences Seminar (2011)
Franklin and Marshall College, Physics Seminar (2010)
Mount Holyoke College, Physics Seminar (2010)
Juniata College, Physics Seminar (2010)
University of California Los Angeles, Planetary Science Seminar (2010)
Japan Aerospace Exploration Agency, Institute of Space and Aeronautical Sciences Seminar (2010)
Massachusetts Institute of Technology Planetary Science Seminar (2010)
University of California Berkeley, Planetary Atmosphere Group Seminar (2010)
University of California Los Angeles, Earth and Space Sciences Seminar (2008)
California Institute of Technology, Planetary Science Seminar (2007)
University of Louisville, Physics Department Seminar (2007)
Kyoto University, Meteorology Research Group Seminar (2006)
University of Tokyo, Center for Climate System Research Seminar (2006)
Hokkaido University, Division of Earth and Planetary Sciences Seminar (2006)

Academic Honors:

2014	Member, National Academy of Sciences Forum for New Leaders in Space Science
2011	Juniata College Young Alumni Achievement Award
2009	Planetary Science Decadal Survey 2013-2022 Giant Planet Panelist
2000-present	Sigma Pi Sigma National Physics Honor Society Membership