

Om narayani Nayak

Curriculum Vitae

Personal Information

Space Telescope Science Institute
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Baltimore, MD 21218
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Academic History

Space Telescope Science Institute
STScI Prize Research Fellow, 2019-
Johns Hopkins University, Baltimore, MD
Postdoctoral Research Associate, 2018-2019
Johns Hopkins University, Baltimore, MD
Doctor of Philosophy in Physics, May 2018
Johns Hopkins University, Baltimore, MD
Masters of Arts in Physics, May 2014
University of California Berkeley, Berkeley, CA
Bachelor of Arts in Physics and Astrophysics, May 2012

Teaching Experience

Spring 2014
Introduction to Thermal Physics for Undergraduates
Radiative Astrophysics for Graduate Students
Fall 2013
Introduction to Thermal Physics for Undergraduates
General Physics Laboratory for Undergraduates
Fall 2012
Introduction to Mechanics for Undergraduates
General Physics Laboratory for Undergraduates

Computer Programming

Languages
C Programming
Fortran90
IDL
Matlab Programming
mySQL
Python
Operating Systems
Microsoft Windows
Linux/UNIX
OS X

Successful Observing Proposals

Title: "The Young and the Massive: A Spectroscopic Study of Young Candidate Intermediate-Mass Protostars in the Magellanic Clouds"

Instrument: Magellan FIRE Spectrometer

P.I.: M. Reiter

CoI(s): **O. Nayak**, M. Meixner

Title: "Measuring the Outflows from Massive Young Stellar Objects in the Large Magellanic Cloud"

Instrument: SOFIA

P.I.: M. Meixner

CoI(s): **O. Nayak**, M. Y. Lee, M. Chevance, Y. Okada, J. Stutzki, Y. Fukui, T. Onishi

JWST GTO Team Member

P.I.: M. Meixner

JWST MIRI Team Member

P.I.: G. Rieke

Papers In Preparation

"A Complete Sample of Massive Protostars in the Tarantula Nebula," Nayak, O., Wong, T., Meixner, M., et al., in prep

"The Stellar Content of a Super-Star Cluster in The Making," Morten, A., Meixner, M., Nayak, O., et al., in prep

First Author Refereed Papers

“Stellar Feedback at the Earliest Stage of Massive Star Formation,” Nayak, O., Meixner, M., Okada, Y., Lee, M. Y., Chevance, M., et al. submitted

“ALMA Reveals Kinematics of Potential Super Star Cluster H72.97-69.39 in N79,” Nayak, O., Meixner, M., Indebetouw, R., et al. 2019, ApJ, 877, 135

“Large Magellanic Cloud: Extreme Star Formation in a Low-Metallicity Environment,” Nayak, O., 2018, PhD Thesis

“Molecular Cloud Structures and Massive Star Formation in N159,” Nayak, O., Meixner, M., Fukui, Y., et al. 2018, ApJ, 854, 154

“Studying Relation Between Star Formation and Molecular Clumps on Sub-parsec Scales in 30 Doradus,” Nayak, O., Meixner, M., Indebetouw, R., et al. 2016, ApJ, 831, 32

Other Refereed Papers

“An ALMA View of Molecular Filaments in the Large Magellanic Cloud II: An Early Stage of High Mass Star Formation Embedded at Colliding Clouds in N159W-South,” Tokuda, K., Fukui, Y., Harada, R. et al. 2019, ApJ, 886, 16

Authors: K. Tokuda, Yasuo Fukui, R. Harada, K. Saigo, K. Tachihara, K. Tsuge, T. Inoue, K. Torii, A. Nishimura, S. Zahorecz, **O. Nayak**, M. Meixner, T. Minamidani, A. Kawamura, N. Mizuno, R. Indebetouw, M. Sewilo, S. Madden, M. Galametz, V. Leboutteiller, R. Chen, T. Onishi

“An ALMA View of Molecular Filaments in the Large Magellanic Cloud I: Formation of High-Mass Stars and Pillars in the N159E Papillon Nebula Triggered by a Cloud-Cloud Collision,” Fukui, Y., Tokuda, K., Kazuya, S., et al. 2019, ApJ, 886, 14

Authors: Y. Fukui, K. Tokuda, K. Saigo, R. Harada, K. Tachihara, K. Tsuge, T. Inoue, K. Torii, A. Nishimura, S. Zahorecz, **O. Nayak**, M. Meixner, T. Minamidani, A. Kawamura, N. Mizuno, R. Indebetouw, M. Sewilo, S. Madden, M. Galametz, V. Leboutteiller, R. Chen, T. Onishi

“Formation of High-Mass Stars in an Isolated Environment in the Large Magellanic Cloud,” Harada, R., Onishi, T., Tokuda, K., et al. 2019, PASJ, 71, 44

Authors: R. Harada, T. Onishi, K. Tokuda, S. Zahorecz, A. Huges, M. Meixner, M. Sewilo, R. Indebetouw, **O. Nayak**, Y. Fukui, A. Kawamura, K. Saigo, T. Wong, J. P. Bernard, I. W. Stephens

“Unveiling the Nature of Candidate High-Mass Young Stellar Objects in the Magellanic Clouds with near-IR spectroscopy,” Reiter, M., Nayak, O., Meixner, et al. 2019, MNRAS, 483, 5211

Authors: M. Reiter, **O. Nayak**, M. Meixner, O. Jones

“The Star Forming Complex LMC-N79 as a Future Rival to 30 Doradus,” Ochsendorf, B., Zinnecker, H., Nayak, O., et al. 2017, NatAs, 1E, 260

Authors: B. Ochsendorf, H. Zinnecker, **O. Nayak**, J. Bally, M. Meixner, O. Jones, R. Indebetouw, M. Rahman

“Kinematic Structure of Molecular Gas around High-mass Star YSO, Papillon Nebula, in N159 East in the Large Magellanic Cloud,” Saigo, K., Onishi, T., Nayak, O., et al. 2017, ApJ, 835, 108

Authors: K. Saigo, T. Onishi, **O. Nayak**, M. Meixner, K. Tokuda, R. Harada, Y. Morioka, M. Sewilo, R. Indebetouw, K. Torii, A. Kawamura, A. Ohama, Y. Hattori, H. Yamamoto, K. Tachihara, T. Minamidani, T. Inoue, S. Madden, M. Galametz, V. Leboutteiller, R. Chen, N. Mizuno, Y. Fukui

“Radiative and mechanical feedback into the molecular gas in the Large Magellanic Cloud. I. N159W,” Lee, M. Y., Madden, S., Leboutteiller, V., et al. 2016, A&A, 596, A85

Authors: M. Y. Lee, S. Madden, V. Leboutteiller, A. Gusdorf, B. Godard, R. Wu, M. Galametz, D. Cormier, F. Le Petit, E. Roueff, E. Bron, L. Carlson, M. Chevance, Y. Fukui, G. Galliano, S. Hony, A. Huges, R. Indebetouw, F. Israel, A. Kawamura, J. Le Bourlot, P. Lesaffre, M. Meixner, E. Muller, **O. Nayak**, T. Onishi, J. Roman-Duval, M. Sewilo

“High Mass Star Formation Triggered by Collisions between CO Filaments in N159 West in the Large Magellanic Cloud,”
Fukui, Y., Harada, R., Tokuda, K., et al. 2015, ApJ, 807, L4
Authors: Y. Fukui, R. Harada, K. Tokuda, Y. Morioka, T. Onishi, K. Torii, A. Ohama, Y. Hattori, **O. Nayak**, M. Meixner, M. Sewilo, R. Indebetouw, A. Kawamura, K. Saigo, H. Yamamoto, K. Tachihara, T. Minamidani, T. Inoue, S. Madden, M. Galametz, V. Lebouteiller, N. Mizuno, R. Chen

Talks

- August 2019 Multi-Wavelength Analysis of a Super Star Cluster with ALMA and SOFIA
Space Telescope Science Institute Summer HotSci Colloquia (Baltimore, Maryland)
- June 2019 Multi-Wavelength Analysis of a Super Star Cluster
Linking the Milky Way and Nearby Galaxies (Helsinki, Finland)
- January 2019 Massive Stars and Super Star Clusters
UMass Amherst Local Galaxies Talk Series (Amherst, MA)
- January 2019 SSC Candidate in the Large Magellanic Cloud
Harvard Galaxies & Cosmology Talk Series (Cambridge, MA)
- November 2018 ALMA in the Era of JWST
NRAO Weekly TUNA Talk Series (Charlottesville, VA)
- October 2018 Massive Star Formation – Using ALMA To Prepare for JWST
Princeton University Star Formation/ISM Seminar (Princeton, NJ)
- October 2018 Massive Star Formation
NASA Goddard Weekly Star Formation Colloquia (Greenbelt, MD)
- October 2018 Extreme Star Forming Environments in the Large Magellanic Cloud
University of Maryland Center for Theory and Computation Seminar (College Park, MD)
- August 2018 Sites of Massive Star Formation in the Large Magellanic Cloud
Johns Hopkins Exoplanet, Star, and Planet Formation Colloquia (Baltimore, MD)
- February 2018 Extreme Star Formation in the Large Magellanic Cloud
NASA Ames Weekly Colloquia (San Jose, California)
- January 2018 Analysis of Extreme Star Formation Environments in the LMC
Nayak, O., 2018, AAS, 231, 313.02
American Astronomical Society Conference (Washington, D.C.)
- August 2017 The Most Luminous YSO in the LMC
Star Formation in Different Environment Conference (Quy Nhon, Vietnam)
- October 2016 Multi-Wavelength Analysis of the Most Luminous Young Stellar Object in the LMC
Star-Formation and Feedback in the SOFIA Era Conference (Asilomar, California)
- June 2016 The Relation Between Massive Star Formation and the Structure of CO Clumps in the LMC
Space Telescope Science Institute Summer HotSci Colloquia (Baltimore, Maryland)
- January 2016 30 Doradus – Relating Young Stars to the CO Molecular Gas Observed with ALMA
Nayak, O., Meixner, M., Indebetouw, R., Sabbi, E., De Marchi, G., Panagia, N., 2016, AAS, 227, 205.01
American Astronomical Society Conference (Orlando, Florida)

- March 2015 ALMA Observations of the Large Magellanic Cloud
Soul of High Mass Star Formation Conference (Puerto Varas, Chile)
- April 2013 Modeling of Emission of Quasar Winds
Pennsylvania State University Local Group Conference (College Park, Pennsylvania)
- February 2012 Geometry of Spinor Condensates with Large Spins
Nayak, O., Turner, A., 2012, APS, P4.002
American Physics Society Conference (Boston, Massachusetts)

Posters

- August 2016 Relating Young Stellar Object to Molecular Clouds Observed with ALMA
Star Formation Conference (Exeter, England)
- October 2015 Analyzing the Relation Between Young Stellar Objects and Molecular Clouds in 30 Doradus
Feedback in the Magellanic Clouds Conference (Baltimore, Maryland)
- July 2015 The Structure and Mass of Molecular Cloud N159 in the LMC Using Dendrograms
30 Years of Photodissociated Regions Conference (Asilomar, California)

Outreach

STSCI STEM Learning And Public Outreach (2019 -)

Engaging all ages to be curious about the Universe. Showcasing the highlights of Hubble and ALMA, as well as broadening the public's understanding of JWST science capabilities.

Johns Hopkins Physics and Astronomy Graduate Students Outreach (2012 - 2019)

Volunteer to help local K-12 students in Baltimore get interested in astronomy. Help build a portable planetarium and work on planetarium shows for the general public.

UC Berkeley Compass Project (2008 - 2012)

Help coordinate talks and social events with the UC Berkeley physics department to promote interest in the physical sciences within the undergraduate community.

Indu Science Award (2005 - 2012)

Started a scholarship fund called the Indu Science Awards in Orissa, India – my native village – for high school girls to encourage them to pursue a higher education in science related fields.