

CURRICULUM VITAE

Vishnu Reddy

Associate Professor, Lunar and Planetary Laboratory
University of Arizona
1629 E. University Blvd
Tucson, AZ 85721
Ph. 808-342-8932

Chronology of Education:

- **Bharathiar University (1998):** Visual Communications (BS)
- **Madurai Kamraj University (2001):** Communication (MA)
- **University of North Dakota (2005):** Space Studies (MS)
- **Title of Master's Thesis:**
Mineralogy of Asteroids 246 Asporina and 446 Aeternitas and Investigations of Temperature-induced Spectral Effects
- **MS Thesis Advisor:** Paul Hardersen
- **University of North Dakota (2009):** Earth System Science and Policy (PhD)
- **Title of Doctoral Dissertation:**
Mineralogical Survey of Near-Earth Asteroid Population: Implications for Impact Hazard Assessment and Sustainability of Life on Earth
- **Dissertation Advisor:** Michael Gaffey

Major Fields:

- Physical Characterization of Small Bodies in the Solar System
- Space Situational Awareness
- Instrumentation for Ground based Remote Sensing
- Laboratory Spectral Characterization of Planetary Materials

Chronology of Employment:

University of Arizona:

Lunar and Planetary Laboratory: Associate Professor 2018-Present

University of Arizona:

Lunar and Planetary Laboratory: Assistant Professor 2016-2018

University of Arizona:

Lunar and Planetary Laboratory: Adjunct Professor 2016 Spring

Planetary Science Institute:

Research Scientist 2013-2016

Planetary Science Institute:

Associate Research Scientist 2013

University of North Dakota:

Department of Space Studies Research Assistant Professor 2010-2013

University of North Dakota:

Department of Space Studies Graduate Research Assistant 2002-2005, 2006-2009

University of North Dakota:

Department of Space Studies Research Staff 2005

Honors and Awards

- NASA Group Achievement Award: Dawn Science Operations Team 2019
- NASA Group Achievement Award: Dawn Science Operations Team 2016
- NASA Group Achievement Award: Dawn Science Team Ceres Phase 2016
- NASA Sagan Early Career Fellowship, NASA PMDAP, 2013
- NASA Group Achievement Award: Dawn Science Operations Team 2013
- NASA Group Achievement Award: Dawn Science Team Vesta Phase 2013
- Brazil Observatório Nacional Institutional Capacity Building Program Fellowship 2010

- Pellas-Ryder Award, Meteoritical Society/Geological Society of America, 2009.
- Eugene M. Shoemaker Impact Cratering Award, Geological Society of America, 2006.
- Grant-in-Aid of Research Program Award, Sigma Xi Physics Society, 2004.
- Asteroid (8068) Vishnureddy named by the International Astronomical Union.

Service and Outreach (at University of Arizona)

Local/State Outreach

News Stories:

- Nature: Record number of asteroids seen whizzing past Earth in 2020 (03/11/2021) <https://www.nature.com/articles/d41586-021-00641-8>
- The New York Post: Perilous space junk travels at 10 times the speed of a bullet (03/19/2021) <https://nypost.com/2021/03/19/space-junk-races-at-10-times-the-speed-of-a-bullet/>
- Live Science: How do tiny pieces of space junk cause incredible damage? (03/09/2021) <https://www.livescience.com/tiny-space-junk-damage.html>
- UH News: Maunakea telescope playing vital role in tracking large asteroid flyby (03/17/2021) <https://www.hawaii.edu/news/2021/03/17/maunakea-telescope-tracking-large-asteroid-flyby/>
- Space.com: Planetary defense experts use infamous asteroid Apophis to practice spotting dangerous space rocks (03/01/2021) <https://www.space.com/apophis-2021-flyby-for-planetary-defense-practice>
- Air and Space Magazine: This Apollo-Era Rocket Stage, Lost For Half a Century, Turned Up in a Telescope Search, (02/2021) <https://www.airspacemag.com/space/prodigal-boosters-returns-180976718/>
- NASA NEWS: New Data Confirm 2020 SO to be the Upper Centaur Rocket Booster from the 1960's (12/02/2020) <https://www.nasa.gov/feature/new-data-confirm-2020-so-to-be-the-upper-centaur-rocket-boosters-from-the-1960s>

- The Better India: Meet Vishnu Reddy, the Journalist Who Became an Asteroid Hunter (06/11/2020) <https://www.thebetterindia.com/229673/indian-scientist-vishnu-reddy-asteroid-hunter-university-arizona-nasa-inspiring-journey-ros174/>
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- The Arizona Daily Star: Ready for impact: UA leads successful global test to asteroid threat (06/29/2019) https://tucson.com/news/local/ready-for-impact-ua-leads-successful-global-test-to-asteroid/article_e89a5801-e625-5842-b080-e9b2def2b3d9.html
- UANews: UA Researchers Track Chinese Space Station as It Falls (03/22/2019) <https://uanews.arizona.edu/story/ua-researchers-track-chinese-space-station-it-falls>
- Daily Wildcat: UA project chosen by NASA to aid in CubeSat Launch Initiative (03/29/2019) <http://www.wildcat.arizona.edu/article/2019/03/n-nasa-cubesat>
- Phys.org: Student-led CatSat mission selected by NASA (03/19/2019) <https://phys.org/news/2019-03-student-led-catsat-mission-nasa.html>
- UANews: Student-led CatSat mission selected by NASA (03/18/2019) <https://uanews.arizona.edu/story/ua-studentled-catsat-mission-selected-nasa>
- Arizona Daily Star: Tucson Tech: UA inflatable satellite antenna set for future NASA launch (03/21/2019) https://tucson.com/business/tucson-tech-ua-inflatable-satellite-antenna-set-for-future-nasa/article_12c07434-d060-57a0-865d-607454164ab5.html
- Phoenix Chamber News: Student-led CatSat mission ready for takeoff with NASA (04/18/2019) <http://chamberbusinessnews.com/2019/04/08/student-led-catsat-mission-ready-for-takeoff-with-nasa/>
- UANews: UA Undergraduate to Japan for Space Mission Work (05/31/2018) <https://uanews.arizona.edu/story/ua-undergraduate-japan-space-mission-work>
- UANews: Rapid Detection and Recovery: The Science of Hunting Meteorites (02/06/2018) <https://uanews.arizona.edu/story/rapid-detection-and-recovery-science-hunting-meteorites>

- UA Researchers Track Chinese Space Station as It Falls (03/22/2018)
<https://uanews.arizona.edu/story/ua-researchers-track-chinese-space-station-it-falls>
- UANews: It's a Bird ... It's a Plane ... It's the Tiniest Asteroid! (11/30/2016)
<https://uanews.arizona.edu/story/its-bird-its-plane-its-tiniest-asteroid>
- UANews: Psyche: Unexpected Discoveries on a Metal World (10/21/2016)
<https://uanews.arizona.edu/story/psyche-unexpected-discoveries-metal-world>
- UANews: Asteroid Day Turns Informative With UA Panel (06/28/2017)
<https://uanews.arizona.edu/story/asteroid-day-turns-informative-ua-panel>
- UANews: Asteroid Flyby to Help NASA Observation (06/27/2017)
<https://uanews.arizona.edu/story/asteroid-flyby-help-nasa-observation>
- UANews: Students Build Telescopes to Track Satellites (05/22/2017)
<https://uanews.arizona.edu/story/students-build-telescopes-track-satellites>
- Arizona Daily Star: University of Arizona has role in observing smallest asteroid ever studied in detail (12/01/2016) http://tucson.com/news/local/university-of-arizona-has-role-in-observing-smallest-asteroid-ever/article_93f74334-b2b2-5218-b84e-f3445035cc24.html
- Arizona Daily Star: New University of Arizona center hopes to bring order to space chaos (12/17/2016)
http://tucson.com/news/local/new-university-of-arizona-center-hopes-to-bring-order-to/article_6e721888-166c-5841-9397-e5bbe11162ee.html
- Arizona Daily Star: University of Arizona to lead global exercise on response to asteroid threat (06/27/2017) http://tucson.com/news/science/university-of-arizona-to-lead-global-exercise-on-response-to/article_bc6fa864-366f-5ce1-9592-2ace77c430e1.html
- Arizona Daily Star: Vishnu Reddy went from New Delhi journalist to UA asteroid hunter (09/10/2017)
http://tucson.com/news/local/vishnu-reddy-went-from-new-delhi-journalist-to-ua-asteroid/article_0a0a0363-1978-5f2b-bf13-a37e168b0098.html
- Arizona Daily Star: UA team using low-cost system to track falling Chinese space station (03/30/2018)
http://tucson.com/news/local/ua-team-using-low-cost-system-to-track-falling-chinese/article_f3728e9a-58f4-53d9-982e-71fabe57883b.html

- PBS Nova: Chinese Space Station will fall to Earth this weekend (03/30/2018)
<http://www.pbs.org/wgbh/nova/next/space/chinese-space-station-will-fall-to-earth-this-weekend/>
- Arizona Public Media: Scientists Will Simulate an Asteroid Impact with the Real Thing (07/31/2017)
<https://news.azpm.org/p/news-splash/2017/7/31/114702-scientists-will-simulate-an-asteroid-impact-with-the-real-thing/>

Public Lectures:

- San Diego Astronomy Association. Public Lecture on Planetary Defense: Surveying the Sky for Killer Asteroids (01/18/2020)
- Tucson Festival of Books at the University of Arizona. Public Lecture on Planetary Defense during the book festival in the Science City. (03/02/2019)
- Asteroid Day Panel at the Flandrau Planetarium. Event was broadcast multiple times on PBS. (06/28/2017)
- LPL Evening Lecture, Title: 'NEOCam Mission: Protecting the Earth One Asteroid at a Time' (11/15/2016)
- Huachuca Astronomy Club, Sierra Vista: Public outreach talk on 'Threat to Earth from Near Earth Objects' (11/18/2016)
- Phoenix ComiCon: Two Panel presentations on 'Asteroid Psyche' and 'Stargazing in Arizona' (05/26/2017)

National/International Public Outreach

News Stories

- The Planetary Radio: How to defend your planet (10/02/2019)
<https://www.planetary.org/multimedia/planetary-radio/show/2019/0925-2019-vishnu-reddy-planetary-defense.html>
- The Planetary Report: The State of Planetary Defense (08/20/2019)
<https://www.planetary.org/blogs/guest-blogs/2019/the-state-of-planetary-defense.html>
- Forbes: Upcoming CubeSats Put Bigger Science In Small Packages (03/31/2019)

<https://www.forbes.com/sites/kionasmith/2019/03/31/upcoming-cubesats-put-bigger-science-in-small-packages/#6dfdfa5a6a51>

- Aerospace Daily and Defense Report: Asteroid Defense Drill To Feature Actual Asteroid (07/31/2017)
<http://aviationweek.com/awinspace/asteroid-defense-drill-feature-actual-asteroid>
- Astronomy Magazine: This asteroid is so small, it could fit in your living room (11/30/2016)
<http://www.astronomy.com/news/2016/11/what-is-the-smallest-asteroid>
- NDTV: NASA To Observe Asteroid Flyby To Test Planetary Defense Technology (07/30/2017)
<https://www.ndtv.com/world-news/nasa-to-observe-asteroid-flyby-to-test-planetary-defense-technology-1731123>
- Newsweek: 2012 TC4: NASA's Planetary Defense Systems Put To The Test Over Near Miss Asteroids (07/31/2017) <http://www.newsweek.com/nasa-planetary-defense-asteroid-october-2012-tc4-644072>
- NASA Press Release: Asteroid Flyby Will Benefit NASA Detection and Tracking Network (08/08/2017) <https://www.jpl.nasa.gov/news/news.php?feature=6906>
- PHYS.ORG: Planetary defense campaign will use real asteroid for the first time (07/28/2017) <https://phys.org/news/2017-07-planetary-defense-campaign-real-asteroid.html>
- Space.com: 6-Foot-Wide 'Bald' Asteroid Is Smallest Ever Studied (12/01/2016)
<https://www.space.com/34868-smallest-asteroid-studied-2015-tc25.html>
- Space Daily: Upcoming asteroid flyby will help Planetary Defense Network (07/31/2017)
http://www.spacedaily.com/reports/Upcoming_asteroid_flyby_will_help_Planetary_Defense_Network_999.html
- Space Coast Daily: Asteroid Flyby In October Will Benefit NASA Detection and Tracking Network, says NASA Scientists (07/30/2017)
<http://spacecoastdaily.com/2017/07/asteroid-flyby-in-october-will-benefit-nasa-detection-and-tracking-network-say-nasa-scientists/>

- Sky and Telescope: A Basketball-Player-Sized Asteroid (12/05/2016)
<http://www.skyandtelescope.com/astronomy-news/a-basketball-player-sized-asteroid-0212201623/>
- USA Today: Asteroid flyby in October: A drill for the end of the world? (08/02/2017)
<https://www.usatoday.com/story/tech/science/2017/08/02/asteroid-flyby-october-drill-end-world-nasa/533298001/>
- Vice.com: This Asteroid Is Small Enough to Ride Like a Space Pony (12/02/2016)
https://motherboard.vice.com/en_us/article/bmvbq5/this-asteroid-is-small-enough-to-ride-like-a-space-pony

Public Outreach:

- Public outreach lecture to the members of the Rose City Astronomy Club, Portland, OR (10/19/2020)
- Participated in the Science Cafe event during the Tucson Book Festival representing College of Science. Gave a lecture on asteroid impacts and SSA to members of the public (03/02/2019)
- Participated in documentary series on encouraging STEM education by Korean Broadcasting Cooperation along with my undergraduate student Allison McGraw. (07/11/2017)
<https://www.youtube.com/watch?v=0jtUjDz1g4U&t=455s>
- NASA Science Nuggets: Four Science Nuggets Accepted by Science Mission Directorate.
 - Detection of Water and/or Hydroxyl on Asteroid (16) Psyche
 - Large Near-Earth Asteroid (3122) Florence Found To Be Ordinary Stony Chondrite
 - Multi-facility study of asteroid 2016 RB1 during its near-Earth encounter
 - Smallest Near-Earth Asteroid Characterized

National/International Service

- Science Lead, NASA Planetary Defense Exercise KW4 Campaign. Leading a team of ~30 scientists from >10 observatories in 5 countries, involving NASA HQ, and the International Asteroid Warning Network.
- Science Lead, NASA Planetary Defense Exercise TC4 Campaign. Leading a team of ~50 scientists from >20 observatories in 5 countries, involving NASA HQ,

National Security Council, White House OSTP, National Military Command Center, US Strategic Command, Homeland Security (FEMA), US Northern Command and the US State Department.

- Chair Scientific Organizing Committee, Local Organizing Committee, Future of the NASA IRTF Workshop Feb. 15-16, 2018, Biosphere 2. Sponsored by NASA Planetary Defense Coordination Office
- Chair Local Organizing Committee, TC4 Campaign Debrief Feb. 14, 2018, Biosphere 2. Sponsored by NASA Planetary Defense Coordination Office
- Chair Local Organizing Committee NASA Near-Earth Object Observation Program Review 2018, Biosphere 2. Sponsored by NASA Planetary Defense Coordination Office
- Chair Local Organizing Committee, Scientific Organizing Committee NASA Near-Earth Object Observation Program Review 2017, Tucson. Sponsored by NASA Planetary Defense Coordination Office
- Chair Local Organizing Committee, Scientific Organizing Committee Non-Imaging Space Object Identification (NISOI) Conference 2017, sponsored by United States Air Force Research Laboratory (AFRL), Maui
- Press Officer, Division for Planetary Sciences, American Astronomical Society, Organized and Participated in 8 press conferences at the DPS Meeting in Pasadena in 2016 October
- Prize Committee Chair, 2016 Jonathan Eberhart Award, Division for Planetary Sciences, American Astronomical Society
- Session Chair, 2017 Annual Meteoritical Society Meeting, Santa Fe, NM

National/International Proposal Evaluation and Review

- Chair, NASA IRTF Keck Users Group (NIKUG) Oversees operations of NASA's ground based telescope investments
- Chair, Member, NASA IRTF/Keck Management Operations Working Group (MOWG) Oversees operations of NASA's ground based telescope investments
- Member, Standing Review Board, NASA Lucy Mission.

- NASA Planetary Science Division Review for Spacecraft Missions
Reviewed NASA's Dawn extended mission to asteroid Adeona
- NASA Planetary Data, Archiving and Tools (PDART) Program Review

Journal Peer Reviews

- The Astronomical Journal (3 papers)
- Nature (2 papers)
- Science (1 paper)
- Icarus (5 papers)
- JGR (1 paper)
- IEEE Transactions on Aerospace & Electronics Systems (2 papers)
- Planetary and Space Sciences (3 papers)
- Astronomy and Astrophysics (3 papers)
- Monthly Notices of the Royal Astronomical Society (3 papers)
- Book chapter on spectroscopy results from MESSENGER mission to Mercury

Departmental Committee Service

- Graduate Admissions and Advising Committee 2016, 2017
- Faculty Peer Evaluation Committee 2016, 2017, 2018 (Chair), 2019 (Chair)
- Teaching Buyout Committee (Chair)

College Committee Service

- Steward Observatory Arizona Telescope Time Allocation Committee 2016, 2017
- College of Science CubeSat Faculty Hiring Committee 2018

University Committees

Strategic Planning for Space Science 2018

Net Tuition Revenue Modeling Committee 2020

Other Committees (Internal and External)

N/A

Publications/Creative Activity (Published or Accepted in Chronological Order)

Chapters in Scholarly Books (Peer Reviewed)

1. Burbine, T. H., DeMeo, F. E., Rivkin, A. S., and Reddy, V. 2017. Evidence for Differentiation among Asteroid Families. In *Planetesimals*. (L.T. Elkins-Tanton and B. P. Weiss) Cambridge University Press. P 298-320.
2. Reddy, V., Dunn, T., Thomas, C.A., Moskovitz, N., Burbine, T., 2015. Mineralogy and Surface Composition of Asteroids. In *Asteroids IV*. (P. Michel et al., eds.) University of Arizona Press, Tucson. Arizona.
3. Binzel, R.P., Reddy, V., and Dunn, T., 2015. The Near-Earth Object Population: Connections to Comets, Main-Belt Asteroids, and Meteorites. In *Asteroids IV*. (P. Michel et al., eds.) University of Arizona Press, Tucson. Arizona.

Refereed Journal Articles (133 peer-reviewed publications, 25 as First Author)

2021

1. Kareta, T., Woodney, L.M., Schambeau, C., Fernandez, Y., Pinto, Olga H., Wierzchos, K., Womack, M., Bus, S. J., Steckloff, J., Sarid, G., Volk, K., Harris, W. M., **Reddy, V.** 2021. Contemporaneous Multiwavelength and Precovery Observations of the Active Centaur P/2019 LD2 (ATLAS), *The Planetary Science Journal*, Volume 2, Issue 2, id.48.
2. Kareta, T., Hergenrother, C., **Reddy, V.**, Harris, W.M. 2021. Surfaces of (Nearly) Dormant Comets and the Recent History of the Quadrantid Meteor Shower, *The Planetary Science Journal*, Volume 2, Issue 1, id.31.
3. Furfaro, R., Barocco, R., Linares, R., Topputo, F., **Reddy, V.**, Simo, J., Le Corre, L. 2021. Modeling irregular small bodies gravity field via extreme learning machines and Bayesian optimization, *Advances in Space Research*, Volume 67, Issue 1, p. 617-638.

2020

4. Berthier, J., Descamps, P., Vachier, F., Normand, J., Maquet, L., Deleflie, F., Colas, F., Klotz, A., Teng-Chuen-Yu, J. -P., Peyrot, A., Braga-Ribas, F., Marchis, F., Leroy, A., Bouley, S., Dubos, G., Pollock, J., Pauwels, T., Vingerhoets, P., Farrell, J. A., Sada, P. V. **Reddy, V.**, Archer, K., Hamanowa, H. H. 2020. Physical characterization of

- double asteroid (617) Patroclus from 2007/2012 mutual events observations, *Icarus*, Volume 352, article id. 113990.
5. Kohout, T., Penttilä, A., Mann, P., Cloutis, E., Čuda, J., Filip, J., Malina, O., **Reddy, V.**, Grokhovsky, V.I., Yakovlev, G.A., Halodova, P., Haloda, J. 2020. Distinguishing between Shock-darkening and Space-weathering Trends in Ordinary Chondrite Reflectance Spectra, *The Planetary Science Journal*, Volume 1, Issue 2, id.37, 12 pp.
 6. Fieber-Beyer, S.K., Kareta, T., **Reddy, V.**, Gaffey, M.J. 2020. Near-earth asteroid: (285263) 1998 QE2. *Icarus*, Volume 347, article id. 113807.
 7. Nathues, A., Schmedemann, N., Thangjam, G., Pasckert, J. H., Mengel, K., Castillo-Rogez, J., Cloutis, E. A., Hiesinger, H., Hoffmann, M., Le Corre, L., Li, J. -Y., Pieters, C., Raymond, C. A., **Reddy, V.**, Ruesch, O., Williams, D. A. 2020. Recent cryovolcanic activity at Occator crater on Ceres, *Nature Astronomy*, Volume 4, p. 794-801.
 8. Takir, D., Kareta, T., Emery, J.P., Hanuš, J., **Reddy, V.**, Howell, E.S., Rivkin, A.S., Arai, T. 2020. Near-infrared observations of active asteroid (3200) Phaethon reveal no evidence for hydration, *Nature Communications*, Volume 11, article id. 2050
 9. Sanchez, J.A., Thomas, C., **Reddy, V.**, Frere, N., Lindsay, S.S., Mitchell, A. 2020. A New Method for Deriving Composition of S-type Asteroids from Noisy and Incomplete Near-infrared Spectra, *The Astronomical Journal*, Volume 159, Issue 4, id.146, 10 pp.
 10. McGraw, A.M., **Reddy, V.**, Izawa, M.R.M., Sanchez, J.A., Le Corre, L., Cloutis, E.A., Applin, D.M., Pearson, N. 2020. Mineralogical Criteria for the Parent Asteroid of the "Carbonaceous" Achondrite NWA 6704, *The Astronomical Journal*, Volume 159, Issue 3, id.107.
 11. Mitchell, A.M., **Reddy, V.**, Sharkey, B.N.L., Sanchez, J.A., Burbine, T.H., Le Corre, L., Thomas, C.A. 2020. Constraining ordinary chondrite composition via near-infrared spectroscopy, *Icarus*, Volume 336, article id. 113426.
 12. Sanchez, J.A., Thomas, C., **Reddy, V.**, Frere, N., Lindsay, S.S., Mitchell, A. 2020. A New Method for Deriving Composition of S-type Asteroids from Noisy and Incomplete Near-infrared Spectra, *The Astronomical Journal*, Volume 159, Issue 4, id.146.
 13. Kareta, T., Andrews, J., Noonan, J.W., Harris, W.M., Smith, N., O'Brien, P., Sharkey, B.N.L., **Reddy, V.**, Springmann, A., Lejoly, C., Volk, K., Conrad, A., Veillet, C. 2020.

Carbon Chain Depletion of 21/Borisov, *The Astrophysical Journal Letters*, Volume 889, Issue 2, id.L38

14. Williamson, B., Sonnett, S., Witry, J., Chatelain, J., Grav, T., **Reddy, V.**, Lejoly, C., Kramer, E., Mainzer, A., Masiero, J., Gritsevich, M., Bauer, J. 2020. Rotational Properties of Three Hilda Asteroids. *The Minor Planet Bulletin* (ISSN 1052-8091). Bulletin of the Minor Planets Section of the Association of Lunar and Planetary Observers, Vol. 47, No. 1, pp. 66-68 (2020)

2019

15. **Reddy, V.**, Kelley, M. S., Farnocchia, D., Ryan, W. H., Thomas, C. A., Benner, L. A. M., Dotson, J., Micheli, M., Brucker, M. J., Bus, S. J., Brozovic, M., Wheeler, L., Abbasi, V., Bauer, J. M., Bonsall, A., Brown, Z. L., Busch, M. W., Chodas, P., Choi, Y.-J., Erasmus, N., Fast, K. E., Faucher, J. P., Fernandes, R. B., Ghigo, F. D., Gilbank, D. G., Giorgini, J. D., Gustafsson, A., Hainaut, O., Harris, W. M., Jao, J. S., Johnson, L. S., Karet, T., Kim, M.-J., Koschny, D., Kramer, E. A., Landis, R. R., Laurin, D. G., Larsen, J. A., Lee, C. G., Lejoly, C., Lister, T., McMillan, R., Masiero, J. R., Mathias, D., Mommert, M., Moon, H.-K., Moskovitz, N. A., Naidu, S. P., Nallapu, R. T., Niazi, H. K., Noonan, J. W., Polishook, D., Ryan, E. V., Schatz, L., Scotti, J. V., Sharkey, B., Shustov, B. M., Sikafoose, A. A., Silva, M. A., Slade, M. A., Slick, L. R., Snedeker, L. G., Springmann, A., Tholen, D., Trilling, D. E., Vodniza, A. Q., Wainscoat, R., Weryk, R., Yoshikawa, M. 2019. Near-Earth asteroid 2012 TC4 observing campaign: Results from a global planetary defense exercise, *Icarus* Volume 326, 1 July 2019, Pages 133-150
16. Sharkey, B.N.L., **Reddy, V.**, Sanchez, J.A., Izawa, M.R.M., Emery, J.P. 2020. Compositional Constraints for Lucy Mission Trojan Asteroids via Near-infrared Spectroscopy, *The Astronomical Journal*, Volume 158, Issue 5, article id. 204, 13 pp. (2019).
17. Noonan, J.W., **Reddy, V.**, Harris, W.M., Bottke, W.F., Sanchez, J.A., Furfaro, R., Brown, Z., Fernandes, R., Karet, T., Lejoly, C., Teja Nallapu, R., Niazi, H.K., Slick, L.R., Schatz, L., Sharkey, B.N.L., Springmann, A., Angle, G., Bailey, L., Acuna, D.D., Lewin, C., Marchese, K., Meshel, M., Quintero, N., Tatum, K., Wilburn, G. 2020. Search for the H Chondrite Parent Body among the Three Largest S-type Asteroids: (3) Juno, (7) Iris, and (25) Phocaea, *The Astronomical Journal*, Volume 158, Issue 5, article id. 213, 8 pp. (2019).
18. Sanchez, J. A., **Reddy, V.**, Thirouin, A., Wright, E. L., Linder, T.R., Karet, T., Sharkey, B. 2019. Physical Characterization of Active Asteroid (6478) Gault. *The Astrophysical Journal Letters*, Volume 881, Issue 1, article id. L6, 6 pp. (2019).

19. Karetta, T., Sharkey, B., Noonan, J., Volk, K., **Reddy, V.**, Harris, W., Miles, R. 2020. Physical Characterization of the 2017 December Outburst of the Centaur 174P/Echeclus, *The Astronomical Journal*, Volume 158, Issue 6, article id. 255, 10 pp. (2019).
20. Milam, S. N., Hammel, H. B., Bauer, J., Brozovic, M., Grav, T., Holler, B. J., Lisse, C., Mainzer, A., **Reddy, V.**, Schwamb, M. E., Spahr, T., Thomas, C. A., Woods, D. 2019. Combined Emerging Capabilities for Near-Earth Objects (NEOs), *Decadal Survey, Astrophysics Astro2020*.
21. Witry, J., Sonnett, S., Williamson, B., Chatelain, J., Grav, T., **Reddy, V.**, Lejoly, C., Kramer, E., Mainzer, A., Masiero, J., Gritsevich, M., Bauer, J. 2019. Rotation Properties of Large-Amplitude Hilda Asteroids, *The Minor Planet Bulletin* (ISSN 1052-8091). *Bulletin of the Minor Planets Section of the Association of Lunar and Planetary Observers*, Vol. 46, No. 3, pp. 335-337.
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White Papers

Milam, S. N., Hammel, H. B., Bauer, J., Brozovic, M., Grav, T., Holler, B. J., Lisse, C., Mainzer, A., **Reddy, V.**, Schwamb, M. E., Spahr, T., Thomas, C. A., Woods, D. 2019. Combined Emerging Capabilities for Near-Earth Objects (NEOs), Decadal Survey, *Astrophysics Astro2020*.

Reddy, V., Furfaro, R., Linares, R., Hankey, M., 2019. Characterizing Space Debris and Asteroid Reentry using NEXRAD Doppler Radar, Submitted to NASA Air and Space Intelligence Center, United States Air Force

(Grad Student Paper) Campbell, T., **Reddy, V.**, 2017. Developing Technologies for Cost-Effective Daytime Custody of Geostationary Objects using Raven-class Telescopes, Submitted to Air Force Office for Scientific Research, United States Air Force

Reddy, V., Furfaro, R., Linares, R., 2017. Full Spectrum Fingerprinting of Resident Space Objects, Submitted to Defense Advanced Research Projects Agency

Reddy, V., Linares, R., 2016. Characterizing Space Debris and Asteroid Reentry using NEXRAD Doppler Radar, Submitted to NASA Air and Space Intelligence Center, United States Air Force

Reddy, V., 2016. CosmosView: A Student-Run Thinking Telescope Network for Space Situational Awareness, Submitted to Defense Advanced Research Projects Agency

Conferences/Scholarly Presentations

Colloquia

(Invited) 'Is Asteroid (16) Psyche Exposed Core of a Protoplanet?' Department of Earth, Planetary and Space Sciences, University of Tennessee, Knoxville.

(Invited) 'Characterizing Space Debris Reentry using NEXRAD Doppler Radar,' JASON Defense Advisory Panel, Department of Defense. *(Presentation was given by my collaborator as I did not have Top Secret SCI clearance to be at that panel and he did)*

(Invited) 'Get Rich or Die: Separating Facts from Fiction about Asteroids and Meteors,' Tohono O'odham Community College

Seminars

(Invited) 'Spectral Characterization of 2020 SO,' United States Air Force Research Laboratory Voltron Workshop, March 2021.

(Invited) 'Role of Spectroscopy in Space Domain Awareness' United States Air Force Research Laboratory Voltron Workshop, March 2020.

(Invited) State of Space Situational Awareness (2019) to Army Intelligence Officers from Ft. Huachuca

(Invited) 'Carbon Contamination in the Asteroid Belt' American Geophysical Union Meeting (2019).

(Invited) 'NASA's Dawn Mission to Asteroid Vesta and Dwarf Planet Ceres' XXVIII Canary Islands Winter School of Astrophysics.

(Invited) 'Career Opportunities for Planetary Scientists in National Defense' Department of Earth, Planetary and Space Sciences, University of Tennessee, Knoxville.

(Invited) 'Research Interests in Moving Objects,' Joint Workshop between Lockheed Martin and Steward Observatory.

(Invited) 'Space Object Behavior Sciences Scholarly Activities at Lunar and Planetary Laboratory,' Workshop Organized by University of Arizona RDI Office.

(Invited) 'Space Material Characterization,' Joint Industry Partnership Workshop Between Jacobs Technology and University of Arizona on application of Spectropolarimetry for Space Situational Awareness.

(Invited) 'Space Situational Awareness Program,' Presentation to the Lunar and Planetary Laboratory Board of Directors.

(Invited) 'Student Opportunities in NASA Planetary Defense Exercise,' Presentation to the Lunar and Planetary Laboratory Board of Directors.

(Invited) 'Remote Material Characterization Techniques,' Extraterrestrial Manufacturing Workshop, College of Engineering, University of Arizona.

Symposia

(Invited) The Role of Universities in Space Situational Awareness and Global Space Traffic Management. Briefing to the US Senate and House Armed Services Committees Staff, 2017. (Panel Included, **V. Reddy**, E. Pearce, M. Jah, M. Hart from the University of Arizona)

(Invited) 'Recovery of Chinese Long March 7 Second Stage using Doppler Radar,' United States Air Force Research Lab Program Review, Maui.

(Invited) 'Ground-based Spectral Characterization of Satellites,' Non-Imaging Space Object Identification Conference 2016, Maui High Performance Computing Center.

Keynote

(Invited) 'Tracking and Recovering Space Debris,' Raytheon Missile Systems Inventors and Authors Gala 2017.

(Invited) 'Psyche: State of Knowledge from Ground-based Observations,' International Meteorite Collectors Association Annual Dinner 2017, Lunar and Planetary Laboratory.

Guest Lectures

(Invited) 'Asteroid Spectroscopy,' guest lecture in PTYS416/516 Asteroids, Comets, KBOs, Instructor: Prof. Renu Malhotra

(Invited) 'Are Small Asteroids Free of Regolith,' guest lecture in AME429/529 Interplanetary Mission Design, Instructor: Prof. David Gaylor, UA Aerospace and Mechanical Engineering.

Conference Papers (Not Peer-Reviewed)

1. Izawa, M.R.M., Koutoula, E., Stancu, M.-N., Yamashita, S., Okuchi, T., Cloutis, E.A., Jephcoat, A.P., **Reddy, V.** 2021. Hydrothermal Ammoniation of Chondrites: Implications for Ceres, 52nd Lunar and Planetary Science Conference, held virtually, 15-19 March, 2021. LPI Contribution No. 2548, id.2247
2. Kareta, T., Hergenrother, C., **Reddy, V.**, Harris, W. 2020. Surfaces of (Nearly) Dormant Comets and the Recent History of the Quadrantids, AAS Division of Planetary Science meeting #52, id. 514.01. Bulletin of the American Astronomical Society, Vol. 52, No. 6 e-id 2020n6i514p01
3. Grav, T., Mainzer, A., Sonnett, S., Lilly, E., Spahr, T., Masiero, J., **Reddy, V.**, Cutri, R., NEO Surveillance Mission Team. 2020. The NEO Surveillance Mission (NEOSM) Survey Simulations, AAS Division of Planetary Science meeting #52, id. 208.03. Bulletin of the American Astronomical Society, Vol. 52, No. 6 e-id 2020n6i208p03
4. Campbell, T., **Reddy, V.**, Furfaro, R., Tucker, S., Gray, D. 2019. Characterizing Space Debris Objects Using Simultaneous Multi-Color Optical Array, First International Orbital Debris Conference, held 9-12 December, 2019 in Sugar Land, Texas. LPI Contribution No. 2109. Houston, TX: Lunar and Planetary Institute, 2019, id.6117.
5. Furfaro, R., Campbell, T., Linares, R., **Reddy, V.** 2019. Space Debris Identification and Characterization via Deep Meta-Learning, First International Orbital Debris Conference, held 9-12 December, 2019 in Sugar Land, Texas. LPI Contribution No. 2109. Houston, TX: Lunar and Planetary Institute, 2019, id.6123
6. Furfaro, R., Linares, R., **Reddy, V.** 2019. Shape Identification of Space Objects via Light Curve Inversion Using Deep Learning Models, Proceedings of the Advanced Maui Optical and Space Surveillance Technologies Conference, held in Wailea, Maui, Hawaii, September 17-20, 2019, Ed.: S. Ryan, The Maui Economic Development Board, id.17.
7. **Reddy, V.**, Linder, T., Linares, R., Furfaro, R., Tucker, S., Campbell, T. 2018. RAPTORS: Hyperspectral Survey of the GEO Belt, The Advanced Maui Optical and Space Surveillance Technologies Conference, held in Wailea, Maui, Hawaii, September 11-14, 2018.
8. Furfaro, R., Linares, R., **Reddy, V.** 2018. Space Objects Classification via Light-Curve Measurements: Deep Convolutional Neural Networks and Model-based Transfer Learning, The Advanced Maui Optical and Space Surveillance Technologies Conference, held in Wailea, Maui, Hawaii, September 11-14, 2018.
9. Thangavelautham, J., Asphaug, E., **Reddy, V.**, Hernandez, V., Nallapu, R., Kalita, H., Ravindran, A., Morad, S. 2018. On-Orbit Monitoring of Meteor Impacts Using

CubeSats, 42nd COSPAR Scientific Assembly. Held 14-22 July 2018, in Pasadena, California, USA, Abstract id. S.3-15-18.

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1. Sharkey, B.N.L., **Reddy, V.**, Sanchez, Juan A.; Izawa, Matthew R. M.; Emery, Joshua P. 2019. Spectral Characterization of Lucy Mission Targets, EPSC-DPS Joint Meeting 2019, held 15-20 September 2019 in Geneva, Switzerland, id. EPSC-DPS2019-845.
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4. Sonnett, S., Grav, T., Williamson, B., Witry, J., **Reddy, V.**, Furfaro, R., De Florio, M., Schiassi, E., Chatelain, J., Lejoly, C., Le Corre, L., Gyorgyey Ries, J., Kramer, E., Mainzer, A., Gritsevich, M., Masiero, J., Bauer, J. 2019. Lightcurves, Shape Models, and H-G Parameters of Trojan and Hilda Binary Candidates. EPSC-DPS Joint Meeting 2019, held 15-20 September 2019 in Geneva, Switzerland, id. EPSC-DPS2019-1020
5. Nathues, A., Schmedemann, N., Guneshwar, T., Pasckert, J.-H., Mengel, K., Castillo-Rogez, J., Cloutis, E., Hiesinger, H., Hoffmann, M., Le Corre, L., Li, J.-Y., Pieters, C., Raymond, C., **Reddy, V.**, Ruesch, O., Williams, D. 2019. Occator Crater on Ceres: Recently Active Cryovolcanism? EPSC-DPS Joint Meeting 2019, held 15-20 September 2019 in Geneva, Switzerland, id. EPSC-DPS2019-401
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7. Sanchez, J. A., **Reddy, V.**, Le Corre, L., Campbell, T., Chabra, O. 2019. Spectral Characteristics of Ordinary Chondrite Impact Melts, 50th Lunar and Planetary Science Conference, held 18-22 March, 2019 at The Woodlands, Texas. LPI Contribution No. 2132, id.1594
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9. Kareta, T., **Reddy, V.**, Sanchez, J. A., Linder, T., Lauretta, D. S., Arai, T., Sharkey, B., Kuhn, O., Conrad, A., Hergenrother, C. 2019. Spectral Heterogeneity Among Geminid Complex Small Bodies, 50th Lunar and Planetary Science Conference, held 18-22 March, 2019 at The Woodlands, Texas. LPI Contribution No. 2132, id.1710
 10. Noonan, J. W., **Reddy, V.**, Harris, W. M., Bottke, W. F., Sanchez, J. A., Furfaro, R., Brown, Z., Fernandes, R., Kareta, T. R., Lejoly, C., Nallapu, R. T., Niazi, H. K., Slick, L. R., Schatz, L., Sharkey, B. N. L., Springmann, A., Angle, G., Bailey, L., Acuna, D. D., Lewin, C., Marchese, K., Meshel, M., Quintero, N., Tatum, K., Wilburn, G. 2019. Is Asteroid (3) Juno the Parent Body of H-Chondrite Meteorites? 50th Lunar and Planetary Science Conference, held 18-22 March, 2019 at The Woodlands, Texas. LPI Contribution No. 2132, id.1755
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