

Steven Villanueva Jr. – Curriculum Vitae

NASA Postdoctoral Program Postdoctoral Fellow
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Employment

2021 - Present	NASA Postdoctoral Program Fellow, NASA Goddard Space Flight Center, Greenbelt, MD
2018 - 2021	Pappalardo Postdoctoral Fellow, MIT, Cambridge, MA
2017 - 2018	David G. Price Instrumentation Fellow, The Ohio State University, Columbus, OH
2014 - 2017	NSF GRFP Fellow, The Ohio State University, Columbus, OH
2012 - 2014	Teaching Assistant, The Ohio State University, Columbus, OH
2009 - 2012	Undergraduate Research Assistant, Texas A&M University, College Station, TX
2003 - 2007	Aerospace Ground Equipment Mechanic, United States Air Force, RAF Lakenheath, UK

Education

2018	Ph.D. in Astronomy, The Ohio State University Understanding Hot Jupiters with the DEDicated MONitor of EXotransits and Transients
2016	M.S. in Astronomy, The Ohio State University
2012	B.S. in Physics, Texas A&M University

Fellowships and Awards

2017	David G. Price Fellowship for Astronomical Instrumentation
2016	Outstanding Research Presentation, SACNAS Annual Conference
2015	Outstanding Research Presentation, SACNAS Annual Conference
2014	Outstanding Research Presentation, SACNAS Annual Conference
2014	National Science Foundation Graduate Research Fellowship

Grants and Observing Proposals

2021	PI TESS GI Proposal (cycle 4)	\$50,000
2020	PI TESS GI Proposal (cycle 3)	\$200,000
2020A-2021A	PI Magellan PFS	7.5 nights
2018B-2019B	CO-I Magellan PFS	5 nights

Professional Activities

2020	MIT MKI Anti-Racism Task Force
2016 - Present	Member, American Astronomical Society
2015 - 2017	President, The Ohio State University SACNAS Chapter
2014 - Present	Member, The Ohio State University SACNAS Chapter
2012 - Present	Member, National Society of Hispanic Physicists
2010 - Present	Member, SPIE

Relevant Skills

Programming IDL, Python, SuperMongo, ExoFast, AstroImageJ
Mechanical Four years as a support equipment mechanic including working with mechanical, electrical, pneumatic, and hydraulic systems.

Presentations

Invited Talks

2021 Journal Club, JPL Exoplanet Journal Club, Pasadena, CA
2019 Session Chair, TESS Science Conference I, Cambridge, MA
2018 Colloquium, GROW STEM Seminar, SUNY Geneseo, NY
2018 Astronomy Seminar, Texas A&M University, TX
2018 Colloquium, Notre Dame, IN
2017 Colloquium, Penn State, PA
2017 Exoplanet Tea, MIT, Cambridge, MA
2017 Exoplanet Lunch, Harvard CfA, Cambridge, MA
2017 Stars and Planets Seminar, Harvard CfA, Cambridge, MA
2016 Journal Club, JPL, Pasadena, CA
2016 Journal Club, UCLA, Los Angeles, CA
2016 Journal Club, Vanderbilt, Nashville, TN

Contributed Talks

2020 TESS Science Meeting 22, Online
2017 AAS 229, Grapevine, TX
2016 SACNAS Annual Conference, Long Beach, CA
2016 KELT Workshop, Vanderbilt, Nashville, TN
2015 SACNAS Annual Conference, Washington, DC
2014 SACNAS Annual Conference, Los Angeles, CA

Contributed Posters

2019 Extreme Solar Systems IV, Reykjavik, IS
2016 SPIE, Edinburgh, UK
2016 Emerging Researches in Exoplanet Science (ERES), Penn State, State College, PA
2012 SPIE, Amsterdam, NL
2012 AAS 219, Austin, TX
2010 SPIE, San Diego, CA

Observational Experience

2016 - present 500+ nights, DEMONEXT 0.5-m, AZ (robotic observing)
2015 8 nights, LBT 2 x 8.4-m, AZ
2014 8 nights, MDM, 1.3-m, AZ
2014 7 nights, LBT 2 x 8.4-m, AZ
2013 3 nights, MDM, 2.4-m, AZ
2013 3 nights, LBT 2 x 8.4-m, AZ
2013 8 nights, MDM 2.4-m, AZ
2013 7 nights, LBT 2 x 8.4-m, AZ

Outreach

2019	MIT Lincoln Lab Hispanic Heritage Month
2017	Latino Early Arrival Program
2017	Breakfast of Science Champions
2017	NSF GRFP Panel
2016	Latino Early Arrival Program
2016	College of Arts and Sciences Promotional Video
2016	NSF GRFP Panel
2016	Columbus Area Middle School Lab Trip
2015	Breakfast of Science Champions
2015	Upper Arlington Library Star Party
2015	NSF GRFP Panel
2015	Upper Arlington Library Star Party
2014	Breakfast of Science Champions
2014	Private Roof Night and Planetarium Show
2014	OSU Partial Solar Eclipse Event
2014	OSU Planetarium Show for LASER/SACNAS/LSAMP (minority student organizations)
2014	OSU Star Party
2014	Astronomy on Tap, Columbus, OH
2013	OSU Planetarium Show
2013	Private Roof Night and Planetarium Show
2013	OSU Planetarium Star Party
2013	Astronomy on Tap, Columbus, OH
2013	OSU Global Star Party
2013	OSU Roof Night Star Party
2013	Upper Arlington Elementary School Talk
2012	OSU Ground Night Star Party

Publications

First-Author Publications

6. "An Estimate of the Yield of Single-Transit Planetary Events from the Transiting Exoplanet Survey Satellite," **Villanueva, S., Jr.**, Dragomir, D., & Gaudi, B. S., *AJ*, 157, 84V, 2019
5. "DEDICATED MONITOR OF EXOTRANSITS AND TRANSIENTS (DEMONEXT): SYSTEM OVERVIEW AND YEAR ONE RESULTS FROM A LOW-COST ROBOTIC TELESCOPE FOR FOLLOW-UP OF EXOPLANETARY TRANSITS AND TRANSIENTS," **Villanueva, S., Jr.**, Gaudi, B. S., Pogge, R. W., et al., *PASP*, 130, 983, 2017
4. "The Dedicated Monitor of Exotransits and Transient Events (DEMONEXT): A LOW-COST ROBOTIC AND AUTOMATED TELESCOPE FOR FOLLOWUP OF EXOPLANETARY TRANSITS AND OTHER TRANSIENT EVENTS," **Villanueva, S., Jr.**, Eastman, J. D., Gaudi, B. S., et al., *SPIE*, 9906E, 2LV, 2016
3. "The Dedicated Monitor of Exotransits (DEMONEX): SEVEN TRANSITS OF XO-4b," **Villanueva, S., Jr.**, Eastman, J. D., & Gaudi, B. S., *ApJ*, 820, 87V, 2016
2. "Optimal resolutions for optical and NIR spectroscopy," **Villanueva, S., Jr.**, DePoy, D. L., & Marshall, J. L., *SPIE*, 8446E, 2VV, 2012
1. "MooSci: A Lunar Scintillometer," **Villanueva, S., Jr.**, DePoy, D. L., Marshall, J., et al., *SPIE*, 7735E, 47V, 2010

Contributed Refereed Publications

42. "Space Telescope and Optical Reverberation Mapping Project. XII. Broad-Line Region Modeling of NGC 5548," Williams, P. R., Pancoast, A., Treu, T., et al., incl. **Villanueva, S., Jr.**, *submitted*, arXiv201000594W
41. "ASASSN-18am/SN 2018gk : An overluminous Type IIb supernova from a massive progenitor," Bose, S., Dong, S., Kochanek, C. S., et al., incl. **Villanueva, S., Jr.**, *submitted*, arXiv200700008B
40. "Space Telescope and Optical Reverberation Mapping Project. IX. Velocity-Delay Maps for Broad Emission Lines in NGC 5548," Horne, K., De Rosa, G., Peterson, B. M., et al., incl. **Villanueva, S., Jr.**, *submitted*, arXiv200301448H
39. "An Extreme-mass Ratio, Short-period Eclipsing Binary Consisting of a B Dwarf Primary and a Pre-main Sequence M Star Companion Discovered by KELT," Stevens, D. J., Zhou, G., Johnson, M. C., et al., incl. **Villanueva, S., Jr.**, *submitted*, arXiv191006212S
38. "TESS Hunt for Young and Maturing Exoplanets (THYME). III. A Two-planet System in the 400 Myr Ursa Major Group," Mann, A. W., Johnson, M. C., Vanderburg, A., et al., incl. **Villanueva, S., Jr.**, *AJ*, 160, 179M, 2020
37. "KELT-25b and KELT-26b: A Hot Jupiter and a Substellar Companion Transiting Young A-stars Observed by TESS," Rodríguez Martínez, R., Gaudi, B. S., Rodriguez, J. E., et al., incl. **Villanueva, S., Jr.**, *AJ*, 160, 111M, 2020
36. "The TOI-763 system: sub-Neptunes orbiting a Sun-like star," Fridlund, M., Livingston, J., Gandolfi, D., et al., incl. **Villanueva, S., Jr.**, *MNRAS*, 498, 4503F, 2020
35. "The Magellan/PFS Exoplanet Search: a 55-d period dense Neptune transiting the bright ($V = 8.6$) star HD 95338," Díaz, M. R., Jenkins, J. S., Feng, F., et al., incl. **Villanueva, S., Jr.**, *MNRAS*, 496, 4330D, 2020
34. "The TESS-Keck Survey. I. A Warm Sub-Saturn-mass Planet and a Caution about Stray Light in TESS Cameras," Dalba, P. A., Gupta, A. F., Rodriguez, J. E., et al., incl. **Villanueva, S., Jr.**, *AJ*, 159, 241D, 2020
33. "Securing the Legacy of TESS through the Care and Maintenance of TESS Planet Ephemerides," Dragomir, D., Harris, M., Pepper, J., et al., incl. **Villanueva, S., Jr.**, *AJ*, 159, 219D, 2020
32. "TOI-222: a single-transit TESS candidate revealed to be a 34-d eclipsing binary with CORALIE, Euler-Cam, and NGTS," Lendl, M., Bouchy, F., Gill, S., et al., incl. **Villanueva, S., Jr.**, *MNRAS*, 492, 1761L, 2020
31. "Full orbital solution for the binary system in the northern Galactic disc microlensing event Gaia16aye," Wyrzykowski, Ł., Mróz, P., Rybicki, K. A., et al., incl. **Villanueva, S., Jr.**, *A&A*, 633A, 98W, 2020
30. "Kojima-1Lb Is a Mildly Cold Neptune around the Brightest Microlensing Host Star," Fukui, A., Suzuki, D., Koshimoto, N., et al., incl. **Villanueva, S., Jr.**, *AJ*, 158, 206F, 2019
29. "KELT-24b: A 5M J Planet on a 5.6 day Well-aligned Orbit around the Young $V = 8.3$ F-star HD 93148," Rodriguez, J. E., Eastman, J. D., Zhou, G., et al., incl. **Villanueva, S., Jr.**, *AJ*, 158, 197R, 2019
28. "Two New HATNet Hot Jupiters around A Stars and the First Glimpse at the Occurrence Rate of Hot Jupiters from TESS," Zhou, G., Huang, C. X., Bakos, G. Á., et al., incl. **Villanueva, S., Jr.**, *AJ*, 158, 141Z, 2019
27. "Evidence for a Chandrasekhar-mass explosion in the Ca-strong 1991bg-like type Ia supernova 2016hnk," Galbany, L., Ashall, C., Höflich, P., et al., incl. **Villanueva, S., Jr.**, *A&A*, 630A, 76G, 2019

26. "Space Telescope and Optical Reverberation Mapping Project. VIII. Time Variability of Emission and Absorption in NGC 5548 Based on Modeling the Ultraviolet Spectrum," Kriss, G. A., De Rosa, G., Ely, J., et al., incl. **Villanueva, S., Jr.**, ApJ, 881, 153K, 2019
25. "KELT-23Ab: A Hot Jupiter Transiting a Near-solar Twin Close to the TESS and JWST Continuous Viewing Zones," Johns, D., Reed, P. A., Rodriguez, J. E., et al., incl. **Villanueva, S., Jr.**, AJ, 158, 78J, 2019
24. "An Eccentric Massive Jupiter Orbiting a Subgiant on a 9.5-day Period Discovered in the Transiting Exoplanet Survey Satellite Full Frame Images," Rodriguez, J. E., Quinn, S. N., Huang, C. X., et al., incl. **Villanueva, S., Jr.**, AJ, 157, 191R, 2019
23. "TESS Delivers Its First Earth-sized Planet and a Warm Sub-Neptune," Dragomir, D., Teske, J., Günther, M. N., et al., incl. **Villanueva, S., Jr.**, ApJ, 875L, 7D, 2019
22. "Photodynamical analysis of the triply eclipsing hierarchical triple system EPIC 249432662," Borkovits, T., Rappaport, S., Kaye, T., et al., incl. **Villanueva, S., Jr.**, MNRAS, 483, 1934B, 2019
21. "KELT-22Ab: A Massive, Short-Period Hot Jupiter Transiting a Near-solar Twin," Labadie-Bartz, J., Rodriguez, J. E., Stassun, K. G., et al., incl. **Villanueva, S., Jr.**, ApJS, 240, 13L, 2019
20. "K2 Observations of SN 2018oh Reveal a Two-component Rising Light Curve for a Type Ia Supernova," Dimitriadis, G., Foley, R. J., Rest, A., et al., incl. **Villanueva, S., Jr.**, ApJ, 870L, 1D, 2019
19. "Seeing Double: ASASSN-18bt Exhibits a Two-component Rise in the Early-time K2 Light Curve," Shappee, B. J., Holoiën, T. W. -S., Drout, M. R., et al., incl. **Villanueva, S., Jr.**, ApJ, 870, 13S, 2019
18. "Photometric and Spectroscopic Properties of Type Ia Supernova 2018oh with Early Excess Emission from the Kepler 2 Observations," Li, W., Wang, X., Vinkó, J., et al., incl. **Villanueva, S., Jr.**, ApJ, 870, 12L, 2019
17. "Preccovery of Transiting Exoplanet Survey Satellite Single Transits with Kilodegree Extremely Little Telescope," Yao, X., Pepper, J., Gaudi, B. S., et al., incl. **Villanueva, S., Jr.**, AJ, 157, 37Y, 2019
16. "EPIC 246851721 b: A Tropical Jupiter Transiting a Rapidly Rotating Star in a Well-aligned Orbit," Yu, L., Zhou, G., Rodriguez, J. E., et al., incl. **Villanueva, S., Jr.**, AJ, 156, 250Y, 2018
15. "K2-260 b: a hot Jupiter transiting an F star, and K2-261 b: a warm Saturn around a bright G star," Johnson, M. C., Dai, F., Justesen, A. B., et al., incl. **Villanueva, S., Jr.**, MNRAS, 481, 596J, 2018
14. "The KELT Follow-up Network and Transit False-positive Catalog: Pre-vetted False Positives for TESS," Collins, K. A., Collins, K. I., Pepper, J., et al., incl. **Villanueva, S., Jr.**, AJ, 156, 234C, 2018
13. "Velocity-resolved Reverberation Mapping of Five Bright Seyfert 1 Galaxies," De Rosa, G., Fausnaugh, M. M., Grier, C. J., et al., incl. **Villanueva, S., Jr.**, ApJ, 886, 133D, 2018
12. "Continuum Reverberation Mapping of the Accretion Disks in Two Seyfert 1 Galaxies," Fausnaugh, M. M., Starkey, D. A., Horne, K., et al., incl. **Villanueva, S., Jr.**, ApJ, 854, 107F, 2018
11. "KELT-21b: A Hot Jupiter Transiting the Rapidly Rotating Metal-poor Late-A Primary of a Likely Hierarchical Triple System," Johnson, M. C., Rodriguez, J. E., Zhou, G., et al., incl. **Villanueva, S., Jr.**, AJ, 155, 100J, 2018
10. "The Ultraviolet Spectroscopic Evolution of the Low-Luminosity Tidal Disruption Event iPTF16fnl," Brown, J. S., Kochanek, C. S., Holoiën, T. W.-S., et al., incl. **Villanueva, S., Jr.**, MNRAS, 473, 1130B, 2018

9. "Gaia17biu/SN 2017egm in NGC 3191: the closest hydrogen-poor superluminous supernova to date is in a "normal", massive, metal-rich spiral galaxy," Bose, S., Dong, S., Pastorello, A., et al., incl. **Villanueva, S., Jr.**, ApJ, 853, 57B, 2018
8. "KELT-19Ab: A $P \sim 4.6$ Day Hot Jupiter Transiting a Likely Am Star with a Distant Stellar Companion," Siverd, R. J., Collins, K. A., Zhou, G., et al., incl. **Villanueva, S., Jr.**, AJ, 155, 35S, 2018
7. "WASP-167b/KELT-13b: Joint discovery of a hot Jupiter transiting a rapidly-rotating F1V star," Temple, L. Y., Hellier, C., Albrow, M. D., et al., incl. **Villanueva, S., Jr.**, MNRAS, 471, 2743T, 2017
6. "The Carnegie Supernova Project I: Third Photometry Data Release of Low-Redshift Type Ia Supernovae and Other White Dwarf Explosions," Krisciunas, K., Contreras, C., Burns, C. R., et al., incl. **Villanueva, S., Jr.**, AJ, 154, 211K, 2017
5. "KELT-20b: A giant planet with a period of $P \sim 3.5$ days transiting the $V \sim 7.6$ early A star HD 185603," Lund, M. B., Rodriguez, J. E., Zhou, G., et al., incl. **Villanueva, S., Jr.**, AJ, 154, 194L, 2017
4. "Reverberation Mapping of Optical Emission Lines in Five Active Galaxies," Fausnaugh, M. M., Grier, C. J., Bentz, M. C., et al., incl. **Villanueva, S., Jr.**, ApJ, 840, 97F, 2017
3. "Space Telescope and Optical Reverberation Mapping Project. V. Optical Spectroscopic Campaign and Emission-line Analysis for NGC 5548," Pei, L., Fausnaugh, M. M., Barth, A. J., et al., incl. **Villanueva, S., Jr.**, ApJ, 837, 131P, 2017
2. "Characterizing Optical Turbulence at the GMT Site with MooSci and MASS-DIMM," Thomas-Osip, J. E., Prieto, G., Berdja, A., et al., incl. **Villanueva, S., Jr.**, PASP, 124, 84T, 2012
1. "The Carnegie Supernova Project: Second Photometry Data Release of Low-redshift Type Ia Supernovae," Stritzinger, M. D., Phillips, M. M., Boldt, L. N., et al., incl. **Villanueva, S., Jr.**, AJ, 142, 156S, 2011

Contributed Non-Refereed Publications

4. "VIRUS instrument collimator assembly," Marshall, J. L., DePoy, D. L., Prochaska, T., et al., incl. **Villanueva, S., Jr.**, SPIE, 9147E, 3SM, 2014
3. "DECAL: A Spectrophotometric Calibration System For DECam," Marshall, J. L., Rheault, J., P., DePoy, D. L., et al., incl. **Villanueva, S., Jr.**, Conference Proc. *Calibration and Standardization of Large Surveys and Missions in Astronomy and Astrophysics*, arXiv:1302.5720, 2013
2. "GMACS: a wide field, multi-object, moderate-resolution, optical spectrograph for the Giant Magellan Telescope," DePoy, D. L., Allen, R., Barkhouser, R., et al., incl. **Villanueva, S., Jr.**, SPIE, 8446E, 1ND, 2012
1. "Development of VIRUS alignment and assembly fixtures," Collins, A. D., Vattiat, B., Marshall, J. L., et al., incl. **Villanueva, S., Jr.**, SPIE, 7735E, 74C, 2010