

Ekta Patel, PhD

List of Publications

[see my full list of publications on ADS here]

* indicates publications where I served as the primary scientific advisor

First Author Publications: 8.....

41. **Patel, E.**, Garavito-Camargo, N., Escala, I. (2024). *The M31-M33 Interaction: Impact on M31's Center of Mass Motion and Satellite Orbits*, submitted to ApJ [preprint available on request]
40. ***Patel, E.**, Chatur, L., Mao, Y.-Y. (2024). *Temporal Evolution of the Radial Distribution of Milky Way Satellite Galaxies*, ApJ, 976, 171
39. **Patel, E.** & Mandel, K. (2023). *Evidence for a Massive Andromeda Galaxy Using HST and Gaia Satellite Galaxy Proper Motions*, ApJ, 948, 104
38. **Patel, E.**, Kallivyayalil, N., Garavito-Camargo, N., et al. (2020). *The Orbital Histories of Magellanic Satellites Using Gaia DR2 Proper Motions*, ApJ, 893, 121,
37. **Patel, E.**, Carlin, J., Tollerud, E., Collins, M., Dooley, G. (2018). *ΛCDM Predictions for the Satellite Population of M33*, MNRAS, 480, 1883-1897
36. **Patel, E.**, Besla, G., Mandel, K., Sohn, S.T. (2018). *Estimating the Mass of the Milky Way Using the Ensemble of Classical Satellite Galaxies*, ApJ, 857, 78-94
35. **Patel, E.**, Besla, G., Mandel, K. (2017). *The Orbits of Massive Satellite Galaxies - II. Bayesian Estimates of the Milky Way and Andromeda masses using high precision astrometry and cosmological simulations*, MNRAS, 468, 3428-3449
34. **Patel, E.**, Besla, G., Sohn, S.T. (2017). *The Orbits of Massive Satellite Galaxies - I. A Close Look at the Large Magellanic Cloud and a New Orbital History for M33*, MNRAS, 464, 3825-3849

Publications where I made substantial contributions: 5.....

33. Bennet, P., **Patel, E.**, Sohn, S. T., et al. (2024). *Proper Motions and Orbits of Distant Local Group Dwarf Galaxies*, ApJ, 2024, 971, 98
32. Garavito-Camargo, N., **Patel, E.**, Besla, G., et al. (2021). *The Clustering of Orbital Poles Induced by the LMC: Hints for the Origin of Planes of Satellites*, ApJ, 923, 140
31. Sohn, S.T., **Patel, E.**, Fardal, M. A., et al. (2020). *HST Proper Motions of NGC 147 and NGC 185: Orbital Histories and Tests of a Dynamically Coherent Andromeda Satellite Plane*, ApJ, 901, 43
30. van der Marel, R. P., Fardal, M., Sohn, S.T., **Patel, E.**, et al. (2019). *First Gaia Dynamics of the Andromeda System: DR2 Proper Motions, Orbits, and Rotation of M31 and M33*, ApJ, 872, 24
29. Sohn, S.T., **Patel, E.**, et al. (2017). *Space Motions of the Dwarf Spheroidal Galaxies Draco and Sculptor Based on HST Proper Motions with ~ 10 Year Base-Line*, ApJ, 849, 93

Publications led by students: 14 including 7 where I made substantial contributions.....

28. Sageser, E., Mao, Y.-Y., **Patel, E.** (2024) *The Impact of Halo Radius Definition on Subhalo Occupation Variation*, submitted to Open Journal of Astrophysics, arXiv:2412.07052

27. * Chamberlain, K., **Patel, E.**, Besla, G., et al. (2024). *A Physically Motivated Framework to Compare the Merger Timescales of Isolated Low- and High-Mass Galaxy Pairs Across Cosmic Time*, ApJ, 975, 104
26. Foote, H.R., Besla, G., Garavito-Camargo, N., **Patel, E.**, et al. (2024). *Segue 2 Recently Collided with the Cetus-Palca Stream: New Opportunities to Constrain Dark Matter in an Ultra-Faint Dwarf*, accepted to ApJ, arXiv:2408.06415
25. Liu, Q., Abraham, R., Martin, P. G., and 12 others including **Patel, E.** (2024). *Fuzzy Galaxies or Cirrus? Decomposition of Galactic Cirrus in Deep Wide-Field Images*, accepted to ApJ, arXiv:2412.00933
24. Richstein, H., Kallivayalil, N. K., Simon, J. D. and 16 others including **Patel, E.** (2024). *Deep Hubble Space Telescope Photometry of LMC and Milky Way Ultra Faint Dwarfs: A careful look into the magnitude-size relation*, ApJ, 967, 72
23. Hayati, E., Behroozi, P., **Patel, E.** (2024). *Machine Learning the Dark Matter Halo Mass of Milky Way-Like Systems*, Open Journal of Astrophysics, 7, 26
22. Chamberlain, K., Besla, G., **Patel, E.**, et al. (2024). *A physically motivated framework for measuring the mass and redshift dependence of galaxy pair fractions across cosmic time*, ApJ, 962, 162
21. Santistevan, I., Wetzel, A., Tollerud, E. and 3 others including **Patel, E.** (2024). *Modeling the orbital histories of satellites of Milky Way-mass galaxies: testing static host potentials against cosmological simulations*, MNRAS, 527, 8841
20. Setton, D., Besla, G., **Patel, E.**, et al. (2023). *The Large Magellanic Cloud's ~ 30 Kiloparsec Bow Shock and its Impact on the Circumgalactic Medium*, ApJ, 959, L11
19. Fu, S.W., Weisz, D.R., Starkenburg, E. and 10 others including **Patel, E.** (2023). *Metallicity Distribution Functions of 13 Ultra-Faint Dwarf Galaxy Candidates from Hubble Space Telescope Narrowband Imaging*, ApJ, 958, 167
18. Richstein, H., **Patel, E.**, et al. (2022). *Structural parameters and possible association of the UFDs Pegasus III and Pisces II*, ApJ, 933, 217
17. Quirk, A., Guhathakurta, P., Gilbert, K., Chemin, L., Dalcanton, J. and 8 others including **Patel, E.** (2022). *The Triangulum Extended (TREX) Survey: The Stellar Disk Dynamics of M33 as a Function of Stellar Age*, AJ, 163, 166
16. Fu, S.W., Weisz, D.R., Starkenburg, E. and 9 others including **Patel, E.** (2022). *Metallicity Distribution Function of the Eridanus II Ultra-Faint Dwarf Galaxy from Hubble Space Telescope Narrow-band Imaging*, ApJ, 925, 6
15. * Quirk, A. & **Patel, E.** (2020). *Asymmetric Drift of Andromeda Analogs in the Illustris Simulations*, MNRAS, 497, 2870-2882

Publications where I contributed data and/or substantial comments: 9.....

14. Jiménez-Arranz, O., Horta, D., van der Marel, R.P. and 4 others including **Patel, E.**, (2025). *Vertical structure and kinematics of the LMC disc from SDSS/Gaia*, submitted to A&A
13. Savino, A., Weisz, D. R., Dolphin, A. and 35 others including **Patel, E.** (2025). *The Hubble Space Telescope Survey of M31 Satellite Galaxies IV. Survey Overview and Lifetime Star Formation Histories*, accepted to ApJ
12. Chen, Z., Williams, B., Lang, D. and 25 others including **Patel, E.** (2025). *The Panchromatic Hubble Andromeda Southern Treasury (PHAST). I. Ultraviolet and Optical Photometry of 96 Million stars in M31*, ApJ, 979, 35

11. Garavito-Camargo, N., Price-Whelan, A., Samuel, J., and 8 others including **Patel, E.** (2024). *On the Corotation of Milky Way Satellites: LMC-mass Satellites Induce Apparent Motions in Outer Halo Tracers*, ApJ, 975, 100
10. Savino, A., Weisz, D. R., Skillman, E. and 34 others including **Patel, E.** (2023). *The Hubble Space Telescope Survey of M31 Satellite Galaxies II. The Star Formation Histories of Ultra-Faint Dwarf Galaxies*, ApJ 956, 86
9. Dey, A., Najita, J. R., Koposov, S. E. and 45 others including **Patel, E.** (2023). *DESI Observations of the Andromeda Galaxy: Revealing the Immigration History of our Nearest Neighbor*, ApJ, 944, 1
8. Savino, A., Weisz, D. R., Skillman, E. and 33 others including **Patel, E.** (2022). *The Hubble Space Telescope Survey of M31 Satellite Galaxies I. RR Lyrae-based Distances and Refined 3D Geometric Structure*, ApJ, 938, 101
7. Sacchi, E., Richstein, H., Kallivayalil, N. and 18 others including **Patel, E.** (2021). *Star Formation Histories of Ultra-faint Dwarf Galaxies: Environmental Differences between Magellanic and Non-Magellanic Satellites?*, ApJL, 920, L19
6. Besla, G., Patton, D., Stierwalt, S., Rodriguez-Gomez, V. and 7 others including **Patel, E.** (2018). *The Frequency of Dwarf Galaxy Multiples at Low Redshift in SDSS vs. Cosmological Expectations*, MNRAS, 480, 3376-3396

[White Papers and Proceedings](#).....

5. Sohn, S. T., Fardal, M., **Patel, E.**, et al. (2023) *Proper Motions of M31 Satellite Galaxies*, Dynamical Masses of Local Group Galaxies: IAU Symposium 379
4. Dey, A., Najita, J., Filion, C. and 50 others including **Patel, E.** (2023). *RomAndromeda: The Roman Survey of the Andromeda Halo*, arXiv:2306.12302
3. Valluri, M., Chabanier, S., Iršič, V. and 29 others including **Patel, E.** (2022). *Snowmass2021 Cosmic Frontier White Paper: Prospects for obtaining Dark Matter Constraints with DESI*, arXiv:2203.07491
2. Roman Rubin Synergy Working Group including **Patel, E.** (2022). *R2–D2: Roman and Rubin – from Data to Discovery*, arXiv:2202.12311
1. Gilbert, K., Tollerud, E. J., Anderson, J. and 34 others including **Patel, E.** (2019). *Construction of an L_* —Galaxy: the Transformative Power of Wide Fields for Revealing the Past, Present and Future of the Great Andromeda System*, Astro2020: Decadal Survey on Astronomy and Astrophysics, Bulletin of the American Astronomical Society, Vol. 51, Issue 3, id. 540