

ANDREW B. NEWMAN

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RESEARCH INTERESTS

Galaxy formation and evolution
Stellar structure, populations, and dynamics
Dark matter in galaxies and clusters
Gravitational lensing
The stellar initial mass function in unresolved galaxies

APPOINTMENTS

Carnegie Institution for Science, Observatories

Staff astronomer, Aug. 2015-present

Carnegie-Princeton Post-Doctoral Fellow

Carnegie Observatories and Princeton University, Aug. 2013-July 2015

EDUCATION

California Institute of Technology, 2007–2013, Advisor: Richard S. Ellis

Ph.D., Astrophysics, June 2013

Dissertation: *Dark Matter and the Assembly History of Massive Galaxies and Clusters*

M.S., Astrophysics, June 2009

Washington University in St. Louis, 2003–2007

A.B., Physics and Mathematics, May 2007, *summa cum laude*

TEACHING, SERVICE, AND OUTREACH

Graduate teaching assistant (Caltech, 2008-2009)

Astronomy Outreach Team (Caltech, 2011-2012)

Moderator for astro-ph morning discussions (Caltech)

Visiting program for talented high school students (Carnegie, 2014-2015)

Public presentation “Using Nature’s Telescopes to Explore Dark Matter and the Early Universe”
(Carnegie, Oct. 2014)

Referee for ApJ, ApJ Letters, A&A, and MNRAS

OBSERVING PROPOSALS AND GRANTS

Co-Investigator

Keck Observatory, Keck I & II telescopes, 54 nights (LRIS, NIRC2, ESI, DEIMOS, MOSFIRE)
Palomar Observatory, Hale 200" telescope, 23 nights (DBSP, CWI, WIRC)

Principal Investigator

Hubble Space Telescope GO-12927 (Cycle 20, 16 orbits, WFC3/IR imaging and grisms, \$66,642)

Hubble Space Telescope GO-14205 (Cycle 23, 4 orbits, WFC3/IR and ACS imaging, \$37,766)

Magellan Observatory, 22 nights (FIRE, FourStar, IMACS, LDSS-3)

Apache Point Observatory 3.5m, 6 half-nights (SPICAM)

CONFERENCE PRESENTATIONS, SEMINARS, AND COLLOQUIA

34. Yale, Nov. 2015 3D-HST galaxy formation meeting (invited talk)
33. UCLA, May 2015 Colloquium
32. Snowbird, Mar. 2015 SnowCluster conference (invited talk)
31. Carnegie, Mar. 2015 Colloquium
30. UCSB, Feb. 2015 Colloquium and astronomy seminar
29. Sydney, Feb. 2015 "The Most Massive Galaxies and Their Precursors" conference (contributed talk)
28. IPMU Tokyo, Feb. 2015 "Getting a Grip on Galactic Girths" workshop (invited review talk)
27. KICP Chicago, Jan. 2015 Cosmology seminar (invited talk)
26. Carnegie, Nov. 2014 Carnegie Science Day
25. Zion National Park, Sept. 2014 "The Life and Times of Galaxies: A Celebration of Alan Dressler's Career" conference (invited talk)
24. Paris, June 2014 "Future Directions in Galaxy Cluster Surveys" conference (contributed talk)
23. Aspen, Feb. 2014 "Unveiling the Formation of Massive Galaxies" conference (contributed talk)
22. Carnegie, Oct. 2013 Carnegie Science Day
21. Caltech, Sept. 2013 Panel discussion at "Dark Matter in Southern California II"
20. Monterey, July 2013 AAS "Probes of Dark Matter on Galaxy Scales" workshop (contributed talk)
19. STScI, Apr. 2013 "Cluster lensing: Peering into the past, Planning for the future" workshop (invited talk)
18. Madonna di Campiglio, Mar. 2013 "The mass profiles of galaxy clusters from the core to the outskirts" conference (invited talk)
17. Long Beach, Jan. 2013 AAS meeting #221, dissertation talk (contributed)
16. Leiden, Nov. 2012 "Is the stellar initial mass function universal?" workshop (invited talk)

15. UC Berkeley/LBNL, Sept. 2012 Cosmology seminar (invited talk)
14. Carnegie, Nov. 2012 Lunch talk series (seminar)
13. Harvard CfA, Oct. 2012 Institute for Theory and Computation seminar
12. UC Irvine, Sept. 2012 Astrophysics seminar
11. Leiden, July 2012 “Galaxy formation: Insight out” workshop (invited talk)
10. UC Riverside, Apr. 2012 Astronomy seminar
9. Caltech, Sept. 2011 Keck Science Meeting (contributed talk)
8. Durham, July 2011 “Galaxy Formation” conference (poster)
7. Yale, Apr. 2011 Galaxy lunch talk (seminar)
6. UC Irvine, Mar. 2011 Center for Galaxy Evolution workshop (poster)
5. Kochi, Japan, Sept. 2010 RESCUE/DENET summer school (contributed talk)
4. Garching, July 2010 “Galaxy clusters: observations, physics, and cosmology” conference (contributed talk)
3. UC Berkeley, Sept. 2010 Keck Science Meeting (poster)
2. Caltech, Sept. 2009 Keck Science Meeting (poster)
1. Malta, Oct. 2009 “Hunting for the Dark: The Hidden Side of Galaxy Formation” conference (poster prize)

PUBLICATIONS

First Author

10. Newman, A. B., Ellis, R. S., and Treu, T., “Luminous and Dark Matter Profiles from Galaxies to Clusters: Bridging the Gap with Group-scale Lenses,” *ApJ* 814, 26 (2015)
9. Newman, A. B., Belli, S., and Ellis, R. S., “Discovery of a Strongly Lensed Massive Quiescent Galaxy at $z=2.636$: Spatially Resolved Spectroscopy and Indications of Rotation,” *ApJL* 813, 7 (2015)
8. Newman, A. B., Ellis, R. S., Andreon, S., Treu, T., Raichoor, A., and Trinchieri, G., “Spectroscopic Confirmation of the Rich $z=1.80$ Galaxy Cluster JKCS 041 Using the WFC3 Grism: Environmental Trends in the Ages and Structure of Quiescent Galaxies,” *ApJ* 788, 51 (2014)
7. Newman, A. B., Treu, T., Ellis, R. S., Sand, D. J., Nipoti, C., Richard, J., and Jullo, E., “The Density Profiles of Massive, Relaxed Galaxy Clusters: I. The Total Density Over 3 Decades in Radius,” *ApJ* 765, 24 (2013)
6. Newman, A. B., Treu, T., Ellis, R. S., and Sand, D. J., “The Density Profiles of Massive, Relaxed Galaxy Clusters: II. Separating Luminous and Dark Matter in Cluster Cores,” *ApJ* 765, 25 (2013)
5. Newman, A. B., Ellis, R. S., Bundy, K., and Treu, T., “Can Minor Merging Account for the Size Growth of Quiescent Galaxies? New Results from the CANDELS Survey,” *ApJ* 746, 126 (2012)

4. Newman, A. B., Treu, T., Ellis, R. S., and Sand, D. J., “The Dark Matter Distribution in A383: Evidence for a Shallow Density Cusp from Improved Lensing, Stellar Kinematic, and X-ray Data,” *ApJL* 728, 39 (2011)
3. Newman, A. B., Ellis, R. S., Treu, T., and Bundy, K., “Keck Spectroscopy of $z > 1$ Field Spheroidals: Dynamical Constraints on the Growth Rate of Red ‘Nuggets,’” *ApJL* 717, 103 (2011)
2. Newman, A. B., Treu, T., Ellis, R. S., Sand, D. J., Richard, J., Marshall, P., Capak, P. J., Miyazaki, S., “The Distribution of Dark Matter Over Three Decades in Radius in the Lensing Cluster Abell 611,” *ApJ* 706, 1078 (2009)
1. Newman, A. B. and Rest, A., “A Method for Extracting Light Echo Fluxes Using the NN2 Difference Imaging Technique,” *PASP* 118, 1484 (2006)

Contributing author

10. Belli, S., **Newman A. B.**, and Ellis, R. S., “Stellar populations from spectroscopy of a large sample of quiescent galaxies at $z > 1$: Measuring the contribution of progenitor bias to early size growth,” *ApJ* 799, 206 (2015)
9. Delaye, L., et al., including **ABN**, “Larger sizes of massive quiescent early-type galaxies in clusters than in the field at $0.8 < z < 1.5$,” *MNRAS* 441, 203 (2014)
8. Belli, S., **Newman, A. B.**, Ellis, R. S., and Konidaris, N. P., “MOSFIRE Absorption Line Spectroscopy of $z > 2$ Quiescent Galaxies: Probing a Period of Rapid Size Growth,” *ApJL* 788, 29 (2014)
7. Andreon, S., **Newman, A. B.**, Trinchieri, G., Raichoor, A., Ellis, R. S., Treu, T., “JKCS 041: A Coma Progenitor at $z=1.803$,” *A&A* 565, 120 (2014)
6. Belli, S., **Newman, A. B.**, and Ellis, R. S., “Velocity Dispersions and Dynamical Masses for a Large Sample of Quiescent Galaxies at $z > 1$: Improved Measures of the Growth in Mass and Size,” *ApJ* 783, 117 (2014)
5. Miller, S. H., Ellis, R. S., **Newman, A. B.**, and Benson, A., “The Dwarfs Beyond: The Stellar-to-halo Mass Relation for a New Sample of Intermediate Redshift Low-mass Galaxies,” *ApJ* 782, 115 (2014)
4. Lemze, D., et al., including **ABN**, “The Contribution of Halos with Different Mass Ratios to the Overall Growth of Cluster-sized Halos,” *ApJ* 776, 91 (2013)
3. Miller, S. H., Ellis, R. S., Sullivan, M., Bundy, K., **Newman, A. B.**, and Treu, T., “The Assembly History of Disk Galaxies. II. Probing the Emerging Tully-Fisher Relation during $1 < z < 1.7$,” *ApJ* 753, 74 (2012)
2. Nipoti., C., Treu, T., Leauthaud, A., Bundy, K., **Newman, A. B.**, and Auger, M., “Size and velocity dispersion evolution of early-type galaxies in a Λ cold dark matter universe,” *MNRAS* 422, 1714 (2012)
1. Rest, A., et al., including **ABN**, “Spectral Identification of an Ancient Supernova Using Light Echoes in the Large Magellanic Cloud,” *ApJ* 680, 1137 (2008)

REFERENCES

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