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Publications in Refereed Journals

1. Colley, W.N. & Gott, J.R., 2015, "Genus Topology and Cross-Correlation of BICEP2 and Planck 353 GHz B-Modes: Further Evidence Favoring Gravity Wave Detection," *Monthly Notices of the Royal Astronomical Society*, **447**: 2034-2045
2. Burns, L., Mok, W.Y. & Colley, W.N., 2014, "Introducing Concurrency to Workflows: Theory and A Real-World Case Study", *International Journal of Advanced Computer Science and Applications (IJACSA)*, Special Issue on Extended Papers from Science and Information Conference 2014, pp. 52–64
3. Colley, W.N., Morgan, J.D., 2013, "Predictive Demographic Analysis of Water Heater Demand in Support of the Smart Water Heater Project," *Electric Power Systems Research* (submitted)
4. Reed, G.S., Colley, W. N., Aviles, S. M., 2013, "Analyzing behavior signatures for terrorist attack forecasting," *Journal of Defense Modeling and Simulation*, **10** (2): 203–213
5. Colley, W.N., 2010, "Modeling Continuous Systems," in *Modeling and Simulation Fundamentals: Theoretical Underpinnings and Practical Domains* (ed. J. A. Sokolowski and C. M. Banks), Wiley & Sons, New York, pp. 99–130
6. Gott, J.R., Colley, W.N., 2008, "Median Statistics in Polling," *Mathematical and Computer Modeling*, **48**: 1396–1408
7. Gott, J.R., Mugnolo, C., Colley W.N., 2007, "Map Projections Minimizing Distance Errors," *Cartographica*, **43**: 219–234
8. Gott, J.R., Colley, W.N., Park, C-G, Park, C., Mugnolo, C., 2007, "Genus Topology of the Cosmic Microwave Background from the WMAP 3-Year Data," *Monthly Notices of the Royal Astronomical Society*, **377**: 1668–1678
9. Neal, K.D., Colley, W.N., Petty, M., 2005, "An Application and Evaluation of a Methodology for Testing Operational Level Training Simulations", Proceedings of the Fall 2005 Simulation Interoperability Workshop, Orlando FL, September 18–23 2005, pp. 271–279
10. Colley, W.N., 2004, "Comments on College Football Computer Rankings," *American Statistician*, **58**: #3, 191–192
11. Colley, W.N. & Schild, R.E., 2003, "A Rapid Microlensing Event in the Q0957+561 A, B Gravitational Lens System," *Astrophysical Journal*, **594**: 97–100
12. Colley, W.N. & Gott, J.R., 2003, "Genus Topology of the Cosmic Microwave Background from WMAP," *Monthly Notices of the Royal Astronomical Society*, **384**: 686–695
13. Colley, W.N., Shapiro, I.I, Pegg, J., Turner, E.L, Kundic, T., Loomis, K., Hastings, N. C. & McMillan, R., 2003, "Rapid Brightness Fluctuations in Q0957+561A, B: Microlensing or Seeing?," *Astrophysical Journal*, **588**: 711–715

14. Colley, W.N., Schild, R.E., Abajas, C., Alcalde, D., Aslan, Z., Bikmaev, I., Chavushyan, V., Chinarro, L., Cournoyer, J., Crowe, R., Dudinov, V., Kathinka, A., Evans, D., Jeon, Y., Goicoechea, L.J., Golbasi, O., Khamitov, I., Kjernsmo, K., Lee, H.J., Lee, J., Lee, K.W., Lee, M.G., Lopez-Cruz, O., Mediavilla, E., Moffatt, A.F.J., Mujica, R., Ullan, A.M., Oscoz, A., Park, M., Purves, M., Sakhbullin, N., Sinelnikov, I., Stabell, R., Stockton, A., Teuber, J., Thompson, R., Woo, H. & Zheleznyak, A., 2003, "Around the Clock Observations of the Q0957+561 A, B Gravitationally Lensed Quasar II: Results for the second observing season," *Astrophysical Journal*, **587**: 71–79
15. Schmidt, R.W., Kundic, T., Pen, U., Turner, E.L. Wambsganss, J., Bergeron, E., Colley, W.N., Corson, C., Hastings, N.C., Hoyes, T., Long, D.C., Loomis, A., Malhotra, S., Rhoads, J.E., & Stanek, K.Z., 2002, "Optical Monitoring of the Gravitationally Lensed Quasar Q22367+0305 from APO between June 1995 and January 1998," *Astronomy and Astrophysics*, **392**: 773–779
16. Colley, W. N., Schild, R. E., et al., 2001, "Round the Clock Observations of the Q0957+561 A, B Gravitationally Lensed Quasar," *Astrophysical Journal*, **565**: 105–107
17. Wambsganss, J.W., Schmidt, R.W., Colley, W.N., Kundic, T. & Turner, E.L., 2000, "Microlensing Results from APO Monitoring of Quasar Q0957+561A, B between 1995 and 1998," *Astronomy and Astrophysics*, **362**: L37–L40
18. Colley, W.N. & Schild, R.E., 2000, "Hourly Variability in Q0957+561," *Astrophysical Journal*, **540**: 104–112
19. Colley, W.N., Gott, J.R., Weinberg, D., Park, C. & Berlind, A., 1999, "Genus Topology from the Simulated Sloan Digital Sky Survey," *Astrophysical Journal*, **529**: 795–801
20. Colley, W. N. & Schild, R. E., 1999, "Precision Photometry of Q0957+561," *Astrophysical Journal*, **518**: 153–164
21. Park, C., Colley, W.N., Gott, J.R., Ratra, B., Spergel, D.N. & Sugiyama, N., 1998, "Topology and Correlation Function in Simulated CMB Anisotropies from MAP for CDM Cosmogonies," *Astrophysical Journal*, **506**: 473–484
22. Colley, W. N., 1997, "Two Dimensional Topology of Large Scale Structure in the Las Campanas Redshift Survey," *Astrophysical Journal*, **489**: 471–475
23. Colley, W. N., Gnedin, O. Y., Ostriker, J. P. & Rhoads, J. E., 1997, "Dynamics of 'Small Galaxies' in the Hubble Deep Field," *Astrophysical Journal*, **488**: 579–584
24. Kundic, T., Colley, W. N., Gott, J. R., Malhotra, S., Pen, U., Rhoads, J. E., Stanek, K. Z., Turner, E. L., Wambsganss, J., Bergeron, E., Gloria, K. & Long, D., 1997, "A Robust Determination of the Time Delay in 0957+561A, B and a Measurement of the Global Value of Hubble's Constant," *Astrophysical Journal*, **482**: 75–82
25. Colley, W. N., Rhoads, J. E., Spergel, D. N. & Ostriker, J. P., 1996, "Are the Hubble Deep Field Galaxy Counts Whole Numbers?," *Astrophysical Journal Letters*, **473**: 63–66
26. Colley, W. N., Gott, J. R. & Park, C. B., 1996, "Topology of COBE Microwave Background Fluctuations," *Monthly Notices of the Royal Astronomical Society*, **281**: L82–L84
27. Colley, W. N. & Sparke, L. S., 1996, "Evolution of Viscous Inclined Disks in Axisymmetric and Triaxial Galaxies," *Astrophysical Journal*, **471**: 748–761
28. Colley, W. N., Tyson, J. A. & Turner, E. L., 1996, "Unlensing Multiple Arcs in 0024+16: Reconstruction of the Source Image," *Astrophysical Journal Letters*, **461**: L83–L86
29. Kundic, T., Colley, W. N., Gott, J. R., Malhotra, S., Pen, U., Rhoads, J. E., Stanek, K. Z., Turner, E. L. & Wambsganss, J., 1995, "An Event in the Light Curve of 0957+561A and Prediction of the 1996 Image B Light Curve," *Astrophysical Journal Letters*, **455**: L5–L8

30. Colley, W. N. & Gott, J. R., 1995, "Naked Eye Observable Microlensing Events," *Astrophysical Journal*, **452**: 82–87
31. O'Connell, R. W., Gallagher, J. S., Hunter, D. A. & Colley, W. N., 1995, "Hubble Space Telescope Imaging of Super Star Clusters in M82," *Astrophysical Journal Letters*, **446**: L1–L4
32. Colley, W. N., 1995, "Observational Prospects for Extragalactic Microlensing Events," *Astronomical Journal*, **109**: 440–444

Presentations—Professional

1. Colley, W.N., "A New Probabilistic Method for Ranking College Football Teams," Missile Defense Agency Cost Estimation Workshop (an ICEAA workshop), Huntsville, AL, January 2015
2. Colley, W.N. & Gott, J.R., "Genus Topology and Cross-Correlation of BICEP2 and Planck 353 GHz B-Modes: Further Evidence Favoring Gravity Wave Detection," Department of Physics, University of Alabama in Huntsville, Huntsville, AL, November 2014
3. Colley, W. N. & Burns, L. M., "Data Driven Demand Management on the Smart Grid," AlaSim International, Huntsville, AL, May 2012
4. Colley, W. N., "Topology of Large-Scale Structure from WMAP," International Space Development Conference, Huntsville, AL, May 2011
5. Colley, W. N., "The Colley Matrix Ranking System," University of Alabama in Huntsville Department of Mathematics, April 2011.
6. Reed, G.S., & Colley, W. N., "Predictive Bayesian Analysis of Terror Attacks," Huntsville Simulation Conference, Huntsville, AL, October 2010
7. Colley, W. N., & Harris, G. A., "Scenario Planning and Analysis on Multimodal Transportation Chains," Huntsville Simulation Conference, Huntsville, AL, October 2010
8. Colley, W. N., "The Colley Matrix Ranking System," University of Alabama in Huntsville Department of Physics, January 2009.
9. Colley, W. N., "Physics-Based Modeling, Principles, Methods and Examples (reprise)" (tutorial), Interservice/Industry Training, Simulation and Education Conference (I/ITSEC), December 2008
10. Killingsworth, W. A., Colley, W. N., Chavez, R. K., & Martin, N. T., "A Push-Pull Inventory Optimization Strategy for Multi-Tier, Multi-Channel Supply Chains," Huntsville Simulation Conference, Huntsville, AL, October 2008
11. Colley, W. N., Roberts, J., & Walsh, J., "Validation of Netcentric Warfare Simulations," Test Week, Huntsville, AL, June 2008
12. Tournes, C., Colley, W. N. & Umansky, M., "C2PAT, a Closed-Form Command and Control Modeling and Simulation System," Proceedings of the 2007 Huntsville Simulation Conference, Huntsville AL, October 30 - November 1 2007.
13. Colley, W. N., "Automatic and Real-Time Visualization of NASA Constellation Vehicle Simulations," Simulation Interoperability Workshop, September 2007
14. Colley, W. N., "Gravitational Lenses a Cosmological Probes," University of Alabama Department of Physics Colloquium, September 2007

15. Colley, W. N., "Physics-Based Modeling, Principles, Methods and Examples" (tutorial), Interservice/Industry Training, Simulation and Education Conference (I/ITSEC), Decemeber 2006
16. Colley, W. N., "Low Demand Inventory Stocking Strategies for Army Aviation," Huntsville Simulation Conference, October 2006
17. Colley, W. N., "Assessment of Opportunities for Enhancement in NASA SE&I with M&S", Huntsville Simulation Conference, October 2006
18. Colley, W. N., Neal, K.D., Colley, W.N., Petty, M., "An Application and Evaluation of a Methodology for Testing Operational Level Training Simulations", Proceedings of the Fall 2005 Simulation Interoperability Workshop, Orlando FL, September 18–23 2005, pp. 271–279
19. Colley, W. N., "Gravitational Lensing in Cosmology," National Space Science and Technology Center, August 2005
20. Colley, W. N., "The Colley Matrix System for Ranking College Football," Society for Industrial and Applied Mathematics Conference on Applications of Applied Dynamical Systems, Snowbird, UT, May 2005.
21. Colley, W. N., "Cosmology with Gravitational Lenses," Old Dominion University Physics Department, February 2005
22. Colley, W. N., "Modeling and Simulating Gravitational Lenses," VMASC, February 2004
23. Colley, W. N., "Techniques for Target Association in the SBIRS Context," Space Control Group, M.I.T. Lincoln Laboratory, December 2001
24. Colley, W. N., "Gravitational Lensing with Hubble Space Telescope," M.I.T. Lincoln Laboratory, October 2000
25. Colley, W. N., "Preliminary Results from QuOC Around the Clock," Optical and Infrared Division, Harvard-Smithsonian Center for Astrophysics, May 2000
26. Colley, W. N., "Gravitational Lenses for Cosmology Statistics," Agnes Scott College, February 2000
27. Colley, W. N., "Hourly Brightness Fluctuations in Q0957+561," *Gravitational Lensing: Recent Progress and Future Goals*, Boston University, July 1999
28. Colley, W. N., "New Methods in Photometry for Q0957+561," Optical and Infrared Division, Harvard-Smithsonian Center for Astrophysics, September 1998
29. Colley, W. N., "Dynamics of Small Galaxies in the Hubble Deep Field," Theory Division, Harvard-Smithsonian Center for Astrophysics, November 1997
30. Colley, W. N., "Statistics from New Datasets in Cosmology," Department of Astrophysical Sciences, Princeton University, May 1997
31. Colley, W. N., "Cosmological Parameters from Gravitational Lenses," Goddard Space Flight Center, February 1997
32. Colley, W. N., "Possible Dynamical Scenarios of Faint Objects in the Hubble Deep Field (01D)," *Bulletin of the American Astronomical Society*, AAS 189th Meeting, January 1997

Presentations—Popular

1. “Is There *Really* Dark Matter?” Von Braun Astronomical Society, Huntsville, AL, July 2014
2. “The Interstellar Medium” HAL5, Huntsville, AL, June 2013
3. “The Interstellar Medium” Von Braun Astronomical Society, Huntsville, AL, March 2013
4. “Clusters of Galaxies, Fun While They Last” Von Braun Astronomical Society, Huntsville, AL, July 2012
5. “Demystifying Precision Cosmology,” Von Braun Astronomical Society, Huntsville, AL, January 2011
6. “The Colley Matrix Ranking System,” Huntsville Quarterbacks Club, Huntsville, AL, October 2010
7. “The Colley Matrix Ranking System,” Huntsville Rotary Club, Huntsville, AL, January 2010
8. “Quasars” Von Braun Astronomical Society, Huntsville, AL, March 2010
9. “Galaxies and Their Evolution,” Von Braun Astronomical Society, Huntsville, AL, January 2008
10. “Gravitational Lenses and Cosmology,” Von Braun Astronomical Society, Huntsville, AL, January 2008
11. “The Colley Matrix Ranking System,” Huntsville Rotary Club, Huntsville, AL, November 2007
12. “The Colley Matrix Ranking System,” Decatur Kiwanis Club, Decatur, AL, December 2007
13. “Sizing Up the Universe with Gravitational Lenses,” Bridgewater College Lambda Society, Bridgewater, VA, March 2003
14. “Gravitational Lenses as Cosmological Laboratories,” Christa McAulliffe Planetarium, Concord, NH, February 1999
15. “Cosmology from Gravitational Lenses,” Hayden Planetarium, New York, NY, November, 1997
16. “Strong Gravitational Lensing,” Union County Amateur Astronomers, NJ, October, 1996