

Robert A. Knop Jr.
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Work Experience

- 2009 **MODEST**, Sep. 2009–Present. Contracting consultant, working for Piet Hut (IAS). Worked on coordinating virtual scientific workshops, archiving research and educational materials on the web, and developing astronomical N-body modelling and visualization software in association with virtual worlds.
- 2007–2009 **Linden Lab**. Production Operation Engineer (Aug. 2007–Sep. 2008), Server Release Manager (Oct. 2008–May 2009). Worked with the systems infrastructure team to maintain the production environment of the online virtual world Second Life, which runs on a cluster of 6,000 Linux Servers. Managed deployment of new software versions. Coordinated developers and QA engineers to integrate new features and patches into software. Communicated internally and externally about the state of server software and server deploys. Developed and maintained server and release management code.
- 2001–2007 **Assistant Professor of Physics & Astronomy, Vanderbilt University**. Teaching undergraduate and graduate astronomy and astrophysics courses including introductory astronomy, galactic astrophysics, general relativity, and graduate nebular astrophysics. Performing research on starburst, active, and interacting galaxies; on Type-Ia supernova progenitors; and on supernova cosmology (in collaboration with the Supernova Cosmology Project).
- 1996–2001 **Postdoctoral Fellow with the Supernova Cosmology Project** at the Lawrence Berkeley National Laboratory. Led the software and data analysis effort for four years of successful supernova searches. Led analysis of photometric followup data, producing lightcurves for supernovae that allowed measurements of the cosmological parameters Ω and Λ and the discovery of the universe's acceleration. Performed photometric and spectroscopic observations at world-class telescopes. Supervised graduate and undergraduate students. Developed software and maintained computers for scientific use.

Education

- 1997 **Ph.D., Physics, California Institute of Technology.**
Thesis Title: “Spatially Resolved Infrared Spectroscopy of Seyfert Galaxies”
Advisor: B. T. Soifer
- 1992 **M.S., Physics, California Institute of Technology.**
- 1990 **B.S., Physics, Harvey Mudd College.**

Additional Skills and Experience

- **Computer Programming:** Proficient in C, C++, Perl, Python, SQL. Familiar with Java, C#, PHP, FORTRAN, IDL, and other languages.
- **Computer Administration:** Experience administering very large clusters of Linux machines. Proficient with Unix (primarily Linux). Familiar with Windows, MacOS. Experience creating and maintaining static and dynamic pages on for the World Wide Web. Experience with PostgreSQL, MySQL, Apache, and other standard systems.
- **Music:** Violinist since the age of five, violist since 1995. Currently playing with the Nashville Philharmonic Orchestra, a community orchestra.
- **Theatre:** Accomplished amateur actor. Numerous roles acting in, directing, stage managing, and producing community theater productions, both in the real world and in the virtual world Second Life.

Honors and Awards

- 2007 Co-recipient, the Gruber Prize in Cosmology
- 2004 Chancellor’s Award for Research, Vanderbilt University
- 1991-1994 Kodak Fellow, Caltech.
- 1990 Graduated with Honors in Physics and in Humanities/Social Sciences, Harvey Mudd College.
- 1990 Radley Prize in Humanities and Social Sciences, Harvey Mudd College.
- 1987 Platt Prize for outstanding Freshman, Harvey Mudd College.

References

- Piet Hut, Professor of Interdisciplinary Studies, Institute for Advanced Study
- George Djgorovski, Professor of Astronomy, California Institute of Technology
- David Weintraub, Professor of Physics & Astronomy, Vanderbilt University
- Paul Sheldon, Professor of Physics, Vanderbilt University
- Bob Scherrer, Chair, Department of Physics and Astronomy, Vanderbilt University
- Saul Perlmutter, Professor, University of Berkeley and the Lawrence Berkeley National Lab
- C. Richard Chappell, Director, Dyer Observatory, Vanderbilt University
- Robert Stokstad, (retired) Lawrence Berkeley National Lab
- Josh Bell, Linden Lab

Students Advised

- Cameron Pittman, Undergraduate Honors Thesis, Vanderbilt University, 2009
- Anders Jensen, Undergraduate Honors Thesis, Vanderbilt University, 2008 (High Honors)
- Katie Chynoweth, Graduate Student, Vanderbilt University, 2005-2007
- Andrew Collazzi, Undergraduate Honors Thesis, Vanderbilt University, 2006
- Eric Smith, MS, Physics, Vanderbilt University, 2005
- Naved Mahmud, Undergraduate Honors Thesis, Vanderbilt University, 2005 (High Honors)
- Jonathan Stricker, Undergraduate Honors Thesis, Vanderbilt University, 2005 (High Honors)
- James Schlaerth, Undergraduate Honors Thesis, Vanderbilt University, 2004 (High Honors)
- René Ortmann, MS, Physics, Vanderbilt University, 2003
- Jessica Hodges, Undergraduate Research, Vanderbilt University, 2002
- K. Sterling Garmond, Summer Undergraduate Research, LBNL, 2000

Professional Activities and Society Memberships

2008–present	The Meta-Institute of Computational Astronomy (www.mica-vw.org)
2007	Member, AAS Small Research Grants Panel (January)
2006–2007	AAS Shapley Lecturer
2005–2007	Member, Extragalactic Time Allocation Committee, NOAO
2004–2005	Referee for <i>The Astrophysical Journal</i>
1999	Referee for <i>The Astronomical Journal</i>
1990–Present	Member, The American Physical Society
1992–Present	Member, The American Astronomical Society
2002–Present	Member, The Astronomical Society of the Pacific

Invited Talks, Seminars, and Colloquia

- “Dark Energy and the Accelerating Universe.” Belmont University, October, 2009.
- “Dark Energy: The Big Question in Modern Cosmology.” Colgate University physics colloquium, November, 2008.
- “The Discovery of the Accelerating Universe.” Keynote talk at the North Carolina section meeting of the American Association of Physics Teachers, October, 2007.
- “High-Velocity & Relativistic Gas Near Supermassive Black Holes at the Cores of Galaxies”:
 - East Carolina University, April, 2007.
 - The University of Missouri at Rolla, April, 2007.
 - Texas Tech, Lubbock, TX, March, 2007.
 - Western Kentucky University, February, 2007.
- “Galaxies in Collision”, High Point University, March, 2006.
- “Measuring Cosmology with Type Ia Supernovae”, Division of Particles and Fields, American Physical Society, UCLA, January, 1999.

- “Measuring the Expansion of the Universe with Supernovae”, Harvey Mudd College, November, 1998.

Invited AAS Shapley Lectures

- “The Power of the Dark Side: The Exotic Material That Makes Up Most Of Our Universe” :
 - East Carolina University, April, 2007
 - Univ. of Missouri at Rolla, April, 2007
- “A Modern View of the Expanding Universe”
 - Texas Tech, March, 2007
 - Guilford Technical Community College, March, 2006.
- “Galaxies in Collision”, Westfield State College, May, 2006.

Recent and Selected Outreach Activities

- “Dr. Knop Talks Astronomy,” a bi-weekly public outreach astronomy lecture series given in Second Life in association with MICA, the Meta-Institute of Computational Astronomy. A list of talks given is here: http://www.mica-vw.org/wiki/index.php/Popular_Talks_2008-present.
- Talks at Hypericon V (science fiction convention in Nashville, TN): “How We Know That Dark Matter Exists” and “Constructing a Space Combat Game That Obeys Newton’s Laws”, June, 2009.
- Three podcasts for *365 Days of Astronomy*: January 21, “Observing Quasars with Nature’s Telescope”; February 14, “Astronomical References in Shakespeare”; March 17, “Echoes From a 430-Year-Old Supernova”. 2009.
- Talk at Hypericon IV: “Quantum Teleportation: Entangled States and ‘Spooky Action at a Distance’ ”, June, 2008.
- Talk at Hypericon III: “Newtonian Physics in Science Fiction Movies and TV: the Good, the Bad, and the Ugly”, June, 2007.
- Presentation on the expanding Universe to over 700 high school students over four different sessions to three different schools in and near Greenville, NC, April, 2007.
- “Why ‘Was Einstein Wrong?’ Is the Wrong Question”, the Tennessee Spring Star Party, March, 2007.
- Leader, workshop on “active learning” techniques for introductory astronomy, High Point University, March, 2006.
- “Supermassive Black Holes at the Cores of Galaxies”, the Tennessee Spring Star Party, March, 2006.

- Public-outreach lecture to the Atlanta Astronomy Club on interacting galaxies, May, 2006.
- Public-outreach lecture at Hypericon II, “Black Holes: Misconceptions, and the Even More Startling Truth”, June, 2006.
- Public-outreach lecture at Hypericon II, “A Modern View of the Expanding Universe”, June, 2006.
- A three-part podcast on the expansion of the Universe as part of Dyer Observatory’s “Stellar Conversations” (http://www.vanderbilt.edu/news/stellar_conversations?archive_month=&archive_year=2006&archives=Go), Spring, 2006.
- Talks at Dyer Observatory public nights (2003-2006).
- Talk to the Tennessee Spring Star Party on March 12, 2005: “Interacting Galaxies, the Evolution of Galaxies, the Formation of the Elements, and How All of it Is Necessary for You”
- Featured talk at the Dyer Observatory 50th Anniversary Celebration, December 12, 2003: “From Seyfert Galaxies to the Expansion of the Universe.”

PUBLICATIONS

Refereed Journal Articles

1. Nobili, S., Fadeyev, V., Aldering, G., Amanullah, R., Barbary, K., Burns, M. S., Dawson, K. S., Deustua, S. E., Faccioli, L., Fruchter, A. S., Goldhaber, G., Goobar, A., Hook, I., Howell, D. A., Kim, A. G., R. A. Knop, Lidman, C., Meyers, J., Nugent, P. E., Pain, R., Panagia, N., Perlmutter, S., Rubin, D., Spadafora, A. L., Strovink, M., and Suzuki, N., The Supernova Cosmology Project, “Constraining Dust and Color Variations of High-z SNe Using NICMOS on the Hubble Space Telescope.” *The Astrophysical Journal*, 2009, **700**, 1415-1427
2. Djorgovski, S. G., Hut, P., McMillan, S., Vesperini, E., R. A. Knop, Farr, W., and Graham, M. J., “Exploring the Use of Virtual Worlds as a Scientific Research Platform: The Meta-Institute for Computational Astrophysics (MICA).” FaVE 2009; Lehmann-Grube, F., *et al.*, eds., ICST Lecture Notes Ser., Berlin: Springer Verlag. astro-ph 0907.3520
3. M. Kowalski, D. Rubin, G. Aldering, R. J. Agostinho, A. Amadon, R. Amanullah, C. Balland, K. Barbary, G. Blanc, P. J. Challis, A. Conley, N. V. Connolly, R. Covarrubias, K. S. Dawson, S. E. Deustua, R. Ellis, S. Fabbro, V. Fadeyev, X. Fan, B. Farris, G. Folatelli, B. L. Frye, G. Garavini, E. L. Gates, L. Germany, G. Goldhaber, B. Goldman, A. Goobar, D. E. Groom, J. Haissinski, D. Hardin, I. Hook, S. Kent, A. G. Kim, R. A. Knop, C. Lidman, E. V. Linder, J. Mendez, J. Meyers, G. J. Miller, M. Moniez, A. M. Mourão, H. Newberg, S. Nobili, P. E. Nugent, R. Pain, O. Perdureau, S. Perlmutter, M. M. Phillips, V. Prasad, R. Quimby, N. Regnault, J. Rich, E. P. Rubenstein, P. Ruiz-Lapuente, F. D. Santos, B. E. Schaefer, R. A. Schommer, R. C. Smith, A. M. Soderberg, A. L. Spadafora, L. G. Strolger, M. Strovink, N. B. Suntzeff, N. Suzuki, R. C. Thomas, N. A. Walton, L. Wang, M. M. Wood-Vasey, and J. L. Yun, “Improved Cosmological Constraints from New, Old, and Combined Supernova Data Sets.” *The Astrophysical Journal*, 2008, **686**, 749–778

4. T. Morokuma, M. Doi, N. Yasuda, M. Akiyama, K. Sekiguchi, H. Furusawa, Y. Ueda, T. Totani, T. Oda, T. Nagao, N. Kashikawa, T. Murayama, M. Ouchi, M. G. Watson, M. W. Richmond, C. Lidman, S. Perlmutter, A. L. Spadafora, G. Aldering, L. Wang, I. M. Hook, and R. A. Knop, “The Subaru/XMM-Newton Deep Survey (SXDS). V. Optically Faint Variable Object Survey.” *The Astrophysical Journal*, 2008, **676**, 163–183.
5. N. Kuznetsova, K. Barbary, B. Connolly, A. G. Kim, R. Pain, N. A. Roe, G. Aldering, R. Amanullah, K. Dawson, M. Doi, V. Fadeyev, A. S. Fruchter, R. Gibbons, G. Goldhaber, A. Goobar, A. Gude, R. A. Knop, M. Kowalski, C. Lidman, T. Morokuma, J. Meyers, S. Perlmutter, D. Rubin, D. J. Schlegel, A. L. Spadafora, V. Stanishev, M. Strovink, N. Suzuki, L. Wang, L., and N. Yasuda, “A New Determination of the High-Redshift Type Ia Supernova Rates with the Hubble Space Telescope Advanced Camera for Surveys.” *The Astrophysical Journal*, 2008, **673**, 981–998.
6. A. Conley, G. Goldhaber, L. Wang, G. Aldering, R. Amanullah, E. D. Commins, V. Fadeyev, G. Folatelli, G. Garavini, R. Gibbons, A. Goobar, D. E. Groom, I. Hook, D. A. Howell, A. G. Kim, R. A. Knop, M. Kowalski, N. Kuznetsova, C. Lidman, S. Nobili, P. E. Nugent, R. Pain, S. Perlmutter, E. Smith, A. L. Spadafora, V. Stanishev, M. Strovink, R. C. Thomas, W. M. Wood-Vasey, “Measurement of Ω_M , Ω_Λ from a Blind Analysis of Type Ia Supernovae with CMAGIC: Using Color Information to Verify the Acceleration of the Universe.” *The Astrophysical Journal*, 2006, **644**, 1–20.
7. M. Sullivan, D. A. Howell, K. Perrett, P. E. Nugent, P. Astier, E. Aubourg, D. Balam, S. Basa, R. G. Carlberg, A. Conley, S. Fabbro, D. Fouchez, J. Guy, I. Hook, H. Lafoux, J. D. Neill, R. Pain, N. Palanque-Delabrouille, C. J. Pritchett, N. Regnault, J. Rich, R. Taillet, G. Aldering, S. Baumont, J. Bronder, M. Filiol, R. A. Knop, S. Perlmutter, C. Tao, “Photometric Selection of High-Redshift Type Ia Supernova Candidates.” *The Astronomical Journal*, 2006, **131**, 960–972.
8. D. A. Howell, M. Sullivan, K. Perrett, T. J. Bronder, I. M. Hook, P. Astier, E. Aubourg, D. Balam, S. Basa, R. G. Carlberg, S. Fabbro, D. Fouchez, J. Guy, H. Lafoux, J. D. Neill, R. Pain, N. Palanque-Delabrouille, C. J. Pritchett, N. Regnault, J. Rich, R. Taillet, R. A. Knop, R. G. McMahon, S. Perlmutter, N. A. Walton, “Gemini Spectroscopy of Supernovae from the Supernova Legacy Survey: Improving High-Redshift Supernova Selection and Classification.” *The Astrophysical Journal*, 2005, **634**, 1190–1201.
9. I. M. Hook, D. A. Howell, G. Aldering, R. Amanullah, M. S. Burns, A. Conley, S. E. Deustua, R. Ellis, S. Fabbro, V. Fadeyev, G. Folatelli, G. Garavini, R. Gibbons, G. Goldhaber, A. Goobar, D. E. Groom, A. G. Kim, R. A. Knop, M. Kowalski, C. Lidman, S. Nobili, P. E. Nugent, R. Pain, C. R. Pennypacker, S. Perlmutter, P. Ruiz-Lapuente, G. Sainton, B. E. Schaefer, E. Smith, A. L. Spadafora, V. Stanishev, R. C. Thomas, N. A. Walton, L. Wang, W. M. Wood-Vasey, “Spectra of High-Redshift Type Ia Supernovae and a Comparison with Their Low-Redshift Counterparts.” *The Astronomical Journal*, 2005, **130**, 2788–2803.
10. G. Garavini, G. Aldering, A. Amadon, R. Amanullah, P. Astier, C. Balland, G. Blanc, A. Conley, T. Dahln, S. E. Deustua, R. Ellis, S. Fabbro, V. Fadeyev, X. Fan, G. Folatelli, B. Frye, E. L. Gates, R. Gibbons, G. Goldhaber, B. Goldman, A. Goobar, D. E. Groom, J. Haissinski, D. Hardin, I. Hook, D. A. Howell, S. Kent, A. G. Kim, R. A. Knop, M. Kowalski, N. Kuznetsova, B. C. Lee, C. Lidman, J. Mendez, G. J. Miller, M. Moniez, M. Mouchet, A. Mouro, H. Newberg, S. Nobili, P. E. Nugent, R. Pain, O. Perdureau, S. Perlmutter,

- R. Quimby, N. Regnault, J. Rich, G. T. Richards, P. Ruiz-Lapuente, B. E. Schaefer, K. Schahmaneche, E. Smith, A. L. Spadafora, V. Stanishev, R. C. Thomas, N. A. Walton, L. Wang, W. M. Wood-Vasey, “Spectroscopic Observations and Analysis of the Unusual Type Ia SN 1999ac.” *The Astronomical Journal*, 2005, **130**, 2278–2292.
11. S. Nobili, R. Amanullah, G. Garavini, A. Goobar, C. Lidman, V. Stanishev, G. Aldering, P. Antilogus, P. Astier, M. S. Burns, A. Conley, S. E. Deustua, R. Ellis, S. Fabbro, V. Fadeyev, G. Folatelli, R. Gibbons, G. Goldhaber, D. E. Groom, I. Hook, D. A. Howell, A. G. Kim, R. A. Knop, P. E. Nugent, R. Pain, S. Perlmutter, R. Quimby, J. Raux, N. Regnault, P. Ruiz-Lapuente, G. Sainton, K. Schahmaneche, E. Smith, A. L. Spadafora, R. C. Thomas, L. Wang, “Restframe I-band Hubble diagram for type Ia supernovae up to redshift $z \sim 0.5$.” *Astronomy & Astrophysics*, 2005, **437**, 789–804.
 12. C. Lidman, D. A. Howell, G. Folatelli, G. Garavini, S. Nobili, G. Aldering, R. Amanullah, P. Antilogus, P. Astier, G. Blanc, M. S. Burns, A. Conley, S. E. Deustua, M. Doi, R. Ellis, S. Fabbro, V. Fadeyev, R. Gibbons, G. Goldhaber, A. Goobar, D. E. Groom, I. Hook, N. Kashikawa, A. G. Kim, R. A. Knop, B. C. Lee, J. Mendez, T. Morokuma, K. Motohara, P. E. Nugent, R. Pain, S. Perlmutter, V. Prasad, R. Quimby, J. Raux, N. Regnault, P. Ruiz-Lapuente, G. Sainton, B. E. Schaefer, K. Schahmaneche, E. Smith, A. L. Spadafora, V. Stanishev, N. A. Walton, L. Wang, W. M. Wood-Vasey, and N. Yasuda, “Spectroscopic confirmation of high-redshift supernovae with the ESO VLT.” *Astronomy & Astrophysics*, 2005, **430**, 843–851.
 13. G. Garavini, G. Folatelli, A. Goobar, S. Nobili, G. Aldering, A. Amadon, R. Amanullah, P. Astier, C. Balland, G. Blanc, M. S. Burns, A. Conley, T. Dahlén, S. E. Deustua, R. Ellis, S. Fabbro, X. Fan, B. Frye, E. L. Gates, R. Gibbons, G. Goldhaber, B. Goldman, D. E. Groom, J. Haissinki, D. Hardin, I. M. Hook, D. A. Howell, D. Kasen, S. Kent, A. G. Kim, R. A. Knop, B. C. Lee, C. Lidman, J. Mendez, G. J. Miller, M. Moniez, A. Mourão, H. Newberg, P. E. Nugent, R. Pain, O. Perdureau, S. Perlmutter, V. Prasad, R. Quimby, J. Raux, N. Regnault, J. Rich, G. T. Richards, P. Ruiz-Lapuente, G. Sainton, B. E. Schaefer, K. Schahmaneche, E. Smith, A. L. Spadafora, V. Stanishev, N. A. Walton, L. Wang, and W. M. Wood-Vasey, “Spectroscopic Observations and Analysis of the Peculiar SN 1999aa.” *The Astronomical Journal*, 2004, **128**, 387–404.
 14. R. A. Knop, G. Aldering, R. Amanullah, P. Astier, G. Blanc, M. S. Burns, A. Conley, S. E. Deustua, M. Doi, R. Ellis, S. Fabbro, G. Folatelli, A. S. Fruchter, G. Garavini, S. Garmond, K. Garton, R. Gibbons, G. Goldhaber, A. Goobar, D. E. Groom, D. Hardin, I. Hook, D. A. Howell, A. G. Kim, B. C. Lee, C. Lidman, J. Mendez, S. Nobili, P. E. Nugent, R. Pain, N. Panagia, C. R. Pennypacker, S. Perlmutter, R. Quimby, J. Raux, N. Regnault, P. Ruiz-Lapuente, G. Sainton, B. Schaefer, K. Schahmaneche, E. Smith, A. L. Spadafora, V. Stanishev, M. Sullivan, N. A. Walton, L. Wang, W. M. Wood-Vasey, and N. Yasuda, “New Constraints on Ω_M and Ω_Λ , and w from an Independent Set of 11 High-Redshift Supernovae Observed with the Hubble Space Telescope.” *The Astrophysical Journal*, 2003, **598**, 102–137.
 15. S. Nobili, A. Goobar, R. A. Knop, and P. Nugent, “The intrinsic colour dispersion in Type Ia supernovae.” *Astronomy & Astrophysics*, 2003, **404**, 901–912.
 16. M. Sullivan, R. S. Ellis, G. Aldering, R. Amanullah, P. Astier, G. Blanc, M. S. Burns, A. Conley, S. E. Deustua, M. Doi, S. Fabbro, G. Folatelli, A. S. Fruchter, G. Garavini,

- R. Gibbons, G. Goldhaber, A. Goobar, D. E. Groom, D. Hardin, I. Hook, D. A. Howell, M. Irwin, A. G. Kim, R. A. Knop, C. Lidman, R. McMahon, J. Mendez, S. Nobili, P. E. Nugent, R. Pain, N. Panagia, C. R. Pennypacker, S. Perlmutter, R. Quimby, J. Raux, N. Regnault, P. Ruiz-Lapuente, B. Schaefer, K. Schahmaneche, A. L. Spadafora, N. A. Walton, L. Wang, W. M. Wood-Vasey, and N. Yasuda, “The Hubble diagram of type Ia supernovae as a function of host galaxy morphology.” *Monthly Notices of the Royal Astronomical Society*, 2003, **340**, 1057–1075.
17. L.-G. Strolger, R. C. Smith, N. B. Suntzeff, M. M. Phillips, G. Aldering, P. Nugent, R. A. Knop, S. Perlmutter, R. A. Schommer, L. C. Ho, M. Hamuy, K. Krisciunas, L. M. Germany, R. Covarrubias, P. Candia, A. Athey, G. Blanc, A. Bonacic, T. Bowers, A. Conley, T. Dahln, W. Freedman, G. Galaz, E. Gates, G. Goldhaber, A. Goobar, D. Groom, I. M. Hook, R. Marzke, M. Mateo, P. McCarthy, J. Méndez, C. Muena, S. E. Persson, R. Quimby, M. Roth, P. Ruiz-Lapuente, J. Seguel, A. Szentgyorgyi, von K. Braun, W. M. Wood-Vasey, and T. York, “The Type Ia Supernova 1999aw: A Probable 1999aa-like Event in a Low-Luminosity Host Galaxy.” *The Astronomical Journal*, 2002, **124**, 2905–2919.
 18. R. Pain, S. Fabbro, M. Sullivan, R. S. Ellis, G. Aldering, P. Astier, S. E. Deustua, A. Fruchter, G. Goldhaber, A. Goobar, D. E. Groom, D. Hardin, I. M. Hook, D. A. Howell, M. J. Irwin, A. G. Kim, M. Y. Kim, R. A. Knop, J. C. Lee, C. Lidman, R. G. McMahon, P. E. Nugent, N. Panagia, C. R. Pennypacker, S. Perlmutter, P. Ruiz-Lapuente, K. Schahmaneche, B. Schaefer, and N. A. Walton, “The Distant Type Ia Supernova Rate.” *The Astrophysical Journal*, 2002, **577**, 120–132.
 19. L. G. Strolger, R. C. Smith, N. B. Suntzeff, M. M. Phillips, G. Aldering, P. Nugent, R. A. Knop, S. Perlmutter, R. A. Schommer, L. C. Ho, M. Hamuy, K. Krisciunas, L. M. Germany, R. Covarrubias, P. Candia, A. Athey, G. Blanc, A. Bonacic, T. Bowers, A. Conley, T. Dahlen, W. Freedman, G. Galaz, E. Gates, G. Goldhaber, A. Goobar, D. Groom, I. M. Hook, R. Marzke, M. Mateo, P. McCarthy, J. Mendez, C. Muena, S. E. Persson, R. Quimby, M. Roth, P. Ruiz-Lapuente, J. Seguel, A. Szentgyorgyi, K. von Braun, W. M. Wood-Vasey, and T. York, “The Ia supernova 1999aw: a probable 1999aa-like event in a low-luminosity host galaxy.” *The Astronomical Journal*, 2002, **124**, 2905–2919.
 20. G. Goldhaber, D. E. Groom, A. Kim, G. Aldering, P. Astier, A. Conley, S. E. Deustua, R. Ellis, S. Fabbro, A. S. Fruchter, A. Goobar, I. Hook, M. Irwin, M. Kim, R. A. Knop, C. Lidman, R. McMahon, P. E. Nugent, R. Pain, N. Panagia, C. R. Pennypacker, S. Perlmutter, P. Ruiz-Lapuente, B. Schaefer, N. A. Walton, and T. York, “Timescale Stretch Parametrization of Type Ia Supernova B-Band Light Curves”, *The Astrophysical Journal*, 2001, **558**, 359–368
 21. R. A. Knop, L. Armus, K. Matthews, T. W. Murphy, and B. T. Soifer, “Spatially Resolved Near-Infrared Spectroscopy of Seyfert 2 Galaxies Mk 1066, NGC 2110, NGC 4388, and Mk 3,” *The Astronomical *Journal*, 2001, **122**, 764–791
 22. J. A. Willick, K. L. Thompson, B. F. Mathiesen, S. Perlmutter, R. A. Knop, and G. J. Hill, “The Stanford Cluster Search: Scope, Method, and Preliminary Results.” *Publications of the Astronomical Society of the Pacific*, 2001, **784**, 658–676.
 23. G. Aldering, R. A. Knop, and P. E. Nugent, “The Rise-Times of High and Low Redshift Type Ia Supernovae Are Consistent,” *The Astronomical Journal*, 2000, **192**, 2110–2117.

24. S. Perlmutter, G. Aldering, G. Goldhaber, R. A. Knop, P. E. Nugent, P. G. Castro, S. Deustua, S. Fabbro, A. Goobar, D. E. Groom, I. M. Hook, A. G. Kim, M. Y. Kim, J. C. Lee, N. J. Nunes, R. Pain, C. R. Pennypacker, R. Quimby, C. Lidman, R. S. Ellis, M. Irwin, R. G. McMahon, P. Ruiz-Lapuente, N. Walton, B. Schaefer, B. J. Boyle, A. V. Filippenko, T. Matheson, A. Fruchter, N. Panagia, H. J. M. Newberg, W. J. Couch, “Measurements of Ω_M and Ω_Λ from 42 High-Redshift Supernovae,” *The Astrophysical Journal*, 1999, **517**, 565–586.
25. S. R. Bloom, S. G. Djorgovski, A. C. Eichelberger, P. Cote, J. P. Blakeslee, S. C. Odewahn, F. A. Harrison, D. A. Frail, A. V. Filippenko, D. C. Leonard, A. G. Riess, H. Spinrad, D. Stern, A. Bunker, A. Dey, B. Grossan, S. Perlmutter, R. A. Knop, I. M. Hook, and M. Feroci, “The unusual afterglow of the gamma-ray burst of 26 March 1998 as evidence for a supernova connection.” *Nature*, 1999, **401**, 453–456.
26. S. Perlmutter, G. Aldering, M. Della Valle, S. Deustua, R. S. Ellis, S. Fabbro, A. Fruchter, G. Goldhaber, A. Goobar, D. E. Groom, I. M. Hook, A. G. Kim, M. Y. Kim, R. A. Knop, C. Lidman, R. G. McMahon, P. E. Nugent, R. Pain, N. Panagia, C. R. Pennypacker, P. Ruiz-Lapuente, B. Schaefer and N. Walton, “Discovery of a Supernova Explosion at Half the Age of the Universe and its Cosmological Implications,” *Nature*, 1998, **391**, 51–54.
27. D. L. Shupe, J. E. Larkin, R. A. Knop, L. Armus, K. Matthews, and B. T. Soifer, “The Kinematics and Excitation of Molecular Hydrogen Emission in the Planetary Nebula BD +30°3639,” *The Astrophysical Journal*, 1998, **498**, 267–277.
28. J. E. Larkin, L. Armus, R. A. Knop, B. T. Soifer, and K. Matthews, “A Near-Infrared Spectroscopic Survey of LINER Galaxies”, *The Astrophysical Journal Supplement*, 1998, **114**, 59–72.
29. R. A. Knop, L. Armus, J. E. Larkin, K. Matthews, D. L. Shupe, and B. T. Soifer, “Infrared Spectroscopy of Pa β and [FeII] Emission in NGC 4151,” *The Astronomical Journal*, 1996, **112**, 81–90.
30. J. E. Larkin, R. A. Knop, S. Lin, K. Matthews, and B. T. Soifer, “A Near Infrared Spectrograph for the Hale 5 Meter Telescope,” *Publications of the Astronomical Society of the Pacific*, 1996, **108**, 211–217.
31. J. E. Larkin, L. Armus, R. A. Knop, K. Matthews, and B. T. Soifer, “Near-Infrared Spectroscopy of the ARP 220 Nuclei: Measuring the Nuclear Rotation,” *The Astrophysical Journal*, 1995, **452**, 599–604.
32. M. S. Yun, N. Z. Scoville, and R. A. Knop, “VV114: Making of an Ultraluminous Galaxy?”, *The Astrophysical Journal*, 1994, **430**, L109–L112.
33. R. A. Knop, B. T. Soifer, J. R. Graham, K. Matthews, D. B. Sanders, and N. Z. Scoville, “VV114, a High Infrared Luminosity Interacting Galaxy System,” *The Astronomical Journal*, 1994, **107**, 920–929.
34. J. Pouliot, Y. Chan, D. E. DiGregorio, B. A. Harmon, R. A. Knop, C. Moisan, R. Roy, and R. G. Stokstad, “Excitation and Multiple Dissociation of ^{12}C , ^{14}N , and ^{16}O Projectiles in Peripheral Collisions at 32.5 MeV/Nucleon,” *Physical Review C*, 1991, **43**, 735.

Contributed Articles and Chapters

- R. A. Knop, “Big Bang: a Terrible Name For a Great Theory,” in Zikovic, Bora, ed., *The Open Laboratory: The Best Writing on Science Blogs 2006*, (c) 2007, Bora Zikovic.
- R. A. Knop, “Textbooks as Intellectual Activity? Supporting Textbooks Without Outlawing Used Books.” *Astronomy Education Review*, 2006, vol. 5.

Selected Contributed Talks and Presentations

- S. L. McMillan, S. G. Djorgovski, P. Hut, E. Vesperini, R. A. Knop, and S. Portegies Zwart, “MICA: The Meta-Institute for Computational Astrophysics,” the American Astronomical society, May, 2009 (BAAS 21440401)
- K. M. Chynoweth, R. A. Knop, & R. A. Gibbons, “An Optical Datacube of Seyfert/Starburst Composite Galaxy NGC1365,” the American Astronomical Society, January, 2007 (BAAS 209.217.06)
- R. A. Knop, K. M. Chynoweth, R. A. Gibbons, N. Mahmud, & J. Stricker, “Optical Datacubes of Luminous Infrared Galaxies NGC 7130 and VV 114,” the American Astronomical Society, January, 2006.
- R. A. Knop, “Three-Dimensional Animations for Introductory Astronomy,” the American Astronomical Society, January, 2005 (BAAS 205.9507)
- R. A. Gibbons, R. A. Knop, N. Kuznetsova, & the Supernova Cosmology Project, “Supernovae at $z > 1.2$ Discovered with ACS on HST”
- R. A. Knop, “Application of Active Learning Techniques to an Advanced Course,” the American Astronomical Society, June, 2004 (BAAS 204.2602)
- J. A. Schlaerth, R. A. Knop, & the Supernova Cosmology Project, “High Redshift Type Ia Supernova Lightcurves,” the American Astronomical Society, June, 2004 (BAAS 204.6316) (J. Schlaerth was a senior undergraduate advisee of Robert Knop)
- E. Smith, *et al.*, “Optical Spectroscopy of High-Redshift Supernovae Used in Determination of Cosmological Parameters,” the American Astronomical Society, January, 2004 (BAAS 203.4505) (E. Smith is a graduate student advisee of Robert Knop)
- R.A. Knop, *et al.*, “A New High-Redshift SN Ia Dataset that Addresses Extinction Questions in Cosmology Measurements,” the American Astronomical Society, May, 2003 (BAAS 202.5403)
- R.A. Knop, *et al.*, “Measurements of the Cosmological Parameters Omega and Lambda from High-Redshift Supernova”, the American Astronomical Society, January, 1997 (BAAS 191.8504). (This was the SCP’s first public announcement of the results that ruled out the flat, matter-dominated universe and indicated the existence of a cosmological constant.)