

Curriculum Vitae

Lloyd Edward Knox

Department of Physics
University of California
Davis, CA 95616
USA

Tel : (530) 754 7352
FAX : (530) 752 4717
e-mail : lknox@ucdavis.edu
Homepage : <http://virgo.physics.ucdavis.edu/~knox/>

Birth: 14th January 1968, Washington, D.C., USA

Citizenship: USA

Education: **Ph.D.**, University of Chicago Department of Physics 1995
Advisor: Professor E. W. Kolb
B.S. in physics, *summa cum laude*, University of Virginia 1990

Employment History

7/06 – present Professor and Chancellor's Fellow
Department of Physics, University of California at Davis

10/04 – 6/06 Associate Professor and Chancellor's Fellow
Department of Physics, University of California at Davis

7/02 – 10/04 Associate Professor
Department of Physics, University of California at Davis

7/00 – 6/02 Assistant Professor
Department of Physics, University of California at Davis

8/98 – 12/00 Research Associate
Edwin P. Hubble Scientist
Department of Astronomy and Astrophysics, University of Chicago

9/95 – 7/98 Junior Research Associate
Canadian Institute for Theoretical Astrophysics, University of Toronto, Canada

1/95 – 8/95 Research Associate
Enrico Fermi Institute, University of Chicago
Supervised by Professor Stephan S. Meyer.

Publication List

Publications in Refereed Journals

H. K. Eriksen, Greg Huey, R. Saha, F. K. Hansen, J. Dick, A. J. Banday, K. M. Gorski, P. Jain, J. B. Jewell, L. Knox, D. L. Larson, I. J. O'Dwyer, T. Souradeep & B. D. Wandelt, "A Re-analysis of the Three-year WMAP Temperature Power Spectrum and Likelihood", *Astrophys. J.* **656**, 641 (2007).

L. Knox, Yong-Seon Song & H. Zhan, "Weighing the Universe with Photometric Redshift Surveys and the Impact on Dark Energy Forecasts", *Astrophys. J.* **652**, 857 (2006).

M. Schneider, L. Knox, H. Zhan & A. Connolly, "Using Galaxy Two-point Correlation Functions to Determine the Redshift Distributions of Galaxies Binned by Photometric Redshift", *Astrophys. J.* **651**, 14 (2006).

X. Wang, M. Tegmark, M. Santos & L. Knox, "Twenty-one Centimeter Tomography with Foregrounds", *Astrophys. J.* **650**, 529 (2006).

L. Knox, Y.-S. Song & J. A. Tyson, "Two Windows on Acceleration and Gravitation: Dark Energy or New Gravity?", *Phys. Rev. D* **74**, 023512 (2006).

J. Dick, L. Knox & M. Chu, "Reduction of Cosmological Data for the Detection of Time-varying Dark Energy Density", *JCAP* **07**, 1 (2006).

H. Zhan & L. Knox, "Baryon Oscillations and Consistency Tests for Photometrically-Determined Redshifts of Very Faint Galaxies", *Astrophysical Journal* **644**, 663 (2006).

H. Zhan, L. Knox, J.A. Tyson & V. Margoniner, "Exploring Large-scale Structure with Billions of Galaxies", *Astrophysical Journal* **640**, 8 (2006).

L. Knox, "Precision Measurement of the Mean Curvature", *Phys. Rev. D* **73**, 023503 (2006).

M. Chu, H.K. Eriksen, L. Knox, K.M. Gorski, J.B. Jewell, D.L. Larson, I.J. O'Dwyer & B.D. Wandelt, "Cosmological Parameter Constraints As Derived from the Wilkinson Microwave Anisotropy Probe Data via Gibbs Sampling and the Blackwell-Rao Estimator", *Phys. Rev. D* **61**, 103002 (2005).

M. G. Santos, A. Cooray & L. Knox, "Multifrequency Analysis of 21 cm fluctuations From the Era of Reionization", *Astrophysical Journal* **625**, 575 (2005).

M. Chu & L. Knox, "Testing Cosmological Models and Understanding Cosmological Parameter Determinations with Metaparameters", *Astrophysical Journal* **620**, 1 (2005).

Y.-S. Song & L. Knox, "Determination of Cosmological Parameters from Cosmic Shear Data", *Phys. Rev. D* **70**, 063510 (2004).

H. Zhan & L. Knox, "Effect of Hot Baryons on the Weak-Lensing Shear Power Spectrum", *Astro-*

physical Journal Lett. **616**, 75 (2004).

P.C. Farese, G. Dall’Oglio, J.O. Gundersen, B.G. Keating, S. Klawikowski, L. Knox, A. Levy, P.M. Lubin, C.W. O’Dell, A. Peel, L. Piccirillo, J. Ruhl & P.T. Timbie, “COMPASS: An Upper Limit on Cosmic Microwave Background Polarization at an Angular Scale of 20’ ”, *Astrophysical Journal* **610**, 625 (2004).

L. Knox, G. Holder & S. Church, “Effects of sub-mm and radio point sources on the recovery of Sunyaev-Zeldovich galaxy cluster parameters”, *Astrophys. J.*, **612**, 96 (2004).

M. Kaplinghat, L. Knox & Y.-S. Song, “Determining Neutrino Mass from the CMB Alone”, *Phys. Rev. Lett.* **91**, 1301 (2003).

M. G. Santos, A. Cooray, Z. Haiman, L. Knox & C.-P. Ma, “Small-scale CMB Temperature and Polarization Anisotropies due to Patchy Reionization”, *Astrophys. J.* **598**, 756 (2003).

J. E. Aguirre, J. J. Bezaire, E. S. Cheng, D. A. Cottingham, S. S. Cordone, T. M. Crawford, D. J. Fixsen, L. Knox, S. S. Meyer, H. U. Norgaard-Nielsen, R. F. Silverberg, P. Timbie & G. W. Wilson, “The Spectrum of Integrated Millimeter Flux of the Magellanic Clouds and 30-Doradus from TopHat and DIRBE Data”, *Astrophys. J.* **596**, 273 (2003).

Y.-S. Song & L. Knox, “The Detectability of Departures from the Inflationary Consistency Equation”, *Phys. Rev. D* **68**, 043518 (2003).

G. Holder, Z. Haiman, M. Kaplinghat and L. Knox, “The Reionization History at High Redshifts II: Estimating the Optical Depth to Thomson Scattering from CMB Polarization”, *Astrophys. J.* **595**, 13 (2003).

M. Chu, M. Kaplinghat & L. Knox, “Normal Parameters for Super-Radical Compression of CMB Data”, *Astrophys. J.* **596**, 725 (2003).

Y.-S. Song, A. Cooray, L. Knox & M. Zaldarriaga, “The Far-Infrared Background Correlation with CMB Lensing”, *Astrophys. J.* **590**, 664 (2003).

M. Kamionkowski & L. Knox, “Aspects of the Cosmic Microwave Background Dipole”, *Phys. Rev. D* **67**, 063001 (2003).

O. Doré, L. Knox & A. Peel, “Gravitational Potential Reconstruction from Peculiar Velocity and Weak Lensing Measurements”, *Astrophys. J.* **585** L81 (2003).

S. Church, L. Knox & M. White, “The Effect of Bandpass Uncertainties on Component Separation”, *Astrophys. J.* **582**, 63L (2003).

M. Kaplinghat, M. Chu, Z. Haiman, G. Holder, L. Knox and C. Skordis, “Probing the Reionization History of the Universe Using the Cosmic Microwave Background Polarization”, *Astrophys. J.* **583**, 24 (2003).

M. Kaplinghat, L. Knox and C. Skordis, “Rapid Calculation of Theoretical CMB Angular Power

- Spectra”, astro-ph/0203413, *Astrophys. J.* **578**, 665 (2002).
- L. Knox and Y.S. Song, “A limit on the detectability of the energy scale of inflation”, *Phys. Rev. Lett.* **89**, 011303 (2002).
- K. Coble, S. Dodelson, M. Dragovan, K. Ganga, L. Knox, J. Kovac, B. Ratra, T. Souradeep, “Cosmic Microwave Background Anisotropy Measurement From Python V”, *Astrophys. J.*, **584** 585 (2003).
- L. Knox, N. Christensen and C. Skordis, “The Age of the Universe and the Cosmological Constant Determined from Cosmic Microwave Background Anisotropy Measurements”, *Astrophys. J.* **563** L95 (2001).
- O. Doré, L. Knox and A. Peel, “CMB Power Spectrum Estimation via Hierarchical Decomposition”, *Phys. Rev. D* **64** 083001 (2001).
- N. Christensen, R. Meyer, L. Knox and B. Luey, “Bayesian Methods for Cosmological Parameter Estimation from Cosmic Microwave Background Measurements”, *Classical and Quantum Gravity*, **18**, 2677 (2001).
- D. Huterer, L. Knox and R. C. Nichol, “The Angular Power Spectrum of EDSGC Galaxies”, *Astrophys. J.* **555**, 547 (2001).
- L. Knox, A. Cooray, D. Eisenstein and Z. Haiman, “Probing Early Structure Formation with Far-Infrared Background Correlations”, *Astrophys. J.* **550**, 7 (2001).
- M. Kaplinghat, L. Knox and M.S. Turner, “Annihilating Cold Dark Matter”, *Phys.Rev.Lett.* **85**, 3523 (2000).
- L. Knox and L. Page, “Characterizing the Peak in the CMB Angular Power Spectrum”, *Phys. Rev. Lett.*, **85** 1366 (2000).
- S. Dodelson and L. Knox, “Dark Energy and the CMB”, *Phys. Rev. Lett.* **84**, 3523 (2000).
- Z. Haiman and L. Knox, “Correlations in the Far Infrared Background”, *Astrophys. J.* **530**, 124 (2000).
- G.W. Wilson, L. Knox, S. Dodelson, K. Coble, E.S. Cheng, D.A. Cottingham, D.J. Fixsen, A.B. Goldin, C.A. Inman, M.S. Kowitt, S.S. Meyer, L.A. Page, J.L. Puchalla, J.E. Ruhl, R.F. Silverberg, “New CMB Power Spectrum Constraints from MSAMI”, *Astrophys. J.* **532**, 57 (2000).
- J. R. Bond, A. H. Jaffe and L. Knox, “Radical Compression of Cosmic Microwave Background Data”, *Astrophys. J.* **533**, 19-37 (2000).
- L. Knox, “Cosmic Microwave Background Anisotropy Window Functions Revisited”, *Phys. Rev. D* **60**, 103516 (1999).
- L. Knox, “Forecasting Foreground Impact on Cosmic Microwave Background Measurements”,

Monthly Notices of the Royal Astronomical Society **307**, 977 (1999).

K. Coble, M. Dragovan, J. Kovac, N. W. Halverson, W. L. Holzapfel, L. Knox, S. Dodelson, K. Ganga, D. Alvarez, J. B. Peterson, G. Griffin, M. Newcomb, K. Miller, S. R. Platt, G. Novak, “Anisotropy in the Cosmic Microwave Background at Degree Angular Scales: Python V Results”, *Astrophys. J. Lett.* **519**, 5 (1999).

L. Knox, R. Scoccimarro and S. Dodelson, “Impact of inhomogeneous reionization on cosmic microwave background anisotropy”, *Phys. Rev. Lett.* **81**, 2004 (1998).

L. Knox, J. R. Bond, A. H. Jaffe, M. Segal and D. Charbonneau “Comparing Cosmic Microwave Background Experiments”, *Phys. Rev. D* **58**, 083004 (1998).

J. R. Bond, A. H. Jaffe and L. Knox “Estimating the Power Spectrum of the Cosmic Microwave Background”, *Phys. Rev. D* **57**, 2117 (1998).

E. S. Cheng, D. A. Cottingham, D. J. Fixsen, A. Goldin, C. A. Inman, L. Knox, M. S. Kowitt, S. S. Meyer, J. L. Puchalla and R. F. Silverberg “Detection of Cosmic Microwave Background Anisotropy by the Third Flight of MSAM” *Astrophys. J. Lett.* **488**, 59 (1997).

B. Allen, R. Caldwell, S. Dodelson, L. Knox, E. P. S. Shellard, and A. Stebbins “CMB Anisotropy from Cosmic Strings at Angular Scales $\gtrsim 15'$ ” *Phys. Rev. Lett.* **79**, 2624 (1997).

L. Knox “Cosmic Microwave Background Anisotropy Observing Strategy Assessment”, *Astrophys. J.* **480**, 72 (1997).

L. Knox “Determination of Inflationary Observables by Cosmic Microwave Background Anisotropy Experiments”, *Phys. Rev. D* **52**, 4307 (1995).

L. Knox and M. S. Turner “Detectability of Tensor Perturbations Through the Anisotropy of the Cosmic Background Radiation”, *Phys. Rev. Lett.* **73**, 3347 (1994).

S. Dodelson, L. Knox and E. W. Kolb “Testing Inflation with the Cosmic Microwave Background”, *Phys. Rev. Lett.* **72**, 3443 (1994).

L. Knox and A. V. Olinto “Initial Conditions for Natural Inflation”, *Phys. Rev. D* **48**, 946 (1993).

L. Knox and M. S. Turner “Inflation at the Electroweak Scale”, *Phys. Rev. Lett.* **70**, 371 (1993).

Invited Reviews

J. R. Bond, R. Crittenden, A. H. Jaffe and L. Knox, “Computing Challenges of the Cosmic Microwave Background”, *Computing in Science and Engineering*, vol. 1, no. 2, 21 (1999).

Z. Haiman and L. Knox “Reionization of the Intergalactic Medium and its Effect on the CMB”, *Microwave Foregrounds*, eds. A. De Oliveira-Costa and M. Tegmark (ASP, San Francisco, 1999).

Conference Proceedings

L. Knox, A. Albrecht, Y.-S. Song, J.A. Tyson, D. Wittman, “Weak Lensing and Supernovae: Complementary Probes of Dark Energy”, Proceedings of the ‘Observing Dark Energy Workshop’ in Tucson, AZ, 2004.

P. C. Farese, G. Dall’Oglio, J. Gundersen, B. Keating, S. Klawikowski, L. Knox, A. Levy, C. O’Dell, A. Peel, L. Piccirillo, J. Ruhl and P. Timbie, “COMPASS: An Instrument for Measuring the Polarization of the CMB on Intermediate Angular Scales”, Proceedings of The Cosmic Microwave Background and its Polarization (eds. S. Hanany and K. Olive) (2003).

L. Knox, “CMB Signatures of Extended Reionization”, Proceedings of The Cosmic Microwave Background and its Polarization (eds. S. Hanany and K. Olive) (2003).

L. Knox, “Future Probes of the Primordial Scalar and Tensor Perturbation Spectra: Prospects from the CMB, Cosmic Shear and High-Volume Redshift Surveys”, Proceedings of the Davis Meeting on Cosmic Inflation (2003).

A. Peel and L. Knox, “Using Galaxy Cluster Peculiar Velocities to Constrain Cosmological Parameters”, Proceedings of the 5th International UCLA Symposium on Sources and Detection of Dark Matter and Dark Energy in the Universe (2002).

A. Cooray and L. Knox, “Conference Highlights: The Sloan Summit on Microwave Foregrounds”, *Publications of the Astronomical Society of the Pacific*, volume 111, number 757, 1999.

T. Souradeep, J. R. Bond, L. Knox, G. Efstathiou and M. S. Turner, “Prospects for Measuring Inflation Parameters with the CMB”, *Proceedings of the International Workshop on Particle Physics and the Early Universe*, ed. L. Roszkowski, World Scientific, 1998.

L. Knox, J. R. Bond and A. H. Jaffe “Power Spectrum Estimation”, *The Proceedings of the 18th Texas Symposium*, eds. A. Olinto, J. Frieman and D. Schramm, World Scientific, 1997.

A. H. Jaffe, L. Knox and J. R. Bond “Data Compression for CMB Experiments”, *The Proceedings of the 18th Texas Symposium*, eds. A. Olinto, J. Frieman and D. Schramm, World Scientific, 1997.

L. Knox “Observing Strategy Assessment”, *Proceedings of the XXXIst Moriond Meeting “Microwave Background Anisotropies”*, ed. F. Bouchet, World Scientific, 1997.

L. Knox “Testing Inflation with MAX, MSAM, Tenerife and COBE”, *Proceedings of the CWRU CMB Workshop*, ed. Lawrence Krauss World Scientific, 1995.

Invited Talks

“Future Probes of Cosmic Acceleration”, Physics Division Colloquium, Argonne National Laboratory, March 2008.

“Why Measure the Mean Curvature Even Better and How to Do It”, Center for Cosmology and

Astroparticle Physics seminar, Ohio State University, February 2008.

“Monte Carlo Methods”, Cosmic Microwave Radiation, Aspen, Colorado, January 2008.

“Closing Remarks”, Data Analysis in Cosmology, Santander, Spain, July 2007.

“Science with Future CMB Observations”, Outstanding Questions in Cosmology, Imperial College, London, UK, March 2007.

“Probes of Cosmic Acceleration: Supernovae, Baryon Acoustic Oscillations and Weak Lensing”, UC Irvine Physics Colloquium, Irvine, California, February 2007.

“Future Probes of Cosmic Acceleration”, UC Boulder Department of Astrophysical and Planetary Sciences Colloquium, Boulder, Colorado, October 2006

“How Optical Imaging Surveys Can Constrain Cosmology”, Workshop on Nongaussianity in Cosmology, Trieste, Italy, July 2006

“CMB Theory Overview”, XIth Marcel Grossmann Meeting on General Relativity, Berlin, Germany, July 2006

“The Report of the Dark Energy Task Force and More”, Santa Fe Cosmology Workshop, Santa Fe, New Mexico, June 2006

“A View of the Edge of the Observable Universe: Discovering Our Origins”, University of California, Santa Cruz physics department colloquium, June 2006

“The Science Potential of Planck”, Annual External Review of U.S. Planck, Pasadena, California, May 2006

“Main Science Goals for Current and Future Experiments”, Fundamental Physics with Cosmic Microwave Background Radiation, Irvine, California, March 2006

“Science from Planck II”, Fundamental Physics with Cosmic Microwave Background Radiation, Irvine, California, March 2006

“Dark Energy (and Curvature) from the Ground (and Space)”, Dark Matter 2006, Marina del Rey, California, February 2006

“Probing Dark Energy and Curvature with Standard Rulers”, Canadian Institute for Theoretical Astrophysics, Toronto, Canada, August 2005”

“Probing Dark Energy and Curvature with Standard Rulers”, Institute for Nuclear and Particle Astrophysics, Lawrence Berkeley Laboratory, Berkeley, California, July 2005

“Precision Measurement of the Mean Curvature”, Santa Fe Cosmology Workshop, Santa Fe, New Mexico, July 2005.

“Cosmology from Distance and Growth”, University College London, London, United Kingdom, March 2005.

“Cosmology from Distance and Growth”, International Workshop Cosmology with SZ and X-ray Observatories, Sophia University, Tokyo, Japan, March 2005.

“Probing Inflation”, plenary talk at ‘22nd Texas Symposium on Relativistic Astrophysics’, Menlo Park, California, December 2004.

“Beyond WMAP”, at ‘Beyond Spitzer’, Pasadena, California, June 2004.

“Precision Cosmology with the CMB”, American Physical Society annual meeting, Denver, Colorado, May 2004.

“Dark Energy & Neutrino Mass from Future Cosmic Shear Observations”, at ‘Mitchell Symposium on Observational Cosmology’, College Station, Texas, April 2004.

“Dark Energy & Neutrino Mass from Future Cosmic Shear Observations”, at University of Illinois Department of Physics High Energy Physics seminar, April 2004.

“Weak Lensing and Supernovae: Complementary Probes of Dark Energy”, at ‘Observing Dark Energy’, Tucson, Arizona, March 2004.

“Neutrino Mass and Dark Energy from Future Cosmic Shear Observations”, Kavli Institute for Particle-astrophysics and Cosmology, Stanford, California, February 2004.

“WMAP and Beyond”, University of Colorado Department of Astrophysical and Planetary Sciences colloquium, Boulder, Colorado, November 2003.

“Velocities, Gas Temperatures and other Benefits of Multi-frequency SZ Measurements”, University of Chicago Department of Astronomy and Astrophysics colloquium, Chicago, Illinois, October 2003.

“CMB and the SZ Surveys”, at ‘Cosmology with Sunyaev-Zeldovich Cluster Surveys’, Chicago, Illinois, September 2003.

“WMAP and Beyond”, colloquium at University of Colorado, Boulder, CO, November 2003.

“CMB Signatures of Extended Reionization”, University of Pennsylvania, Philadelphia, PA, July, 2003.

“The CMB at Higher Resolution and Higher Sensitivity”, Aspen Center for Physics, Aspen, CO, June 2003.

“The Wilkinson Microwave Anisotropy Probe”, California State University, Sacramento, Department of Astronomy Colloquium, April 2003.

“Future Probes of the Scalar and Tensor Primordial Perturbation Spectra”, at Davis Meeting on Cosmic Inflation, Davis, CA, March, 2003.

“CMB Signatures of Extended Reionization”, at The Cosmic Microwave Background Radiation and its Polarization, Minneapolis, Minnesota, March, 2003.

“Applications of Secondary CMB Anisotropy”, UC Berkeley, Berkeley, CA, December, 2002.

“Applications of Secondary CMB Anisotropy”, Center for Cosmological Physics, Chicago, IL, October, 2002.

“CMB: An Overview”, at Cosmo-02 International Workshop on Particle Physics and the Early Universe, Chicago, IL, September, 2002.

“Secondary CMB Anisotropies”, The New Cosmology Confronts Observation, Kavli Institute for Theoretical Physics, Santa Barbara, CA, August, 2002.

“Beyond Planck”, Santa Fe Polarization Meeting, July 13, 2002.

“Beyond Planck”, Santa Fe Cosmology Workshop, July 11, 2002.

“CMB and the New Cosmology”, American Physical Society, High Energy Astrophysics Division of the American Astronomical Society joint meeting, April 2002.

“The Greenspan Universe: 14 Billion Years of Continuous Expansion with Only a Couple Episodes of Inflation”, UC San Diego Physics Colloquium, February 2002.

“The Age of the Universe”, Lawrence Berkeley National Lab, January 2002.

“The Age of the Universe”, Lawrence Livermore National Lab, October, 2001.

“The Age of the Universe”, Stanford University, October, 2001.

“Interpretations of CMB Data: The Qualitative and the Quantitative”, Santa Fe Cosmology Workshop, July 2001.

“CMB Anisotropy as Evidence of Inflation”, Snowmass Workshop, July 2001.

“Status of $\delta T/T$ measurements”, Snowmass Workshop, July 2001.

“CMB Polarization”, ESTEC Workshop, Netherlands, January 2001.

“Peak Experiences: What Do They Mean?”, Enrico Fermi Institute, University of Chicago, June 2000.

“Peak Experiences: What Do They Mean?”, College de France, Paris, France, May 2000.

“Implications of the Peak”, UC Davis, February 2000.

“Implications of the Peak”, Northwestern University, February 2000.

“Implications of the Peak”, Dartmouth College, February 2000.

“Probing The Dark Sector”, Northwestern University, November, 1999.

“Probing The Dark Sector”, Carnegie Mellon University, November, 1999.

“The Dark Sector”, UW Madison, November, 1999.

“Dark Energy and the CMB”, UC Berkeley, October, 1999.

“Implications of the Peak”, Notre Dame, September, 1999.

“Implications of the Peak”, Brown University, September, 1999.

“Overview of CMB Data Analysis”, Santa Fe Cosmology Workshop, Santa Fe, New Mexico, June 1999.

“Physics from the Microwave Sky”, UC Davis, June, 1999.

“CMB Theory”, Inner Space / Outer Space II, Fermilab, May, 1999.

“Progress in 3°K Cosmology”, UC Davis, April, 1999.

“Progress in 3°K Cosmology”, UC Berkeley, March, 1999.

“Progress in 3°K Cosmology”, Caltech, March, 1999.

“Y 3°K?”, U Chicago, March, 1999.

“Progress in 3°K Cosmology”, U Penn, February, 1999.

“Progress in 3°K Cosmology”, U Chicago, February, 1999.

“Cosmology from the Microwave Sky”, University of Western Ontario, London, Ontario, January 1998.

“The Cosmic Microwave Background”, University of Waterloo, Waterloo, Ontario, October 1997.

“Comparing Cosmic Microwave Background Observations: Saskatoon and MSAM”, University of Chicago, Chicago, Illinois, October 1997.

“The Power Spectrum from Cosmic Strings”, Topological Defect Workshop, Imperial College, London, UK, April 1997.

“Three Degree News About One Degree Scales”, Cambridge University, Cambridge, UK, April 1997.

“Microwaves Observed, Power Spectrum Inferred, Strings Not Preferred”, CITA, Toronto, On-

tario, April 1997.

“Cosmic Microwave Background Anisotropy from Cosmic Strings”, University of British Columbia, Vancouver, British Columbia, November 1996.

“Measuring the CMB Power Spectrum”, CITA, Toronto, Ontario, April 1996.

“Cosmic Microwave Background Anisotropy via the Medium Scale Anisotropy Measurement”, Queens University, Kingston, Ontario, March 1996.

“CMB: Recent observations, a test of inflation, and detecting gravity waves”, University of Wisconsin at Milwaukee Relativity Group, May 1994.

“Large Angle Microwave Background Anisotropy in the Primeval Isocurvature Baryon Model”, Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts April 1993.

Conference Organizing

Local Organizer of ‘Cosmo 2006’

Andreas Albrecht, Nemanja Kaloper and LK organized an international meeting held in North America every other year, ‘Cosmo 2006’, in Tahoe City, California. September 2006.

Co-convenor of APS Division of Particles and Fields 2004 meeting parallel session:

“Cosmology (Experiment and Theory)” at UC Irvine
August 2004.

Lead Organizer of ‘Cosmology with Sunyaev-Zeldovich Cluster Surveys’

John Carlstrom, LK, Andrey Kravtsov and Martin White organized ‘Cosmology with Sunyaev-Zeldovich Cluster Surveys’
Center for Cosmological Physics, Chicago, IL
September 2003.

Local Organizer of ‘Davis Meeting on Cosmic Inflation’

Andreas Albrecht, Nemanja Kaloper, Manoj Kaplinghat, LK and Mario Santos organized the ‘Davis Meeting on Cosmic Inflation’
March 2003.

Co-convenor of Subtopic P4.3: “CMB and Inflation”

2001 Snowmass Workshop, Snowmass Colorado.

Popular Lectures

“The Origin and Fate of the Universe”, Davis Chancellor’s Club, Davis, CA, December 2005

“Extremes of Time and Space”, Explorit Science Center, Davis, CA, August 2005.”

“Einstein’s Big Ideas about Time and Space”, Picnic Day, Davis, CA, April 2005.

“The Origin of the Universe”, Explorit Science Cener, Davis, CA, October 2004.

“Earth and Mars in the Cosmic Context”, Placer Nature Center, Auburn, CA, August 2003.

“Exploring the Large–Scale Structure of Time and Space”, Davis Star Show, August, 2001.

“The Big Bang”, COSMOS summer program for high school students, Davis, CA, August, 2001.

“The Large-Scale Structure of Space-Time”, Chicago Astronomical Society, Adler Planetarium, May 1999.

“The Big Bang”, University of Toronto Astronomy Department Public Tour, March 1998.

“The Big Bang Did Too Happen”, Royal Astronomical Society of Toronto, September 1996.

Professional Advisory Service

External Reviewer for Cosmology at Los Alamos National Laboratory March 2008

Dark Energy Task Force (Member, 2005-2006)

NASA/Planck Internal Advisory Board

(Member, January 2004 to September 2005. Chair, September 2005 to present)

Teaching

From Assistant to Full Professor, University of California at Davis

Undergraduate course, “Physics Career Seminar”, Spring 2007

First year graduate course, “Classical Mechanics”, Fall 2006, Fall 2007

Upper division course, “Astrophysical Applications”, Spring 2004, Spring 2005 & Spring 2006

Advanced graduate course, “Evolution of Large–Scale Structure”, Spring 2001, Fall 2002, Spring 2004, Spring 2005 & Spring 2006

General Education course, “Astronomy 10”, Winter 2004

Upper division course, “Introduction to Modern Astrophysics”, Spring 2003 & Winter 2005

Upper division course, “Introduction to Modern Astrophysics”, Spring 2002

Advanced graduate course, “Inflation and Dark Energy”, Winter 2002

General education course, “Astro 10”, Fall 2001

Advanced graduate course, “Evolution of Large–Scale Structure”, Spring 2001

Volunteer Instructor, University of Toronto

Taught eight lecture course, “Evolution of Fluctuations” to graduate students.

Teaching Assistant, University of Chicago

Intermediate Mechanics and Statistical Mechanics (1990-1991)

Intermediate Mechanics (Fall 1991)

Natural Sciences 101 (Fall 1992)

Natural Sciences 101 (Fall 1993)

Seminar Leader

Created and taught the two week seminar, “Light and Our Universe” for three sessions of the University of Virginia Summer Enrichment Program (1990).

Students were 9 to 13 years old.

Workshop Leader, Science in the River City Program

Led workshop on teaching cosmology at the high school level for high school science teachers.

Spring 2007 and Fall 2007.

Mentoring

Undergraduate Researchers

William Gaggioli (2005), Michael Quilici (2005), Alexandra Lampert (2004), Lee Chandler (2003), Orpheus Mall (2003), Rachele Richmond (2003), Dana Nuccitelli (2002), Gabriel Proctor (2001), Michael Segal (1997), and Michael Gladders (1996)

Former Graduate Student Thesis Advisees

Jason Dick (Ph.D. 2007, postdoctoral position at SISSA, Italy) Alan Peel (Ph. D. 2003, is now working with S in the Department of Applied Mathematics and Theoretical Physics, Cambridge, UK)
Yong-Seon Song (Ph.D. 2004, postdoctoral position at the University of Chicago)
Iwen Mike Chu (Ph.D. 2005, postdoctoral position at Johns Hopkins)

Current Graduate Student Thesis Advisees

Oskar Halldorsson Holm (Ph.D. expected 2008)
Michael Schneider (Ph.D expected 2008)

Former Postdoctoral Researchers

Manoj Kaplinghat (Fall 2001 – Summer 2004, now assistant professor at UC Irvine)
Mario Santos (Fall 2002 – Winter 2005, now on second postdoc in native Portugal)
Jean-Baptiste Melin (Winter 2005 – Fall 2006, permanent staff position at CEA in Saclay, France)

Current Postdoctoral Researchers

Hu Zhan (Summer 2004 – present)

Honors

Chancellor's Fellow (2004-2009)

A UC Davis prize honoring “outstanding faculty members early in their careers.”

Funding

10/07-9/12 NSF/Chicago Subcontract award of \$90,000
“Cosmological Research with the 10m South Pole Telescope”

7/07-6/10 NSF award of \$290,000
“Development and Application of Analysis Methods for Dark Energy Probes”

5/05 – 2/09 NASA/JPL Subcontract award of \$488,818
“Preparation for Planck Data Analysis”
Principal Investigator: Lloyd Knox

11/04 – 6/09 UC Davis internal award of \$25,000
Chancellor's Fellow Prize

11/03 – 6/04 UC Davis internal award of \$5,000
Mathematics and Physical Sciences Divisional Research Award

7/03 – 6/05 NSF award of \$325,000
“Theoretical Investigations of SZ Effects and Small-scale CMB Polarization and Temperature Anisotropies”
Principal Investigator: Lloyd Knox

7/01 – 7/05 NASA/LTSA award of \$500,000
“Analysis and Interpretation of Cosmic Microwave Background Data”
Principal Investigator: Lloyd Knox

5/02 – 4/05 NASA/JPL Subcontract award of \$60,000
“Preparation for Planck Data Analysis”
Principal Investigator: Lloyd Knox

7/02 – 7/03 NASA/GSRP award of \$24,000 for Alan Peel
“Cosmology From Galaxy Cluster Peculiar Velocities”
Principal Investigator: Lloyd Knox

3/03 DoE, NASA and NSF awards totaling \$18,000
“Support for Davis Meeting on Cosmic Inflation”
Principal Investigator for DoE award: Andreas Albrecht
Principal Investigator for NASA award: Lloyd Knox
Principal Investigator for NSF award: Manoj Kaplinghat