

Curriculum Vitae

Personal

Name Tom Abel
 Present Address Kavli Institute for Particle Astrophysics and Cosmology (KIPAC), Stanford
 2575 Sand Hill Road, MS 29, Menlo Park, CA 94025
 Email tabel@stanford.edu
 www <http://tomabel.org>
 Citizenship German
 Marital Status Married. One child, Patrick, born (2005)
 Languages: Bilingual in German and English

Education and Employment

9-2015- Full Professor Department of Physics at Stanford and
 Department of Particle Physics and Astrophysics at SLAC
 2/2015-9/2018 SLAC, Director, Particle Astrophysics and Cosmology Division
 8/2013-9/2018 Director, Kavli Institute for Particle Astrophysics and Cosmology, Stanford
 2010-2011 Visiting Professor at the University of Heidelberg at Institute for Theoretical
 Astrophysics and the Heidelberg Institute of Theoretical Studies
 10/2004-9/2015 Associate Professor Department of Physics and Kavli Institute for Particle
 Astrophysics and Cosmology, Stanford University, and SLAC
 7/2004 Associate Professor with tenure, Dept. for Astronomy and Astrophysics, Penn State
 1/2002 Assistant Professor, Dept. for Astronomy and Astrophysics,
 The Pennsylvania State University, University Park, PA
 8/2001-10/2001 Wempe Lecturer, Astrophysical Institute Potsdam, Germany
 6/2001-12/2001 Postdoctoral Researcher, Institute of Astronomy, Cambridge, UK
 10/1999-6/2001 Postdoctoral Fellow, Harvard College Observatory, Cambridge, US
 6/1999 PhD at the Ludwig Maximillians University Munich
Thesis: The First Structures in the Universe, A Theoretical Study of their
 Formation, Evolution and Impact on Subsequent Structure Formation
 (adv. Simon D.M. White and Michael L. Norman)
 1990-1998 University of Regensburg, physics (Masters degree)
 Thesis: Molecular Hydrogen and the very first Light in the Universe
 (adv. M.L. Norman and U. Krey)
 1/1997-9/1999 Visiting researcher, Max Planck Institute for Astrophysics Garching/Germany
 7/1996-6/1999 Visiting Research Scholar at the National Center for Supercomputing
 Applications at Urbana/Champaign
 1989-1990 Fachhochschule München, technical physics
 1988-1989 Fachhochschule Isny, general physics

Teaching Experience

1990-1992	Lecturer at the Berufsbildungszentrum Regensburg in introductory Math, Astronomy, Ecology, Biology, and Computer Science for a reintegration program for the longterm unemployed.
1990-1994	Tutoring from high-school to university level mostly in math and physics
1993-1994	Teaching Assistant, department of mathematics, University of Regensburg, graduate level classes in calculus and linear algebra
2002 -	502 Theoretical Astrophysics, for 10 graduate students Graduate Seminar: The high redshift Universe 7 students
2003	AST1 The Astronomical Universe, Spring 220, Fall 330 students
2004	497 Special Topics: Structure Formation in the Universe, 11 students
2005	Phys 16: Cosmic Horizons, 40 students Physics 463: Experimental Cosmology with Steve Allen, 5 students
2006/07	Phy 18: Seminar: Revolutions in the Concept of the Cosmos (5 students) Phy 360: Graduate course: Physics of Astrophysics (3 students)
2007/08/09/10	Phy 41N: Mechanics, ~ 15 students Phy 17: Black Holes, ~ 60 students (each time) AST 16: The Observed Universe and how it came to be this way (cont. ed.)
2011	Research Opportunities at Stanford for graduate students.
2012	Phy 211: Continuum Mechanics for graduate students (12 students)
2013	Phy 113: Computational Physics for undergraduates (8 students) Phy 211: Continuum Mechanics for graduate students (17 students)
2014	Phy 113: Computational Physics for undergraduates (10 students)
2015	Phy 113: Computational Physics (8 students)
2016	Phy 113: Computational Physics (7 students) Phy 368: Computational Cosmology (8 students)
2017	Phy 113: Computational Physics (13 students)
2018	Phy 211: Continuum Mechanics (7 students)

Computing Skills and Experience

20 years of parallel computing with MPI and openMP on (Cray YMP, SGI ORIGIN, SGI Altix, IBM SP2 and wide range of clusters Linux/Mac OS)

Programming Languages: IDL, Fortran77, Mathematica, C, C++, Basic, Pascal, Python, PHP, Julia

Operating Systems: various UNIX dialects, Windows, Mac OS X

2014: Started ~10 million dollar research computing initiative between KIPAC, SIMES, SUNCAT and PULSE.

Acquired and operated computers:

52 processor beowulf assembled from parts and operated for three years at PSU (2002-2004)

72 processor SGI Altix with 440Gb ram and 10 Tb disk: 1/2005-2010

800 core AMD opteron based system, 3 Tb of ram with 40 Tb of lustre fs: since 5/2007

1024 core Cray XT3 since 2010

2000 core addition to Sherlock cluster at Stanford

1 PetaFlop system X-stream at Stanford NSF-MRI 3.5 million (co-PI)

List of Publications

Citations ~17088, h-index ~ 65, i10 index: 120 [According to Google scholar, 9/2018]

peer reviewed accepted or published in Astrophysics, Cosmology and Plasma Physics:

1. Samuel Totorica, Frederico Fiuza, **Tom Abel**, 2018A new method for analyzing and visualizing plasma simulations using a phase-space tessellation, *Physics of Plasmas*, 25, id.072109
2. Andres Balaguera-Antolinez, Francisco-Shu Kitaura, Marcos Pellejero- Ibanez, Cheng Zhao and **Tom Abel**, 2018, BAM: Bias Assignment Method to generate mock catalogs, *MNRAS* submitted.
3. Noam I Libeskind, Rien Van De Weygaert, Marius Cautun, Bridget Falck, Elmo Tempel, **Tom Abel**, et al. (23 additional authors) 2018, Tracing the cosmic web, *MNRAS*, 473, 1195.
4. Arka Banerjee, Devon Powell, **Tom Abel**, Francisco Villaescusa-Navarro 2018, Reducing Noise in Cosmological N-body Simulations with Neutrinos, *JCAP*, accepted.
5. William East, Radek Wojtak, **Tom Abel** 2018, Comparing Fully General Relativistic and Newtonian Calculations of Structure Formation, *Phys. Rev. D*. 97
6. Samuel Totorica, **Tom Abel**, Frederico Fiuza 2017, Particle acceleration in laser-driven magnetic reconnection, *Physics of Plasmas*, 24, 041408
7. Devon Powell, Ranjan Laha, Kenny Ng and **Tom Abel** 2017 The Doppler effect on indirect detection of dark matter using dark matter only simulations, *Phys. Rev. D*. 95, 063012.
8. Britton Smith et al. (and 13 co-authors) 2017 Grackle: a Chemistry and Cooling Library for Astrophysics, *MNRAS*, 2217.
9. Iryna Butsky, Jonathan Zrake, Ji-hoon Kim, Eric Yang, **Tom Abel** 2017, Ab initio Simulations of a Supernova Driven Galactic Dynamo in an Isolated Disk Galaxy, *ApJ*, 843, 113.
10. Ji-hoon Kim et al (and 43 co-authors) 2016 The AGORA High-Resolution Galaxy Simulations Comparison Project. II: Isolated Disk Test, *ApJ*, 833, 202.
11. Samuel Totorica, **Tom Abel**, Frederico Fiuza 2016, Non-Thermal Electron Energization from Magnetic Reconnection in Laser-Driven Plasmas, *PRL*, 116, 095003.
12. Wojtak, Radoslaw, Devon Powell, **Tom Abel** 2016, Voids in cosmological simulations over cosmic time, *MNRAS*, 458, 4431.
13. Julian Kates Harbeck, Samuel Totorica, Jonathan Zrake, **Tom Abel**, 2016, Simplex-in-Cell Technique for Collisionless Plasma Simulations, *Journal of Computational Physics*, 304, 231.
14. Hide Yajima, Yuexing Li, Qirong Zhu, Tom Abel 2015, Cold Accretion in Early Galaxy Formation and Its Ly α Signatures, *ApJ*, 801, 51.
15. Devon Powell & **Tom Abel** 2015, An exact general remeshing scheme applied to conservative voxelization, *J. Comp. Phys.*, 297, 340.
16. Oliver Hahn, Raul Angulo & **Tom Abel** 2015, The Properties of Cosmic Velocity Fields, *MNRAS*, 454, 3920.
17. John H. Wise, Vasiliv G. Demchenko, Martin T. Halicek, Michael L. Norman, Matthew Turk, **Tom Abel**, Britton Smith 2014, The Birth of a Galaxy - III. Propelling reionisation with the faintest galaxies, *MNRAS*, 442, 2560.
18. Raul Angulo, Rhuizhu Chen, Stefan Hilbert & **Tom Abel** 2014, Towards Noiseless Gravitational Lensing Simulations, *MNRAS*, 444, 2925.
19. Ji-Hoon Kim, **Tom Abel**, Oscar Agertz, et al. (+43 co-authors) 2014, The AGORA High-resolution Galaxy Simulations Comparison Project, *ApJS*, 210, 14.
20. Hide Yajima, Yuexing Li, Qirong Zhu, **Tom Abel**, Caryl Cronwall, Robin Ciardullo 2014, Escape of Ly α and continuum photons from star-forming galaxies, *MNRAS*, 440, 776.
21. Tony Y. Li, Marcelo Alvarez, Risa Wechsler & **Tom Abel** 2013, Reionization Histories of Milky Way Mass Halos, *ApJ*, 785, 11.
22. Greg Bryan, Michael L. Norman, Brian O'Shea, **Tom Abel** (+24 co-authors) 2013, Enzo: An Adaptive Mesh Refinement Code for Astrophysics, *ApJS*, 211, 19.

23. Raul Angulo, Oliver Hahn & **Tom Abel** 2013, The Warm DM halo mass function below the cut-off scale, MNRAS, 434, 3337.
24. Raul Angulo, Oliver Hahn & **Tom Abel** 2013, How closely do baryons follow dark matter on large scales?, MNRAS, 434 1756.
25. Oliver Hahn, **Tom Abel**, Ralf Kaehler 2013, A new approach to simulating collisionless dark matter fluids, MNRAS, 434, 1171.
26. Ji-hoon Kim, Mark Krumholz, John Wise, Matthew Turk, Nathan Goldbaum, **Tom Abel** 2013, Dwarf Galaxies with Ionizing Radiation Feedback. II: Spatially-resolved Star Formation Relation, ApJ 779, 8.
27. Ji-hoon Kim, Mark Krumholz, John Wise, Matthew Turk, Nathan Goldbaum, **Tom Abel** 2013, Dwarf Galaxies with Ionizing Radiation Feedback. I: Escape of Ionizing Photons, ApJ 775, 109.
28. Jedamzik, Karsten & **Tom Abel** 2013, Weak Primordial Magnetic Fields and Anisotropies in the Cosmic Microwave Background Radiation, JCAP, 10, 50.
29. John H. Wise, **Tom Abel**, Matthew J. Turk, & Michael L. Norman 2012, The Birth of a Galaxy: II The Role of Radiation Pressure, MNRAS, 427, 311.
30. Marcelo Alvarez & **Tom Abel** 2012, The Effect of Absorption Systems on Cosmic Reionization, ApJ, 747, 126.
31. Matthew J. Turk, Jeffrey S. Oishi, **Tom Abel** & Greg Bryan 2012, Magnetic Fields in Population III Star Formation, ApJ, 745, 154.
32. John H. Wise, Matthew J. Turk, Michael L. Norman & **Tom Abel** 2012, The Birth of a Galaxy: Primordial Metal Enrichment and Stellar Populations, ApJ, 745, 50.
33. Hide Yajima, Yuexing Li, Qirong Zhu, **Tom Abel**, Caryl Cronwall, Robin Ciardullo 2012, Were progenitors of local L^* galaxies Lyman-alpha emitters at high redshift?, ApJ, 754, 118.
34. **Tom Abel**, Oliver Hahn & Ralf Kaehler 2012, Tracing the Dark Matter Sheet in Phase Space, MNRAS, 427, 61.
35. Hide Yajima, Yuexing Li, Qirong Zhu & **Tom Abel** 2012, ART^2 : Coupling Lyman-alpha Line and Multi-wavelength Continuum Radiative Transfer, MNRAS, 424, 884.
36. Ji-hoon Kim, John H. Wise, Marcelo Alvarez & **Tom Abel** 2012, Galaxy Formation with Self-consistently Modeled Stars and Massive Black Holes. I. Feedback-regulated Star Formation and Black Hole Growth, ApJ, 738, 54.
37. Tafelmeyer, M et al. 2011, Extremely Metal-poor Stars in Classical Dwarf Spheroidal Galaxies: Fornax, Sculptor, and Sextans, A&A, 527, 1.
38. Alexei Kritsuk, Aake Nordlund, David Collins, Palo Padoan, Michael L. Norman, **Tom Abel**, Robi Banerjee, Christoph Federrath, Mario Flock, Dongwook Lee, Pak Shing Li, Wolf-Christian Mueller, Romain Teyssier, Sergey Ustyugov, Christian Vogel, Hao Xu 2011, Comparing Numerical Methods for Isothermal Magnetized Supersonic Turbulence, ApJ, 737, 13.
39. Oliver Hahn & **Tom Abel** 2011, Multi-scale initial conditions for cosmological simulations, MNRAS, 415, 2101.
40. John H. Wise & **Tom Abel** 2011, Enzo+Moray: Radiation Hydrodynamics Adaptive Mesh Refinement Simulations with Adaptive Ray Tracing, MNRAS, 414, 3458.
41. **Tom Abel** 2011, The first stars, as seen by supercomputers, Physics Today, 04/2011, page 51.
42. **Tom Abel** 2011, *rpSPH*, a novel Smoothed Particle Hydrodynamics Algorithm, MNRAS, 413, 271.
43. Matt Turk, Britton Smith, Jeff Oishi, Stephen Skory, Sam Skillman, **Tom Abel** & Michael Norman 2011, yt: A Multi-code Analysis Toolkit for Astrophysical Simulation Data, ApJS, 192, 9
44. Matt Turk, Paul Clark, Simon Glover, Thomas Greif, **Tom Abel**, Ralf Klessen, Volker Bromm 2011, Effects of Varying the Three-body Molecular Hydrogen Formation Rate in Primordial Star Formation, ApJ, 726, 55
45. Matt Turk, Michael L. Norman, **Tom Abel** 2010, High-entropy Polar Regions Around the First Protostars, ApJ, 725, 140
46. Tafelmeyer, M. et al (16 authors) Extremely metal-poor stars in classical dwarf spheroidal galaxies: Fornax, Sculptor, and Sextans 2010, A&A 524, 58

47. Zhi-Yun Li, Peng Wang, **Tom Abel**, Fumitaka Nakamura 2010, Lowering the Characteristic Mass of Cluster Stars by Magnetic Fields and Outflow Feedback, *ApJ*, 720, 26
48. Brant Robertson, Andrey Kravtsov, Nickolay Gnedin, **Tom Abel**, Douglas Rudd 2010, Computational Eulerian hydrodynamics and Galilean invariance, *MNRAS*, 401, 2463.
49. Peng Wang, Zhi-Yun Li, **Tom Abel**, Fumitaka Nakamura 2010, Outflow Feedback Regulated Massive Star Formation in Parsec-Scale Cluster-Forming Clumps, *ApJ* 709, 27.
50. Peng Wang, **Tom Abel** & Ralf Kähler 2010, Adaptive Mesh Fluid Simulations on GPU, *NewA*, 15, 581.
51. Michael Busha, Marcelo Alvarez, Risa Wechsler, **Tom Abel**, Louis Strigari 2010, The Impact of Inhomogeneous Reionization on the Satellite Galaxy Population of the Milky Way, *ApJ*, 710, 408.
52. Marcelo Alvarez, Michael Busha, **Tom Abel**, Risa Wechsler 2009, Connecting Reionization to the Local Universe, *ApJ*, 703, 167.
53. Matthew Turk, **Tom Abel**, Brian O'Shea 2009, The Formation of Population III Binaries from Cosmological Initial Conditions, *Science*, 3235, 601.
54. Marcelo Alvarez, John H. Wise & **Tom Abel** 2009, Accretion onto the First Stellar Mass Black Holes, *ApJL*, 701, 133.
55. Ji-hoon Kim, John H. Wise & **Tom Abel** 2009, Galaxy Mergers with Adaptive Mesh Refinement: Star Formation and Hot Gas Outflow, *ApJL*, 694, 123.
56. Peng Wang & **Tom Abel** 2009, Magnetohydrodynamic Simulations of Disk Galaxy Formation: The Magnetization of the Cold and Warm Medium, *ApJ*, 969, 96.
57. Simon Glover & **Tom Abel** 2008, Uncertainties in H₂ and HD chemistry and cooling and their role in early structure formation, *MNRAS*, 388, 1627.
58. John Wise & **Tom Abel** 2008, How the First Stars start Cosmological Reionization, *ApJ*, 684, 1.
59. John Wise & **Tom Abel** 2008, Resolving the Formation of Proto-Galaxies III) Feedback from the First Stars, *ApJ*, 685, 40.
60. John Wise, Matthew Turk & **Tom Abel** 2008, Resolving the Formation of Proto-Galaxies II) Central Gravitational Collapse, *ApJ*, 682, 745.
61. Britton Smith, Steinn Sigurdsson, **Tom Abel** 2008, Metal cooling in simulations of cosmic structure formation, *MNRAS*, 208,
62. John Wise & **Tom Abel** 2008, Suppression of H₂ Cooling in the Ultraviolet Background, *ApJ* 671, 1559.
63. Peng Wang, **Tom Abel**, Weiqun Zhang 2008, Relativistic Flows Using Spatial and Temporal Adaptive Structured Mesh Refinement, *ApJS*, 176, 467.
64. John Wise & **Tom Abel** 2008, Resolving the Formation of Proto-Galaxies I) Virialization, *ApJ*, 665, 899
65. Peng Wang & Tom Abel 2008, Dynamical Treatment of Virialization Heating in Galaxy Formation, *ApJ*, 672, 752.
66. Miroslav Micic, Kelly Holley-Bockelmann, Steinn Sigurdsson, **Tom Abel** 2007, Supermassive black hole growth and merger rates from cosmological N-body simulations, *MNRAS*, 380, 1533
67. Marcelo Alvarez & **Tom Abel** 2007, Quasar HII region during Cosmic Reionization, *MNRAS*, 380, 30.
68. Mordecai-Mark Mac Low, Jayashree Toraskar, Jeffrey S. Oishi, **Tom Abel** 2007, Dynamical Expansion of H II Regions from Ultracompact to Compact Sizes in Turbulent, Self-Gravitating Molecular Clouds, *ApJ*, 668, 980.
69. Amina Helmi, M.J. Irwin, E. Tolstoy, G. Battaglia, V. Hill, P. Jablonka, K. Venn, M. Shetrone, B. Letarte, N. Arimoto, **Tom Abel**, P. Francois, A. Kaufer, F. Primas, K. Sadakane, T. Szeifert 2006, A new view of the dwarf spheroidal satellites of the Milky Way from VLT/FLAMES: Where are the very metal poor stars?, *ApJL* 651, 121.
70. L. Gao, Tom Abel, Carlos S. Frenk, Adrian Jenkins, Volker Springel, Naoki Yoshida 2007, The first generation of stars in LCDM cosmology, *MNRAS*, 378, 449.
71. **Tom Abel**, John H. Wise, Greg L. Bryan 2007, The HII Region of a Primordial Star, *ApJL* 659, 87.

72. Naoki Yoshida, Kazuyuki Omukai, Lars Hernquist, **Tom Abel** 2006, Formation of Primordial Stars in a LCDM Universe, ApJ 651, 121.
73. G. Battaglia, E. Tolstoy, A. Helmi, M.J. Irwin, B. Letarte, P. Jablonka, V. Hill, K.A. Venn, M.D. Shetrone, N. Arimoto, F. Primas, A. Kaufer, P. Francois, T. Szeifert, **Tom Abel**, K. Sadakane, 2006, The DART imaging and CaT survey of the Fornax Dwarf Spheroidal Galaxy, A&A 459, 423.
74. Miroslav Micic, **Tom Abel**, Steinn Sigurdsson 2006, The Role of Primordial Kicks on Black Hole Merger Rates, MNRAS 372, 1540.
75. Jiajian Shen, **Tom Abel**, H.J. Mo, Ravi Sheth 2006, An excursion set model of the cosmic web: The Abundance of Sheets, Filaments and Halos, ApJ 645, 783-791
76. Brian O'Shea, **Tom Abel**, Dan Whalen & Michael L. Norman 2005, Forming a Primordial Star in a Relic H II Region, ApJL, 628, 5.
77. Eline Tolstoy et al., 2004, Two Distinct Ancient Components in the Sculptor Dwarf Spheroidal Galaxy: First Results from the Dwarf Abundances and Radial Velocities Team, ApJL 617, 119.
78. John Wise & **Tom Abel** 2005, The Number of Supernovae from Primordial Stars in the Universe , ApJ 629 (2005) 615-624.
79. Aaron Sokasian, Naoki Yoshida, **Tom Abel**, Lars Hernquist, Volker Springel 2004, Cosmic Reionization by stellar sources: Population III stars, MNRAS, 350, 47.
80. Yueying Li, Mordecai-Mark Mac Low, **Tom Abel** 2004, Initial Ionization of Compressible Turbulence, ApJ, 610, 339.
81. Emanuele Ripamonti & **Tom Abel** 2004, Fragmentation and the formation of primordial protostars: the possible role of Collision Induced Emission, MNRAS, 348, 1019
82. Lijun Gou, Peter Meszaros, **Tom Abel**, Bing Zhang 2004, The Detectability of Long Gamma-Ray Burst Afterglows from Very High Redshifts, ApJ, 604, 508.
83. Dan Whalen, **Tom Abel**, Michael L. Norman 2004, Radiation Hydrodynamic Evolution of Primordial HII Regions, ApJ 610, 14.
84. Akimi Fujita, Crystal Martin, Mordecai-Mark Mac Low, & **Tom Abel** 2003, The Influence of Supershells and Galactic Outflows on the Escape of Ionizing Radiation from Dwarf Starburst Galaxies, ApJ, 599, 50.
85. Aaron Sokasian, **Tom Abel**, Lars Hernquist & Volker Springel 2003, Cosmic reionisation by stellar sources: Population II stars, MNRAS, 344, 607.
86. Naoki Yoshida, **Tom Abel**, Lars Hernquist, Naoshi Sugiyama 2003, Simulations of Early Structure Formation: Primordial Gas Clouds, ApJ, 592, 645.
87. Frank C. van den Bosch, **Tom Abel**, & Lars E. Hernquist 2003, The Angular Momentum of Gas in Proto-Galaxies: The Impact of Preheating, MNRAS, 346, 177
88. Konstantinos Tassis, **Tom Abel**, Greg L. Bryan and Michael L. Norman 2003, Numerical Simulations of high redshift Star Formation in Dwarf Galaxies, ApJ 587, 13.
89. Marie E. Machacek, Greg L. Bryan, **Tom Abel** 2003, Effects of a Soft X-ray Background on Structure Formation at High Redshift, MNRAS, 338, 273.
90. Aaron Sokasian, **Tom Abel** & Lars E. Hernquist 2002, The Nature of the Ionizing Background at $z = 2.5-5$, MNRAS, 340, 473.
91. Frank C. van den Bosch, **Tom Abel**, Rupert A. C. Croft, Lars E. Hernquist & Simon D. M. White 2002, The Angular Momentum of Gas in Proto-Galaxies: Implications for the Formation of Disk Galaxies, ApJ, 576, 21.
92. Marie E. Machacek, Greg L. Bryan, **Tom Abel** 2002, Effects of a Soft X-ray Background on Structure Formation at High Redshift, ApJ, 540, 39.
93. Aaron Sokasian, **Tom Abel** & Lars Hernquist 2002, The Epoch of Helium Reionization, MNRAS, 332, 601.
94. Alexei Razoumov, Michael L. Norman, **Tom Abel**, & Douglas Scott 2002, Cosmological Hydrogen Reionization with Three Dimensional Radiative Transfer, ApJ, 572, 695.

95. **Tom Abel**, Ben Wandelt 2002, Adaptive Ray Tracing for Radiative Transfer around Point Sources in Astrophysical Hydrodynamics, MNRAS, 330, L53.
96. **Tom Abel**, Greg L. Bryan, Michael L. Norman 2002, The Formation of the First Star in the Universe, Science, 295, 93A.
97. Tiziana Di Matteo, Rosalba Perna, **Tom Abel**, Martin J. Rees 2002, Radio Foregrounds for the 21cm Tomography of the Neutral Intergalactic Medium at High Redshifts, ApJ, 564, 576.
98. Greg L. Bryan, **Tom Abel**, Michael L. Norman 2001, Technical paper at Supercomputing 2001, Achieving Extreme Resolution in Numerical Cosmology Using Adaptive Mesh Refinement: Resolving Primordial Star Formation, Gordon Bell prize finalist.
99. Nick Gnedin and **Tom Abel** 2001, Multidimensional Cosmological Radiative Transfer with a Variable Eddington Tensor Formalism, NewA, 6, 437.
100. Aaron Sokasian, **Tom Abel**, Lars Hernquist 2001, Simulating Reionization in Numerical Cosmology, NewA , 6, 359.
101. Zoltan Haiman, **Tom Abel**, Piero Madau 2001, Photonconsumption in Minihalos during Cosmological Reionization, ApJ, 551, 599.
102. Marie E. Machacek, Greg L. Bryan, **Tom Abel** 2001, Simulations of Pregalactic Structure Formation with Radiative Feedback ApJ, 540, 39.
103. **Tom Abel**, Greg Bryan, Michael L. Norman 2000, The Formation and Fragmentation of Primordial Molecular Clouds, ApJ, 540, 39.
104. Zoltan Haiman, **Tom Abel**, Martin J. Rees 2000, The Radiative Feedback of the First Cosmological Objects, ApJ, 534, 11.
105. Benedetta Ciardi, Andrea Ferrara, **Tom Abel** 2000, Intergalactic H₂ Photodissociation and the soft UV Background produced by Population III objects., ApJ, 533, 594.
106. **Tom Abel**, Martin G. Haehnelt 1999, Radiative Transfer Effects during Photoheating of the Intergalactic Medium, ApJL, 520, 13L.
107. **Tom Abel**, Michael L. Norman, Piero Madau 1999, Photon Conserving Radiative Transfer in Multidimensional Numerical Cosmology, ApJ, 523, 66.
108. J. Kepner, T.M. Tripp, **Tom Abel**, D. Spergel 1999, Absorption Line Signatures of Gas in Dark Matter Minihalos, AJ, 117, 2063.
109. **Tom Abel**, Albert Stebbins, Peter Anninos, & Michael L. Norman 1998, First Structure Formation II) Cosmic String + HDM Models, ApJ, 508, 530.
110. **Tom Abel**, Peter Anninos, Yu Zhang, & Michael L. Norman 1998, First Structure Formation I) Primordial Star Forming Regions in Hierarchical Models, ApJ, 508, 518.
111. **Tom Abel**, and H.J. Mo 1998, A "Minihalo" Model for the Lyman Limit Systems at High Redshift , ApJL, 494, L151.
112. Peter Anninos, Yu Zhang, **Tom Abel**, & Michael L. Norman 1997, Cosmological Hydrodynamics with Multi-Species Chemistry and Nonequilibrium Ionization and Cooling, New Astronomy, 2, 209.
113. **Tom Abel**, Peter Anninos, Yu Zhang, & Michael L. Norman, 1997, Modelling Primordial Gas in Numerical Cosmology, New Astronomy, 2, 181.
114. Max Tegmark, Joseph Silk, Martin J. Rees, Alain Blanchard, **Tom Abel**, & Francesco Palla, 1997, How small were the First Cosmological Objects?, APJ, 474, 1.

Refereed Publications in Scientific Visualization

115. Ralf Kaehler & **Tom Abel**, 2013, Single-Pass GPU-Raycasting for Structured Adaptive Mesh Refinement Data, Proceedings of Visualization and Data Analysis
116. Ralf Kaehler, **Tom Abel**, Oliver Hahn 2012, A Novel Approach to Visualizing Dark Matter Simulations, IEEE Transactions on Visualization and Computer Graphics (IEEE Scientific Visualization 2012), Volume 18, Number 12.

117. Ralf Kaehler & **Tom Abel** 2012, Interactive Stereoscopic Visualization of Large-scale Astrophysical Simulations, Stereoscopic Displays and Applications XXIII. Edited by Woods, Andrew J.; Holliman, Nicolas S.; Favallora, Gregg E. Proceedings of the SPIE, Volume 8288, pp. 82882O-82882O-8.
118. Ralf Kaehler, Marcelo Alvarez, **Tom Abel** 2009, "Visualizing the Reionization of the Universe on Programmable Graphics Hardware", Proceedings of Astronom-2009: Numerical Modeling of Space Plasma Flows, pages 311-316, Edited by N. V. Pogorelov, E. Audit and G. P. Zank. San Francisco: Astronomical Society of the Pacific
119. Ralf. Kaehler, **Tom Abel**, Hans-Christian Hege 2007, Simultaneous GPU-Assisted Raycasting of Unstructured Point Sets and Volumetric Grid Data, Proceedings of IEEE/EG International Symposium on Volume Graphics 2007, pages 49-56.
120. Ralf Kaehler, John Wise, **Tom Abel**, Hans-Christian Hege 2006, GPU-Assisted Raycasting for Cosmological Adaptive Mesh Refinement Simulations, Proceedings of International Workshop on Volume Graphics 2006, pages 103-110.
121. Ralf Kaehler, Donna Cox, Rob Patterson, Stuart Levy, Hans-Christian Hege, **Tom Abel** 2002 Rendering the First Star in the Universe - A Case Study, Proceedings of IEEE Visualization 2002, pages 537-540.

Reviews & Books

122. Achim Weiss, **Tom Abel** and Vanessa Hill (eds.) 2000, The First Stars, Proceedings of the second MPA/ESO conference held in Garching, August 1999, Springer Verlag.
123. **Tom Abel**, Zoltan Haiman 2000, The Role of H₂ Molecules in Cosmological Structure Formation, invited review for "Molecular Hydrogen in Astrophysics", Nova Science Books, eds. F. Combes, De Forest, G.
124. Emanuele Ripamonti & **Tom Abel** 2005, The Formation of Primordial Luminous Objects, Lecture notes for the spring 2003 SIGRAV Doctoral School "The Joint Evolution of Black Holes and Galaxies", M. Colpi, V. Gorini, F. Haardt, U. Moschella (eds.), "Joint Evolution of Black Holes and Galaxies", series in High Energy Physics, Cosmology and Gravitation, Institute of Physics Publishing, Bristol and Philadelphia

Contributed Papers

125. Yu Zhang, Michael L. Norman, Peter Anninos, **Tom Abel** 1997, Primordial Star Forming Regions in CDM Models, in Star Formation Near and Far, eds. Holt.
126. **Tom Abel**, Greg L. Bryan, Michael L. Norman 1998, Simulating First Structure Formation, in "H₂ in the early Universe", eds. Palla, F., Galli, D., Corbelli, E., Memorie Della Societa Astronomica Italiana.
127. Michael L. Norman, Pascal Paschos, **Tom Abel** 1998, Simulating inhomogenous Reionization, in "H₂ in the early Universe", eds. Palla, F., Galli, D., Corbelli, E., Memorie Della Societa Astronomica Italiana.
128. **Tom Abel**, Greg L. Bryan, Michael L. Norman 1999, First Structure Formation, in "Evolution of Large Scale Structure: From Recombination to Garching", eds. Banday, T., Sheth, R. K. and Costa, L. N.
129. **Tom Abel**, Greg L. Bryan, Michael L. Norman 1999, From the Universe to the Stars, in "From Stars to the Universe: 3rd German-Chinese mini-workshop on Cosmology.
130. Michael L. Norman, **Tom Abel**, Greg Bryan 1999, From Cosmological Initial Conditions to Primordial Protostellar Cloud Cores, in the proceedings of the Workshop on "From Stars to Galaxies to the Universe", Ringberg Castle, Germany in June 1998, eds. Gerhard Börner and Houjun Mo.
131. Michael L. Norman, **Tom Abel**, Greg Bryan 2000, First Structure Formation and the First Stars, in the proceedings of the MPA/ESO Workshop on "The First Stars", Garching, Germany in August 1999, Springer, eds. Weiss, A., Abel, T. and Hill V.
132. **Tom Abel** 2000, Three Dimensional Radiative Transfer in Numerical Cosmology, in the proceedings of "Plasma 99" held in Mexico City Oct. 99, ed. Franco, J.
133. **Tom Abel**, Greg L. Bryan, M. L. Norman 2000, Forming the First Star in the Universe, in the proceedings of "The Physics of Galaxy Formation", Tskuba, Japan, eds. K. Umemura & H. Susa
134. **Tom Abel**, Greg L. Bryan, M. L. Norman 2001, The Initial Mode of Star Formation in the proceedings of "Modes of Star Formation", Heidelberg, Germany, ed. E. Grebel

135. Alexander Heger, Stan E. Woosley, I. Baraffe & **Tom Abel** 2001, Evolution and Explosion of Very Massive Primordial Stars, MPA/ESO/MPE/USM Joint Astronomy Conference Lighthouses of the Universe: The Most Luminous Celestial Objects and their Use for Cosmology, ESO Symposia Conference Series, Springer, eds. R. Sunyaev, M. Gilfanov, E. Churazov
136. **Tom Abel** 2002, The Basic Building Blocks of Galaxies, in the proceedings of "The Evolution of Galaxies: Basic Building Blocks", eds. M. Sauvage, G. Stasinska, L. Vigroux, D. Schaerer, S. Madden
137. Brian W. O'Shea, Greg Bryan, James Bordner, Michael L. Norman, **Tom Abel**, Robert Harkness, Alexei Kritsuk 2004, in "Adaptive Mesh Refinement - Theory and Applications", Eds. T. Plewa, T. Linde & V. G. Weirs, Springer Lecture Notes in Computational Science and Engineering, 2004.
138. E. Ripamonti, E. Tolstoy, A. Helmi, G. Battaglia, **Tom Abel** 2006, Numerical simulations of the metallicity distribution in dwarf spheroidal galaxies, Proceedings of the CRAL-Conference Series I "Chemodynamics: from first stars to local galaxies", Lyon 10-14 July 2006, France, Eds. Emsellem, Wozniak, Massacrier, Gonzalez, Devriendt, Champavert, EAS Publications Series.
139. O'Shea, Brian W.; McKee, Christopher F.; Heger, Alexander; **Abel, Tom** 2008, Conference summary, "Proceedings of First Stars III," Eds. Brian W. O'Shea, Alexander Heger & Tom Abel
140. John H. Wise, Matthew Turk, Michael L. Norman, **Tom Abel** 2014, Primordial Enrichment of the First Galaxies, *Memorie della Societa Astronomica Italiana*, v.85, p.548
141. Oliver Hahn, **Tom Abel** & Ralf Kaehler 2015, Tracing, Analyzing, and Visualizing Dark Matter in Phase Space, The Thirteenth Marcel Grossmann Meeting, Chapter 379, March 2015, 2139

Successful Proposals

1. DOE-HEP: "A Public, Cutting Edge Code for Visualization and Analysis of Dark Matter Cosmology Simulations", 240k, 2016-17.
2. NSF "MRI: Acquisition of an Extreme GPU cluster for Interdisciplinary Research", PI-Todd Martinez, co-PI **Tom Abel**, co-PI Margot Gerritsen, co-PI: Vijay S. Pande, 3.5 million US\$
3. SciDAC, PI S. Habib, "Computation-Driven Discovery for the Dark Universe"
4. SLAC Program Development 2013, KIPAC, SUNCAT, Pulse, SIMES, Joint Research Computing Initiative, 3 million, PI: Tom Abel, Co-PI: Todd Martinez, Tom Devereaux, Phil Bucksbaum
5. NASA AFTP joint with Michael L. Norman 2008-20011, funded one graduate student and one postdoc
6. NSF AST grant joint with Yuexing Li 2008-2011 (Penn State) funded two graduate students.
7. NSF AST joint with Ivan Hubeny, 2008-2011 on Radiation transport methods, one postdoc supported
8. Tom Abel, Stars and Galaxies in the First Billion Years, 2003-2008: NSF CAREER Award, 700,000\$
9. Dart Collaboration: PI: E. Tolstoy, 7 nights of VLT time fall 2003
10. Tom Abel, Matthew Shetrone, Eline Tolstoy, 4 hours of HET time in Spring 2003 for high resolution spectroscopy of metal poor red giants in nearby dwarf spheroidals.
11. E. Bergin, T. Hunter, T. Shridharan, **Tom Abel**, Alex Dalgarno 2001, A Search for Lithium Bearing Molecules in the Galaxy, Awarded 3 nights in Dec. 2001 at the Caltech Submillimeter Observatory

Awards

Elected fellow of the AAAS, 2014, "*For distinguished work and significant advances in the area of supercomputer simulations of the first stars in the Universe*"

Lagrange Prize, 2013-2015, 100,000 €, Institute Lagrange de Paris, Paris, France

Terman Fellow, Stanford 9/2007-9/2010, 250,000 US

NSF Career Award (2003-2008) 700,000 US

Wempe Award, Potsdam 2000 (<http://www.aip.de/en/institute/johann-wempe-award>) "to be awarded to an outstanding scientist"

DAAD Scholarship, 1993-1994

Oskar Karl Forster Scholarship, 1993

Meetings (co-) organized

(Listing only major activities not including general SOC membership)

- 2014 Collision-less Fluids, a workshop at the Institute Lagrange de Paris & IAP
- 2013 KIPAC@10, Big Questions in Particle Astrophysics and Cosmology, KIPAC, Stanford, US
- 2010 Kavli Futures Symposium, "Growing High Performance Computing in a Green Environment", Tromsø, Norway
- 2009 Kavli Futures Symposium, "Solving Real Problems with imagined Computers" Many Core and Accelerator Based Computing workshop, held at SLAC
- 2008 Scientific Challenges for Understanding the Quantum Universe and the Role of Computation at the Extreme Scale, SLAC
- 2007 Star formation over cosmic time, 4 month workshop at KITP Santa Barbara with C. McKee, P. Padoan, A. Goodman
- 2007 First Stars III, Santa Fe, NM with Alex Heger and Brian O'Shea
- 2006 The First Stars and Evolution of the Early Universe, INT Seattle with Yong Qian, Alex Heger & Tim Beers
- 2004 GRB physics before SWIFT, State College, PA, (Chair)
- 2004 Formation of Supermassive Black Holes, Aspen, with Andrew Hamilton, Martin Haehnelt & Andrea Ghez
- 2003 First Stars II, Penn State, State College (Chair)
- 2003 The Baryonic Universe, Aspen Winter workshop with Rosie Wyse
- 1999 First Stars, Garching, Germany with Achim Weiss & Vanessa Hill

Synergistic Activities:

NERSC Data Advisory Committee 2017, Berkeley

Board of Managers, Kavli Institute of Cosmology, Cambridge (since 2017)

AAAS Election Committee (2015-)

Member of SLAC Science Council (2016-)

Institute of Astronomy, Cambridge, Astronomy Strategic Research Review committee 2018

Member of Cosmic Visions Dark Matter group convened by DOE-HEP

Member of Cosmic Visions Dark Energy group convened by DOE-HEP

Member of Cosmic Visions Cosmic Microwave Background group convened by DOE-HEP

Chair of International Finance Committee of Fermi Gamma Ray Space telescope (2014- present)

Associate Editor for the Journal of Cosmology and Particle Astrophysics, JCAP since 2014

Scientific Advisory committee for the KIAA, Beijing since 2013

Consulting for National Geographic Magazine 2003, 2014

NSF Postdoc review panel, HST panels, DOE INCITE panels, Astro 2010, since 2002

Advisory Board for Hayden Planetarium Space Show "Journey to the Stars", 2008-2009, 2012-2013

Refereeing for ApJ, MNRAS, Science, Nature, NewA, A&A, JCAP

 Invited Talks given at International Conferences

November 2017	Collisionless Boltzmann (Vlasov) Equation and Modeling of Self-Gravitating Systems and Plasmas, CIRM, Marseille, France
September 2017	Chemical Evolution in the Universe, Tarrytown, NY
February 2017	Big Data Meets Computation, UCLA IPAM, Los Angeles Carving Through the Codes, Davos, Switzerland SIAM, Conference on Computational Science and Engineering, plenary, Atlanta
August 2015	International Astronomical Union, Honolulu, Hawaii
July 2015	Lecturer in Summer School in Taipei, Taiwan
October 2014	Solvay conference on Astrophysics and Cosmology, Brussels
June 2014	Zel'dovich 100, Moscow, Russia
February 2014	Tracing the Cosmic Web, Lorentz Center, Leiden, Netherlands
October 2013	GRAVASCO, Institute Poincare, Paris, France
June 2013	IAP Colloquium, "Origin of the Hubble Sequence", Paris, France
August 2013	HIPACC Summer School, UCSC, US
May, 2013	Lecturer at Radiation Hydrodynamics Summer School, Leiden, Netherlands
January 2013	Plenary speaker AAS meeting Long Beach
November 2012	East Asian Numerical Astrophysics meeting, Kyoto, Japan
August 2012	Georgia Tech Vislab workshop and public talk to ~ 300 on Dark Matter
May 2012	First Stars IV, Kyoto, Japan
January 2012	New Horizons in Computational Astrophysics, Davos, Switzerland
July 2011	Galaxy Formation, Durham, UK
June 2011	First Galaxies, Ringberg, Bavaria, Germany
May 2011	The Origin of the Elements: A Modern Perspective, ECT*, Trento, Italy
October 2010	Numerical Astrophysics, Wengen, Switzerland
September 2010	Kavli Futures Symposium, Tromso, Norway
August 2010	First Stars summer school Heidelberg, Germany HIPACC summer school, Santa Cruz, CA
July 2010	GR19 Plenary talk, Mexico City, Mexico
June 2010	IAU Star Formation, Barcelona, Spain First Galaxies, Quasars & Gamma Ray Bursts, State College, PA Lisa Symposium Menlo Park, CA
March 2010	First Stars and Galaxies, Austin, Texas The View from 5 AU, Irvine, CA
January 2010	Massive Star Formation, Berkley, CA
July 2009	13th Paris Cosmology Colloquium, Paris, France
June 2009	Institute for Nuclear Theory School Quarks to Cosmos, 3 lectures, Seattle, WA
May 2009	Inaugural Meeting of Center for Relativistic Astrophysics, Georgia Tech, GA
May 2009	Astroviz 2009, California Academy of Sciences, San Francisco, CA
January 2009	Kavli Futures Symposium, Real Problems for Imagined Computers, Costa Rica
December 2008	Texas meeting on Relativistic Astrophysics, Plenary talk, Vancouver, Canada
September 2008	Cosmic Dust and Radiative Transfer workshop, Heidelberg, Germany
September 2008	JENAM, "New Challenged to European Astronomy", Vienna, Austria
July 2008	AstroSim, Ascona, Switzerland Far Away: Light in the Young Universe, IAP Conference, Paris, France
June 2008	IAU Symposium, Low metallicity Star formation, Rapallo, Italy

Onassis School, Crete, Greece
 May 2008 Sackler Cosmology meeting: "21 cm Cosmology", Harvard, Cambridge, MA
 March 2008 Canadian Institute for Advanced Research, Stanford, CA
 September 2007 JWST and concurrent facilities, Tucson, AZ
 September 2007 Massive Star Formation: Observations confront Theory, Heidelberg, Germany
 August 2007 Star formation then and now, Kavli Inst. of Theoretical Physics, Santa Barbara
 August 2007 Lectured at SLAC summer school on Dark Matter, Stanford, CA
 June 2007 School on Multiscale Modeling and Simulation in Science, Bosön, Sweden
 May 2007 Structure Formation in the Universe, Chamonix, France
 March 2007 The Next Decade of GRB Afterglows, Amsterdam, Netherlands
 October 2006 Radiation Backgrounds, Maryland October meeting, Baltimore
 September 2006 Circum-stellar Media & Late Stages of Mass. Stell. Evol., Ensenada, MX
 July 2006 4 lectures at Summer School in Cosmology and Astrophysics, ICTP, Trieste, It
 Star Formation from Galactic to Cosmological Scales, Heidelberg, Germany
 The First Stars and Evolution of the Early Universe, Seattle
 June 2006 SWIFT and GRBs: Unveiling the Relativistic Universe, Venice, Italy
 April 2006 Mitchell Symposium, Institute for Fundamental Physics, College Station, TX
 October 2005 Probing Early Structure Formation with M, L and Z, Minneapolis, MN
 September 2005 Structure of the Universe, Future of Cosmology, Crafoord days, Stockholm
 June 2005 Reionizing the Universe, Groningen, Netherlands
 October 2004 Galaxy-Intergalactic Medium Interactions, KITP, Santa Barbara
 September 2004 Summary Talk, Computational Methods in Transport, Lake Tahoe
 Mathematical and Experimental Physics, Collegio Nacional, Mexico City
 August 2004 Chemical Enrichment of the Early Universe, Santa Fee
 July 2004 Plumian 300, The Quest for a Concordance Cosmology, Cambridge, UK
 June 2004 17th UCL colloquium, Massive Star Formation, Windsor Great Park, UK
 Frontiers of Science, National Academy and Royal Society, Cambridge, UK
 May 2004 Intermediate Mass Black Holes, Penn State, State College.
 Most Massive Stars, Jackson Hole, Wyoming
 December 2003 Gravitational Collapse: From Massive Stars to Planets, Ensenada Mexico
 November 2003 Formation and Evolution of Young Massive Cluster, Cancun, Mexico
 Galaxy Formation: A Herculean Challenge, Banff, Canada
 October 2003 The Future of Cosmology, KAVLI-CERCA conference, Cleveland
 August 2003 From First Light to the Milky Way, Zürich, Switzerland
 July 2003 The Formation and Early Evolution of Galaxies, Irsee, Germany
 June 2003 SCaLEs, DOE Workshop on the Future of Computing in the US, DC
 Recontres de Blois, Blois, France
 May 2003 Great Lakes Cosmology Conference, Ann Arbor, Michigan
 4 Lectures at Como Summer School, Como, Italy
 Jan. 2003 Globular Clusters, ITP, Santa Barbara, California
 Oct. 2002 The Emergence of Cosmic Structure, College Park, US
 July 2002 4th International Lisa Symposium, State College, PA, US
 Making Light of Gravity, Martin Rees' 60th birthday, Cambridge, UK
 June 2002 A Massive Star Odyssey IAU Symp. 212, Lanzarote, Spain
 Early Cosmic Structures and the End of the Dark Ages, Elba, Italy
 March 2002 Low Z at high and low z, Michigan
 XEUS Workshop at MPE, Garching, Germany

19. Oct, 2001	Euroconference: Basic Building Blocks of Galaxies, Reunion, France
June 2001	Frontiers of the Universe, Euroconference Blois, France
11. October 2000	Modes of Star Formation, Heidelberg, Germany
4. July 2000	The Physics of Galaxy Formation, Tsukuba, Japan
18. May 2000	The First Generation of Cosmic Structures, Harvard
30. Sept. 1999	H ₂ in Space, Paris
28. May 1999	Oort workshop, Leiden
4. Dec. 1997	Workshop on "H ₂ in the Early Universe", Arcetri/Italy

Contributed Talks and Colloquia

17. Oct 2017	SFAA public lecture, San Francisco
5. June 2017	Enzo Developer workshop, San Diego
12. Apr. 2017	Physics Colloquium, Zurich University, Switzerland
11. Oct. 2016	Colloquium, Indiana University, Bloomington, IN
6. April 2016	Silicon Valley Astronomy Lecture, Foothill College, CA
12. Feb. 2016	AAAS, session chair and moderator on Dark Matter, Washington, DC
29. Sept 2015	Enzo developer workshop, NCSA, Champaign, Illinois
4. June 2015	KIPMU colloquium, Tokyo, Japan
26. May 2015	CIERA colloquium, Northwestern University
25. April 2015	MIT, Physics colloquium, Cambridge, MA
30. Mar. 2015	Colloquium, Kavli Institute for Astronomy and Astrophysics, Beijing China
11. Mar. 2015	Physics Cafe (together with Shirley Ho) at Aspen Wheeler Opera house, Aspen, CO
11. Mar. 2015	Talk on Dark Matter dynamics, at Aspen Physics Center, Aspen, 2015.
15. Feb. 2015	Chaired, "The CMB: Window into New Physics" session, AAAS, San Jose, CA
14. Feb. 2015	Chaired, "Making Data Beautiful" Session at AAAS meeting, San Jose, CA
19. Jan. 2015	Talk on Supermassive Black Hole Formation, Aspen winter conference, Aspen, CO
9. Dec. 2014	Institute for Advanced Study Colloquium, Princeton, New Jersey
25. Sept. 2014	Berkeley Astronomy colloquium, Berkeley, CA
27. May 2014	Inaugural Mandel Lecture, UCSC, Santa Cruz, CA
17. May 2014	Enzo Workshop, "The Enzo-Universe", Columbia, NYC
7. May 2014	Caltech colloquium, "Dark Matter Dynamics", Pasadena, CA
1. May 2014	SLAC Science Policy Committee, "Cosmic Frontier Strategy"
19 April 2014	Lecture on Hydrodynamics at Callistoga Study Sessions, CA
21. March 2014	HIPAC Computational Astrophysics Meeting, LBL, CA
23. September 2013	"What Physicists do" series at Sonoma State, Sonoma
21. June 2013	IAP colloquium, Institut Astrophysique de Paris, Paris, France
17. June 2013	Gravitational Lensing Workshop, Courmayeur, Italy
23. May 2013	ICAP meeting at IAP, Paris, France
11. March 2013	SLAC colloquium, "Why Dark Matter Matters", Menlo Park, CA
13. September 2012	ITC colloquium, CfA Harvard, MA
16. August 2012	Santa Cruz workshop on Galaxy formation
12. April 2012	KITP: First Galaxies and Faint Dwarfs, Santa Barbara, CA
13. October 2011	Enzo workshop, Columbia University, NYC
14. March 2011	Colloquium, Heidelberg Institute of Theoretical Studies, Germany

- 15. February 2011 Stony brook physics and astronomy colloquium, Stony Brook, NY
- 14. February 2011 NSF distinguished lecture, Arlington, VA
- 8. February 2011 IAS seminar, Princeton, NJ
- 27. January 2011 IAC Colloquium, La Laguna, Tenerife, Spain
- 12. January 2011 Physikalisches Kolloquium, Tübingen, Germany
- 11. November 2010 CITA colloquium, Toronto, Canada
- 30. June 2010 Enzo Users workshop, San Diego, CA
- 13. April 2010 Cafe Scientific, SRI International, Menlo Park, CA
- 1. February 2010 Dean Lecture, California Academy of Sciences, San Francisco, CA
- 20 October 2009 Joint Astronomy colloquium, Heidelberg, Germany
- 5. November 2009 Harvard ITC colloquium, CfA, Boston, MA
- 29. September 2009 Stanford Physics Colloquium
- 21. September 2009 Berkeley Physics Colloquium
- 22. April 2009 Colloquium at SETI Institute
- 19. November 2008 Caltech Astronomy Colloquium, Pasadena, CA
- 15. October 2008 Hooker Distinguished visiting Professor lecture: Cosmic Dawn: The First Star in the Universe, McMaster University, Hamilton, Ontario, Canada
- 15. October 2008 McMaster, Ontario, Canada, Physics Colloquium
- 2. September 2008 MPA cosmology seminar, Garching, Germany
- 29. April 2008 SLAC public lecture, Cosmic Dawn: The First Star in the Universe
- 25. Feb 2008 Berkley TAC seminar, UCB, Berkeley
- 20. Nov 2007 Colloquium, physics department, UCSB, Santa Barbara
- 22. Oct 2007 Mechanical Engineering Colloquium, UCSB, Santa Barbara
- 1. Oct 2007 Directors blackboard lunch, KITP, Santa Barbara
- 25. Sep 2007 New York University, Astrophysics seminar, New York City
- 24. Sep 2007 Hayden Planetarium public lecture, Rose Center, AMNH, NYC
- 24. Sep 2007 American Museum of Natural History, Seminar, NYC
- 18. Jul 2007 Public Talk at First Stars III, Santa Fe, NM
- 11. Apr 2007 UCLA Physics colloquium, Los Angeles
- 30. Mar 2007 SLAC theory seminar
- 1. Dec 2006 Presentation to SLAC Science Policy Committee
- 11. Sept 2006 SLUO Annual meeting, SLAC
- 29. August 2006 High Performance Computing day, Stanford
- 7. Oct 2005 SLAC Computing Services seminar, Stanford
- 27. May 2005 TAC theory seminar, UC Berkley
- 25. Apr 2005 Physics Colloquium, UC Davis
- 18. Apr 2005 Colloquium National Observatory Japan, Tokyo
- 2. Feb 2005 Astronomy Colloquium, UC Santa Cruz
- 18. Jan 2005 Physics Colloquium, Stanford University
- 11. Jan 2005 Fluid Mechanics seminar, Center for Turbulence Research, Stanford
- 12. Oct 2004 Colloquium, Northwestern University Chicago
- 10. Mar 2004 Colloquium, Max Planck Institut für Astronomie, Heidelberg
- 4. Mar 2004 Physics Colloquium, Stanford University, Palo Alto
- 30. Jan. 2004 Star Formation Workshop, NASA Ames, California
- 22. Oct. 2003 Astronomy Colloquium, California Institute of Technology, Pasadena
- 20. Oct. 2003 Astronomy Colloquium, University of Arizona, Tucson
- 2. Oct 2003 Astrophysics Seminar, McMaster University, Hamilton Ontario

- 1. Oct 2003 Physics Colloquium, McMaster University, Hamilton Ontario
- 19. Sep. 2003 Astrophysics Seminar, New York University
- 18. Sep. 2003 Physics Colloquium, New York University
- 10. Sep. 2003 Colloquium Space Telescope Science Institute
- 13. Aug 2003 Mini workshop on First Structure Formation, Oxford, UK
- 18. April, 2003 Colloquium, Dept. of Physics, University of Virginia, Charlottesville
- 10. Apr 2003 Colloquium, Dept, of Physics, Lehigh, Bethlehem, US
- 24. Mar. 2003 Colloquium, Leiden Observatory, Leiden, Nova Lecture series
- 20. Mar. 2003 Colloquium, Kapteyn Institute, Gronningen, Nova Lecture series
- 28. Feb. 2003 Public Talk, Museum of the Rockies, Bozeman, Montana
- 13. Feb. 2002 Colloquium, Dept. of Astronomy, Michigan State, US
- 15. Jan. 2003 Public Talk, Wheeler Opera house, Aspen, Colorado
- 7. Oct. 2002 Colloquium, Dept, of Physics, University of Colorado, Boulder, US
- 27. Sept. 2002 Colloquium, Dept. of Physics, UPENN, Philadelphia, US
- 26. Sept. 2002 Colloquium, Dept. of Physics, Rutgers University, NJ, US
- 25. April, 2002 Colloquium, Dept. of Astronomy, Ohio State University, US
- 15. Feb. 2002 Colloquium, Dept. of Theoretical Astrophysics, Caltech, US
- 30. Nov., 2001 Colloquium, Dept. of Astronomy, Leeds, UK
- 29. Nov., 2001 Colloquium, Dept. of Mathematics, Newcastle upon Tyne, UK
- 22. May, 2001 Colloquium, Goddard Space Flight Center
- 11. April, 2001 Colloquium, Ecole Normal Supérieure, Lyon, France
- February, 2001 Aspen Winter Conference
- 11. Jan. 2001 Colloquium, Univ. of Washington, Seattle
- 14. Dec. 2000 Colloquium, Penn State, State College
- 27. Nov. 2000 High Energy Astrophysics Colloquium, U. of Michigan, Ann Arbor
- 21. Nov. 2000 Astronomy Colloquium, University of Illinois, Urbana/Champaign
- 16. Nov. 2000 Colloquium, Carnegie Mellon University, Pittsburgh
- April 2000 Colloquium, University of California, Santa Cruz
- 3. Feb. 2000 Colloquium, UGA Astronomy Department, Athens
- 30. June 1999 Clustering at high z, Marseilles
- 7. Dec. 1999 Colloquium, Yale Astronomy Department, New Haven
- 10. Oct. 1998 3rd German-Chinese mini-workshop on Cosmology, Shanghai
- 28. Oct. 1998 Beijing Observatory
- 8. Sept. 1998 German American Young Scholar Inst. on Astroparticle Physics, Aspen/US
- 3. Sept. 1998 TMR-Workshop, Leiden/Netherlands
- 7. Aug. 1998 MPA/ESO Cosmology Conference, Garching/Germany
- June 1998 3 talks, Workshop on Galaxy Formation & Feedback, Aspen, US
- 25. Sep. 1997 Colloquium at Arcetri Observatory, Italy
- 18. Jul. 1997 MPA Seminar, Max Planck Institute for Astrophysics
- 7. May 1997 Instituto de Astronomia UNAM/Mexico
- 27. Sep. 1996 UNLV Physics Department Colloquium, Las Vegas
- 3. June 1996 DAEC Seminar at the l'Observatoire de Paris, Meudon.
- 25. March 1996 Colloquium Instituto Astrofisica de Canarias, Tenerife

Longer Visits & Schools

3/2015	Kavli Visting Scholar, Kavli Institute for Astronomy and Astrophysics, Beijing
2013	Institute Lagrange de Paris, ILP & IAP, Paris, France ~ 2.5 months
2012	KITP, Dwarf galaxies ~ 2 months
2007	KITP, 4 months, Star formation over cosmic time, co-organizer
8/2003	Dept. of Physics, Oxford, UK
4/2001	Ecole Normal Superieur, Lyon, France
4/2001	Saas Fee Lectures on Brown Dwarfs and Planets, Switzerland
5/1999	Massachusetts Institute of Technology
3/1999	Saas-Fee Lectures on Star Formation in Galaxies, Switzerland.
3/1997	Instituto de Astronomia UNAM/Mexico
5/27/1996-6/7/1996	Nato Advanced Study Institute, The Cosmic Microwave Background Radiation", Strasbourg, France
4/1995 - 6/1996	Max Planck Institute for Astrophysics, Garching
2/1996 - 3/1996	Instituto Astrofisica de Canarias, Tenerife, Spain
7/1995 - 1/1996	Max Planck Institute for Astrophysics, Garching

Undergraduate, Graduate and post-graduate students (co-) supervised

Graduate Students:

At Stanford: (not including rotation students that worked with us two quarters or less)

Sam Totorica (2013-2018, NASA Jack Eddy Postdoctoral Fellowship at Princeton PPL),

Devon Powell (2013-2018), Postdoctoral fellow, Max Planck for Astrophysics, Garching

Ji-hoon Kim (PhD 2011, Postdoc at UCSD, Einstein Fellow at Caltech and Stanford, Faculty at Seoul National University),

Fen Zhao (PhD 2010, Staff Associate at the National Science Foundation),

Matthew Turk (PhD 2009, Faculty at UIUC and Moore Investigator at NCSA, UIUC at Urbana Champaign),

Peng Wang (PhD 2009, Senior Software Engineer in HPC Developer Technology at NVIDIA),

Fabio Iocco (2007, Faculty Sao Paulo, Brazil),

John Wise (PhD 2007, Associate Professor of Physics at Georgia Tech),

At Penn State:

Britton Smith (2003-2004, Postdoctoral Royal Observatory, Edinburgh, now Staff Scientist at SDSC, San Diego)),

Miroslav Micic (2003-2004, Permanent Staff Astronomical Observatory, Belgrade),

Jianjian Shen (2003-2004),

Manodeep Sinha (2003-2004, Postdoc at Vanderbilt University)

At Harvard: Aaron Sokasian, PhD (2003, now Head of Quantitative Strategies, FX Solutions LLC) co-supervised with Lars Hernquist,

Brian O'Shea (PhD 2006, Associate professor at Michigan State) co-supervised with Michael Norman

Postdocs:

Arka Banerjee (2017-

Susmita Adhikari (2017-

Daegene Koh (2017-

Radek Wojtak (2014-2017),

Ranjan Laha (2014-2017, Postdoc in Mainz)

Jonathan Zrake (2013-2016, postdoctoral fellow Columbia University),
Sam Skillman (2013-2015, now Software developer at Decartes Labs),
William East (2013-2016), Directors Fellowship at Perimeter Institute, Waterloo, Canada,
Raul Angulo (2012-2013, ERC recipient, Permanent Scientific Staff at the Center for the Study of the Physics of the Cosmos, Teruel, Spain),
Silvia Bonoli (2012-2013 Permanent Scientific Staff at the Center for the Study of the Physics of the Cosmos, Teruel, Spain),
Jeff Oishi (2010-2012, Professor Farmingdale College, New York),
Oliver Hahn 2009-2012 (ERC recipient, Professor, Nice Observatory, France),
Andres Escala (2006-2009, Professor Department of Astronomy, University of Chile),
Marcelo Alvarez (2006-2009, Staff at Lawrence Berkley Lab),
Emanuele Ripamonti 2002-2004 (Research fellow, Padova University),

Undergraduate Students:

Niki Kilbertus (2015-2016) exchange student from Germany. Now PhD student at Tübingen and Cambridge, UK
Iryna Butsky (2014-2015, now graduate student University of Washington, Seattle)
Julian Kates Harbeck (2013-2014, now a physics graduate student at Harvard)
Kevin Schlaufman (2003-2004, MIT, Kavli fellow, Carnegie-Princeton Fellow, Observatories Carnegie Institution for Science, now faculty at Johns Hopkins University)

Media

We contribute frequently to a wide range of media. The planetarium shows currently reach approximately 3 million viewers a year with a third being high school students worldwide.

- 2016: Contributed two scenes to Terrence Mallick's Voyage of Time, narrated by Brad Pitt
- 2015: National Geography contributed images and consulted on "Missing Universe" story
- 2014: KIPAC as partner on "Dark Universe" planetarium show narrated by Neil deGrasse Tyson
- 2012: PBS Science bytes: "Dark Matters" <http://video.pbs.org/video/2253154199/>
- 2012: Reuters: "Researchers shine bright light on dark matter" online video
- 2010: - Inside the Milky Way, National Geographic television, Interviewed in show and contributed animations.
- Developed animation of galaxy formation for a new show for the Big Bang theater at the American Museum for Natural History at New York.
- Created animation on the first stars for "Life: A Cosmic Story" which was produced and premiered at the California Academy of Sciences in San Francisco
- 2009: "Journey to the Stars" narrated by the Whoopi Goldberg, AMNH, Rose Center, New York, NY

Previous TV:

- "Apocalypse How" Discovery Channel 2008.
- "The Unfolding Universe" Discovery Channel, 2002 showed a 2 minute animation of our work
- "Origins" PBS NOVA series, aired Oct. 2004 with 1 minute animation of our simulations,
- FOX news (2006) showed our models of the Bullet cluster

Our research appeared in cover stories for Discover (Dec 2002), National Geographic (Feb 2003), Physics World (Mar 2003), Symmetry (2005), Discover (Dec 2005), Astronomy Magazine Dec (2005), Discover (2009), Discover (2010, 2014), Science News (2003, 2009, 2011), Physics Today (2011)

Other print media accounts:

space.com, Züricher Tagblatt, Spiegel, Scientific American (2014)

Radio:

BBC radio (2002), "Quirks and Quarks" Canada (Oct 2003), BBC radio (2006), Stanford KZSU

References:

Michael L. Norman,
Roger Blandford,
Simon D.M. White,
Lord Martin Rees