Curriculum Vitae
Stephon Haigh-Solomon Alexander

Title:

Professor of Physics
Department of Physics
Brown University
(Tenured)

Contact Information:

Department of Physics
Brown University
Box1843
Providence, RI 02912-1843
Stephon_Alexander@Brown.edu
215-264-7096

Education

Ph.D. Physics, Brown University, Providence, RI, USA, 2000

Sc. M Electrical Engineering, Brown University, Providence, RI, USA, 1996

Sc. M Physics, Brown University, Providence, RI, USA, 1995

B.S. Physics, Haverford College, Haverford, PA, USA, 1993

Research Positions (postdocs)

Postdoctoral Researcher, 2002-2005
The Stanford Linear Accelerator Center (SLAC)
Stanford University, CA

Postdoctoral Researcher, 2000-2002
Imperial College, London, U.K.

Professional Appointments

Professor of Physics 2016-present
Department of Physics
Brown University, RI

Ernest Everett 1907 Associate Professor of Natural Sciences 2012-2016
Associate Professor of Physics and Astronomy
Dartmouth College, NH

Associate Professor of Physics Haverford College, PA	2008-2012
Assistant Professor of Physics Penn State University, PA	2005-2008

Parallel Visiting Appointments:

Visiting Professor of Physics ETH Zurich, Switzerland	Summer 2015
Visiting Professor of Physics Princeton University, NJ	2011-2012
Visiting Professor of Physics The California Institute of Technology, CA	Fall 2008
Visiting Long Term Scientist Perimeter Institute, Waterloo, Canada	2005-2007
Visiting Postdoctoral Researcher, ISCAP Institute, Columbia University, N.Y	2001-2002
Visiting Postdoctoral Researcher, Perimeter Institute, Waterloo, Canada	2000-2004

Completed Publications:

V-mode polarization in axion inflation and preheating
By Stephon Alexander, Evan McDonough, Robert Sims
Phys. Rev. D 96, 063506 (2017)

Axion Electron Spin Quantum Mechanics and Direct Detection
By Stephon Alexander, Robert Sims
arXiv:1702.01459

Gravitational Waves Probes of Parity Violation in Compact Binary Coalescence
By Stephon Alexander, Nicolas Yunes
arXiv:1712.01853

On the Classical and Quantum Stability of a Cosmic Ghost
By Stephon Alexander, Sam Cormack, David Lowe, Robert Sims
arXiv:1707.02943

On a Relation of Vacuum Energy to the Hierarchy of Forces
Stephon Alexander, Laura Mersini-Houghton
arXiv:1705.10773

My Journey Into the Physics of David Finkelstein
By Stephon Alexander
S. Int J Theor Phys (2017) 56: 88

Chiral Gravitational Waves and Baryon Superfluid Dark Matter
By Stephon Alexander, Evan McDonough, David Spergel
arXiv:1801.07255

Gravitationally bound BCS state as dark matter
By Stephon Alexander, Sam Cormack
JCAP (April 2017)

Constraints on vacuum energy from structure formation and Nucleosynthesis
By Fred C. Adams, Stephon Alexander, Evan Grohs, Laura Mersini-Houghton
JCAP (March 2017)

Inflationary Birefringence and Baryogenesis
By Stephon Alexander
arXiv: 1606.05357
Published in IJMPD 2016

Turning on Gravity with the Higgs Mechanism
By Stephon Alexander, John Barrow, Joao Magueijo
arXiv: 1602.06557
Class.Quant.Grav. 33(2016) no. 14

Inflation and the Measurement Problem
By Stephon Alexander, Dhrubo Jyoti and Joao Magueijo
arXiv:1602.01216
Published in Phys. Rev D (2016)

A Cyclic Approach to Fine Tuning
By Stephon Alexander, Sam Cormack and Marcelo Gleiser
Phys. Lett B757 (2016)

Dynamics of Gauge Field Inflation
By Stephon Alexander, Dhrubo Jyoti, Arthur Kosowsky, Antonino Marciano.
arXiv:1408.4118 [hep-th].
JCAP 1505 (2015) 05, 005.

Fermi-bounce cosmology and the fermion curvaton mechanism
By Stephon Alexander, Yi-Fu Cai, Antonino Marciano.
Phys.Lett. B745 (2015) 97-104.

Gravitational-Wave Mediated Preheating
By Stephon Alexander, Sam Cormack, Antonino Marcianò, Nicolás Yunes.
Phys.Lett. B743 (2015) 82-86.

Fermi-bounce Cosmology and scale invariant power-spectrum
By Stephon Alexander, Cosimo Bambi, Antonino Marciano, Leonardo Modesto.
Phys.Rev. D90 (2014) 12, 123510.

Gravitational origin of the weak interaction's chirality
By Stephon Alexander, Antonino Marciano, Lee Smolin.
Phys.Rev. D89 (2014) 6, 065017.

Electric Time in Quantum Cosmology
By Stephon Alexander, Martin Bojowald, Antonino Marciano, David Simpson.
Class.Quant.Grav. 30 (2013) 155024.

Horava-Lifshitz theory as a Fermionic Aether in Ashtekar gravity
By Stephon Alexander, Joao Magueijo, Antonino Marciano.
Phys.Rev. D86 (2012) 064025.

The Hidden Quantum Groups Symmetry of Super-renormalizable Gravity
By Stephon Alexander, Antonino Marciano, Leonardo Modesto.
Phys.Rev. D85 (2012) 124030.

Chern-Simons Inflation and Baryogenesis

By Stephon Alexander, Antonino Marciano, David Spergel.
JCAP 1304 (2013) 046.

Towards a Loop Quantum Gravity and Yang-Mills Unification
By Stephon Alexander, Antonino Marciano, Ruggero Altair Tacchi.
Phys.Lett. B716 (2012) 330-333.

Testing gravitational parity violation with coincident gravitational waves and short gamma-ray bursts
By Nicolas Yunes, Richard O'Shaughnessy, Benjamin J. Owen, Stephon Alexander.
Phys.Rev. D82 (2010) 064017.

Chern-Simons Modified General Relativity
By Stephon Alexander, Nicolas Yunes.
Phys.Rept. 480 (2009) 1-55.

Cosmological Bardeen-Cooper-Schrieffer condensate as dark energy
By Stephon Alexander, Tirthabir Biswas, Gianluca Calcagni.
Phys.Rev. D81 (2010) 069902.

Cyclic Inflation
By Tirthabir Biswas, Stephon Alexander.
Phys.Rev. D80 (2009) 043511.

Magnetic Fields from Heterotic Cosmic Strings
By Rhiannon Gwyn, Stephon H. Alexander, Robert H. Brandenberger, Keshav Dasgupta
Phys.Rev. D79 (2009) 083502.

Generation of Circular Polarization of the Cosmic Microwave Background
By Stephon Alexander, Joseph Ochoa, Arthur Kosowsky.
Phys.Rev. D79 (2009) 063524.

The Cosmological BCS mechanism and the Big Bang Singularity
By Stephon Alexander, Tirthabir Biswas.
Phys.Rev. D80 (2009) 023501.

Quantum gravity as a Fermi liquid
By Stephon H.S. Alexander, Gianluca Calcagni.
Found.Phys. 38 (2008) 1148-1184.

Superconducting loop quantum gravity and the cosmological constant
By Stephon H.S. Alexander, Gianluca Calcagni.
Phys.Lett. B672 (2009) 386-389.

Chern-Simons Modified Gravity as a Torsion Theory and its Interaction with Fermions
By Stephon Alexander, Nicolas Yunes.
Phys.Rev. D77 (2008) 124040.

A Gravitational-wave probe of effective quantum gravity
By Stephon Alexander, Lee Samuel Finn, Nicolas Yunes.
Phys.Rev. D78 (2008) 066005.

Local Void vs Dark Energy: Confrontation with WMAP and Type Ia Supernovae
By Stephon Alexander, Tirthabir Biswas, Alessio Notari, Deepak Vaid.
JCAP 0909 (2009) 025.

Isogravity: Toward an Electroweak and Gravitational Unification
By Stephon H.S. Alexander.
arXiv:0706.4481 [hep-th].
Under review by **Journal Universe**

Parametrized post-Newtonian expansion of Chern-Simons gravity
By Stephon Alexander, Nicolas Yunes.
Phys.Rev. D75 (2007) 124022.

A New PPN parameter to test Chern-Simons gravity
By Stephon Alexander, Nicolas Yunes.
Phys.Rev.Lett. 99 (2007) 241101.

Is cosmic parity violation responsible for the anomalies in the WMAP data?
By Stephon H.S. Alexander.
Phys.Lett. B660 (2008) 444-448.

A Quantum gravitational relaxation of the cosmological constant
By Stephon Alexander.
Phys.Lett. B629 (2005) 53-59.

Birefringent gravitational waves and the consistency check of inflation
By Stephon Alexander, Jerome Martin.
Phys.Rev. D71 (2005) 063526.

Can the string scale be related to the cosmic baryon asymmetry?
By Stephon H.S. Alexander, S.James Gates, Jr.
JCAP 0606 (2006) 018.

In the realm of the geometric transitions

By Stephon Alexander, Katrin Becker, Melanie Becker, Keshav Dasgupta, Anke Knauf, Radu Tatar.
Nucl.Phys. B704 (2005) 231-278.

Leptogenesis from gravity waves in models of inflation
By Stephon Haigh-Solom Alexander, Michael E. Peskin, Mohammad M. Sheikh-Jabbari.
Phys.Rev.Lett. 96 (2006) 081301.

Quantum gravity and inflation
By Stephon Alexander, Justin Malecki, Lee Smolin.
Phys.Rev. D70 (2004) 044025.

Brane gas cosmology, M theory and little string theory
By Stephon H.S. Alexander.
hep-th/0212151.
JHEP 0310 (2003) 013.

Quintessence and variation of the fine structure constant in the CMBR
By Greg Huey, Stephon Alexander, Levon Pogosian.
Phys.Rev. D65 (2002) 083001.

Noncommutative inflation
By Stephon Alexander, Robert Brandenberger, Joao Magueijo.
Phys.Rev. D67 (2003) 081301.

A Thermal instability for positive brane cosmological constant in the Randall-Sundrum cosmologies
By Stephon Alexander, Yi Ling, Lee Smolin.
Phys.Rev. D65 (2002) 083503.

Inflation from D - anti-D-brane annihilation
By Stephon H.S. Alexander.
Phys.Rev. D65 (2002) 023507.

Noncommutative geometry as a realization of varying speed of light cosmology
By Stephon Alexander, Joao Magueijo.
Proceedings of the XIIIrd Rencontres de Blois 'Frontiers of the Universe', pp281, The Gioi Publishers, 2004.

Brane gases in the early universe
By S. Alexander, Robert H. Brandenberger, D.A. Easson.
Phys.Rev. D62 (2000) 103509.

On the varying speed of light in a brane induced FRW universe
By Stephon H.S. Alexander.
JHEP 0011 (2000) 017.

Books & Monographs

Chern-Simons Modified General Relativity (Monograph)
Stephon Alexander, Nicolas Yunes.
Physics Reports 480 (2009) 1-55.

The Jazz of Physics (Book)

Published by **BASIC BOOKS**, a member of Perseus Book Group

Book Reviews:

Textbook: Primordial Cosmology, Physics Today, 2011

Textbook: Modern Physics by Tipler and Llewllyn, 2010

Conference Proceedings:

The Hubble Web: The Dark Matter Problem and Cosmic Strings
By Stephon Alexander.
AIP Conf.Proc. 1140 (2009) 46-53.

Gravi-Leptogenesis: Leptogenesis from Gravity Waves in Pseudo-scalar Driven Inflation Models
By Stephon Haigh-Solom Alexander, Michael E. Peskin, Mohammad M. Sheikh-Jabbari.
eConf C0605151 (2006) 0022.

Chapters in Books

What's Next, Dispatches on the Future of Science (Vintage, 2009)

What Have You Changed Your Mind About? Edited by J. Brockman (Harper 2014)

What Should You Be Worried About? Edited by J. Brockman (Harper 2013)

Creative Production

Electonic Jazz Album, *Here Comes Now*, Co-Producer, Composer

Ambient Music Album, *The Hidden Code* (with DJ Spooky), Saxophonist, writer

Curriculum Vitae
Stephon Haigh-Solomon Alexander

Journal/Newspapers

New York Times, A Room for Debate, Feb 2013

Chronicles of Higher Education Invited Article

Nautilus Magazine June 2016

Work in Progress:

A deterministic resolution to the measurement problem in inflationary theory
Stephon Alexander, Dhrubo Jyhoti

BCS Dark Matter
Stephon Alexander, Sam Cormack

The fine tuning problem and cyclic cosmology
Stephon Alexander, Sam Cormack, Marcello Gleiser

The CMB power asymmetry, lensing and circular polarization
Stephon Alexander

Academic Awards:

Inducted into the Martin Luther King Collegium of Scholars,
Martin Luther King Chapel, Morehouse College, 2014

American Physical Society (APS), Edward Bouchet Award, 2013

Trinidad and Tobago Ministry of Science and Technology,
Rudranath Capildeo National Medal for the Natural Sciences, 2012

Elected to the Natural Sciences Council for the Fetzer Institute, 2009-2013

AAAS Annual John Wesley Powell Memorial Award, 2010

National Academy of Science Frontiers of Science Alumni, 2009

Top 10 Emerging Scholars: Diverse Issues in Higher Education Magazine, 2009

University Nomination for the Packard Award, 2005

Columbia University Teachers College Community Leadership Award, 2006

National Geographic Society Emerging Explorer Award, 2005

Isaac Newton Institute for Mathematical Sciences Junior Fellow, Cambridge University, 2002

Particle Physics and Astronomy Research Council Postdoctoral Fellowship, UK,2000-2002
Dept. of Education GANN Fellow, 1998-2000
NASA Space Grant Fellow, 1997-1998
New England Board of Higher Ed. Scholar, 1994-1997
Hansiker Award in Mathematics, Haverford College, 1991

Grants:

Co-PI, Department of Energy (DOE), Frontiers of Dark Energy, $425,000 (7/13-4/16)

PI, National Science Foundation (NSF) CAREER Award,$500,000 (9/08-9/13)
PI, FQXi Grant, Cosmology, Quantum Gravity Phenomenology, $65,000 (7/08-7/10)
PI, Foundational Questions in Physics and Cosmology Mini-Grant $15,000 (7/07-7/08)
PI, National Geographic Society Emerging Explorer Inductee $10,000 (2005-2006)

Invited Talks, Colloquia, Lectures (100+)

Black Body Podcast, Dec. 14, 2017, Internet

"The Jazz of Physics," Xavier College, Nov. 16, 20017, New Orleans, LA

"The Jazz of Physics," Valencia College, Oct. 31, 2017, Orlando, FL

J. Ernest Wilkins Lecture, Medgar Evers College, Sept. 29, 2017, New York, NY

Video, Physics for Kids, Inverse.com, June 23, 2017, New York, NY

"The Jazz of Physics," Commencement Brown University, May 27, 2017

Futurism & Techno, Detroit Masonic Temple, May 26, 2017, Detroit, MI

2017 MathFest Talk, April 22, 2017, Washington, DC

"The Jazz of Physics," Howard University, April 21, 2017, Washington, DC

Interview, Numberphile, April 21, 2017, Radio

Performance and talk, After Nature Gallery, April 13, 2017, New York, NY

"The Jazz of Physics," University of Toronto, April 6, 2017, Toronto, Canada

Performance and talk, Physics Art Show, March 22, 2017 Brown University

"The Jazz of Physics," Physics DUG Talk, March 16, 2017Brown University

"The Jazz of Physics," Jazz At Lincoln Center, Feb. 23, 2017, New York, NY

NPR/PBS Interview, Feb 10, 2017, New York, NY

Forbes: The Limit Does Not Exist Podcast, Jan 30, 2017, Internet

"The Jazz of Physics," RAMPS Lecture, Nov 17, 2016, New York, NY

"The Jazz of Physics," Granoff Center, Nov 6, 2016, Brown University

"The Jazz of Physics," Bangkok Talk, Oct 22, 2016, Bangkok, Thailand

"The Jazz of Physics," Coast to Coast AM, Sep 23, 2016, Radio

"The Jazz of Physics," Science For The People, Sep 1, 2016, Internet

"The Jazz of Physics," Department of Physics Staff Talk, Jul 20, 2016, Brown University

"The Jazz of Physics," Cool Science Radio Show Interview, May 26, 2016, KPCW-FM (NPR affiliate)

Viewpoints Taped Radio Interview, May 24, 2016, Radio

Tavis Smiley Show, May 23, 2016, Radio

Skeptic's Society Science Salon Talk, May 22, 2016, Altadena, CA

"The Jazz of Physics," Book Passage, May 21, 2016, Corte Madera, CA

Wired Video Interview, May 20, 2016, Internet

"The Jazz of Physics," Books Inc., May 20, 206, Berkeley, CA

Big Picture Science, May 20, 2016, Radio

"The Jazz of Physics," Google Talk, May 19, 2016, Mountain View, CA

"The Jazz of Physics," Kepler's, May 19, 2016, Menlo Park, CA

WNYC Interview, May 13, 2016, Radio

"The Jazz of Physics," Harlem Arts Salon - Book Talk, May 8, 2016, New York, NY

Palo Alto Daily News Interview, May 5, 2016

"The Jazz of Physics," Mid-Manhattan Library, May 5, 2016, New York, NY

"The Jazz of Physics," University of Houston-Clear Lake, May 2, 2016, Houston, TX

Johnson Space Center, April 29, 2016, Houston, TX

NASA Goddard Space Flight Center, April 30 2016, Greenbelt, MD

"The Jazz of Physics," Cafe Speak Easy - Book Talk, Apr 19, 2016, New York, NY

"The Jazz of Physics," Rockefeller University, April 13, 2016, New York, NY

The Tavis Smiley Show, PBS, June 2016

TEDx San Diego, October 2015, San Diego, CA

(Workshop) Keynote Address and Public Talk: STEM Caribbean, University College of the Cayman Islands, Cayman Island Ministry of Education, 2015

Panel Talk, Cosmic Polarization and Rotation Workshop, Institute de Galileo, Florence, Italy

Colloquium, Amherst College, 2015

Panel Talk, University of Rome Sapenzia, Rome, 2014

Conference Panel Talk, SISSA Phenomenology Group,Trieste, 2014

Conference Panel Talk, Institute de Fisica Teoretica, Madrid 2014

Theory Seminar, CERN, Geneva, 2013

Colloquium, Brown University, 2013

Colloquium, University of Iceland, Reykjavik, Iceland, 2013

Seminar, Princeton University, 2011 Princeton, NJ Oct 2011

Colloquium, University of the West Indies, Barbados, 2011

Colloquium, Hamilton College, NY, 2011

Colloquium, Rowan University, NJ, Oct 2011

Public Lecture, The University of the West Indies, Barbados, 2011

Panel Talk. XI Agean Cosmology School, Greece, 2011

Colloquium, Dartmouth College, 2011

Seminar, MIT, 2010

Seminar Albert Einstein Institute, Berlin Germany, 2010

Invited Talk, GOOGLE Complex, Mountain View, 2010

Panel Talk, NORDITA, Stockholm, Sweden, 2010

Seminar, UC San Diego, CA, 2010

Keynote Address, AAAS, John Wesley Powell Memorial Lecture

American Association for the Advancement of Science, 2010

Colloquium, Villanova University, 2010

Colloquium, University of Illinois, Urbana Champaign, 2009

Colloquium, The Perimeter Institute of Theoretical Physics, Canada, 2009
Panel Talk, SISSA Phenomenology Group, Trieste, 2014

Panel Talk, Institute de Fisica Teoretica, 2014

Theory Seminar, CERN, Geneva, 2013

Colloquium, Brown University, 2013

Seminar, The Institute for Advanced Study, 2011 Princeton, NJ Oct 2011

Colloquium, University of the West Indies, Barbados, 2011

Colloquium, Hamilton College, NY, 2011

Colloquium, Rowan University, NJ, Oct 2011
Public Lecture, The University of the West Indies, Barbados,
2011

Panel Talk. XI Agean Cosmology School, Greece, 2011

Colloquium, Dartmouth College, 2011

Seminar, MIT, 2010

Seminar Albert Einstein Institute, Berlin Germany, 2010

Invited Talk, GOOGLE Complex, Mountain view, 2010

Panel Talk, NORDITA, Stockholm, Sweden, 2010

Seminar, UC San Diego, CA, 2010

Keynote Address, John Wesley Powell Memorial Lecture (AAAS) American Association for the Advancement of Science, 2010

Colloquium, Villanova University, 2010

Colloquium, University of Illinois, Urbana Champaign, 2009
Colloquium, The Perimeter Institute of Theoretical Physics, Canada, 2009

Seminar The Perimeter Institute of Theoretical Physics, 2009

Theory Seminar Princeton University, 2009

Keynote Address, Temple University Graduate Symposium, 2009

Invited Talk, Marcel Grossman Meeting, Paris, France, 2009

Colloquium University of Tennessee, 2009

A Colloquium Oak Ridge National Laboratories, 2009

Invited Seminar, "Quantum Gravity and Cosmology" Florida Atlantic University, 2009

GOOGLE Tech Talk, GOOGLE Complex, 2009

Panel Talk, National Academy of Sciences, New Delhi, India, 2009

Seminar, University of Chicago, 2009

Seminar, Cal Tech, 2009

Seminar, University of Pennsylvania, 2009

Panel Talk, The Annual Meeting of National Society of Black Physicists, 2008

Theory Seminar, University of Pennsylvania, 2007

Colloquium, Haverford College, 2007

Seminar, McGill University, Canada, 2007

Seminar, Carnegie Mellon University, University of Pittsburgh, 2007

Public Lecture, National Geographic Society Headquarters, Wash.

Colloquium, Colgate University, 2006

Seminar, University of Amsterdam, 2006

Seminar, University of Utrecht, 2006

Invited Seminar, UC Berkeley Astrophysics, 2006

Invited Seminar, ISCAP, Columbia, 2006

Seminar, National Society of Black and Hispanic Physicists, 2006

Lecture, McGill University, Canada, 2005

Public Lecture, U. West Indies, Trinidad, W.I. , 2005

Plenary Talk, U. British Columbia, 2005

American Physical Society Spring Meeting, 2004

Invited Seminar, Harvard University, 2005

Seminar, MIT, 2005

Departmental Colloquium, Duke University, 2005

Seminar, California Institute of Technology, 2004

Public Lecture, Duke University, 2004

Colloquium, University of Michigan, 2004

Seminar Jefferson Lab, Hampton Virginia, 2004

Seminar, Perimeter Institute, Canada, 2004

Seminar, New York University, N.Y.,2004

Seminar, UC Berkeley, Berkeley CA, 2004

Seminar, Harvard University, Cambridge, MA, 2003
Columbia University, N.Y, N.Y, 2003
Seminar, Kavli ITP, UCSB, CA, 2003
Seminar, UC Davis, Davis, CA, 2004

Seminar, Cal Tech, Observational Cosmology Group, Pasadena, CA, 2003
Seminar, UCLA , Los Angeles, CA, 2004

National Society of Black Physicists, Atlanta, GA, 2003
Seminar, Perimeter Institute, Canada, 2003
Seminar, McGill University, Montreal, Canada, 2003
University of Geneva, Geneva, Switzerland, 2002
Seminar, Perimeter Institute for Theoretical Physics, Canada, 2002

Seminar, Institute for Advanced Studies, Princeton, NJ, 2002

Seminar, NYU, New York, NY, 2001
Seminar, Brown University, Providence, RI, 2001

Panel Talk, M-Theory Cosmology, Cambridge University, Cambridge, U.K 2001
Panel Talk , Corfu Summer Institute, Corfu, Greece, 2001

Seminar, Columbia University, N.Y., 2001
Colloquium, NASA Goddard Astrophysics Lab, 2001

Public Lecture in London, London, U.K, 20901
Seminar, Cambridge University, U.K, 2001
Seminar, Imperial College, U.K, 2001

Seminar, University of British Columbia, Vancouver, Canada, 2001

Panel Talk, Aspen Center for Physics, Aspen, CO, 2000
Public Talk, Summerbridge School, Providence, RI, 2000

Seminar, University of The West Indies, Kingston, Jamaica, 1999
Seminar, University of British Columbia, Vancouver, Canada, 1999
Seminar, Brown University, Providence, RI, 1997

Talk, Brazilian School of Gravity and Cosmology, Rio de Janerio, Brazil, 1997

Service:

i.) To the University

Founder, Organizer and Lecturer in Dartmouth Adventures in STEM (DAS) pre-orientation science research camp for pre-freshman, 2014-2015

Department Colloquim committee, 2015

Organizer and Convenor of Finkelstein Fest to life work of David Ritz-Finkelstein, 2014

Graduate Admissions Committee, Dartmouth College, 2012-2014

Graduate Admissions Committee, Penn State University, 2006-2008

Steering Committee of Institute of Rhetoric and Writing, Dartmouth College, 2014-2015

Organizer for the Annual EE Just Science Symposium, Dartmouth College, 2014

Public Lecture Committee, Dartmouth College, 2012-2014

Organizer for the Annual EE Just Science Symposium, Dartmouth College, 2013

Organizer for the EE Just Science Symposium, Dartmouth College, 2012

Director of the EE Just STEM Scholars Program (60 students, 4 staff), Dartmouth College, 2012-Present

Co-founded the Coleman Interdisciplinary Lecture Series at Haverford College, 2009-2012

Steering Committee, Mellon Mays Undergraduate, Fellowship, 2008-2012

Steering Committee for Hurford Humanities Center, 2008-2011

ii.) To the Profession

Editorial Board, Journal Universe, 2014-Present

Journal Referee: Physics Review Letters, Physics Review D, Journal of Cosmology and Astrophysics, Classical and Quantum Gravity, Physics Letters B, 2001-Present

APS Bouchet Award Committee, 2014

NSF Grant Panel, 2009 -Present

NSF Graduate Fellowship Panel 2012

Natural Sciences Advisory Council, Present

co-Editor and Consultant for National Geographic School Publishing (physics), Present
Science Advisor, National Lab Day, 2010

Review Committee, Bowdoin College Physics Department (10 year cycle) 2009
Board of Directors Network for the Improvement of World Health, Ghana, Present
Member (18 years)

National Society of Black Physicists 2009-Present

Steering Committee, Hurford Humanities Center, Haverford College Feb 2009
National Science Foundations Grant Panel Committee, High Energy Physics

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Ph.D Students:

Deepak Vaid, Ph.D. Penn State, 2007, Tenure track Assistant Professor at National Institute of Technology Karnataka, Surathkal

Joseph Ochoa, Ph.D. Penn State, 2008, Visiting Assistant Professor of Physics, Haverford

Nico Yunes, Ph.D. Penn State, 2006, Tenured Associated Professor of Physics, Montana State

Samuel Cormack, Ph.D candidate, Dartmouth

Dhrubo Jyoti, Ph.D candidate, Dartmouth

Robert Sims, Ph.D candidate, Dartmouth

Undergraduate Research Students:

Stephan Johnson, Dartmouth Student, Class of 2016

Luis Martinez, Dartmouth Student, Class of 2015

Martin Blood-Forsythe, Haverford College

Apker Award Finalist, Churchill Award, Goldwater Scholarship

M.S. Physics, Cambridge University

Currently a Ph.D student in Physics at Harvard University

Deriba Olana, Harvard University

Currently Ph.D in Applied Physics at Harvard University

Annie Preston '12, Haverford College

Currently applying to physics theory Ph.D. Programs in computer science

Alex Cahill '11, Haverford College

currently Physics Ph.D student at UCLA Garrett Vanacore '11, Haverford College
currently Ph.D at U. Illinois, condensed matter theory

Samuel Rodriques '13, Haverford College Goldwater Fellowship

Currently a Physics Ph.D. Student at MIT

Postdoctoral Fellows Mentored:

Prof. Tirthabir Biswas, Currently Faculty at Loyola University

Prof. Gianluca Calcagni Currently Tenured Faculty at Instituto de Estructura de la Materia, CSIC,Madrid, Spain

Prof. Nico Yunes, Currently faculty at Montana State, Montana

Prof. Antonino Marciano, Currently faculty at Fudan University, Shangai China

Dr. Nia Imara, Currently Postdoc at Harvard Smithsonian, Harvard University

Dr. Andy Randono, Currently a start up Enterpreneur, Boulder CO

Courses:

Undergraduate Courses

Modern Physics
Intermediate Quantum Mechanics
Solid State Physics
Introduction to Mechanics
Honors Mechanics
General Relativity for Undergraduates
Understanding the Universe: History of Physics
Relativistic Quantum Mechanics

Graduate Courses

Quantum Mechanics
Advanced Quantum Mechanics
Introduction to Cosmology
The Standard Model of Particle Interactions
Introduction to Quantum Field Theory

Select Outreach Activities

National Book Tour, Summer 2016, Gave over 10 talks on music and modern physics.
Panel Talk, SOUNDBREAKS, Swarthmore College, PA, 2015
Public Talk, STEM Caribbean, Grand Cayman, Cayman Islands, Mar 2015
Moderated the World Premiere for Particle Fever, Neuehouse, NY , 2013
Moderated discussion with Brian Greene, Neuehouse, NY
GOOGLE Tech Talk, Mountain View, CA July 2013
TED Talk, NYC, 2013
Public Lecture, Caribbean Philosophical Association, 2012
Cover Article, New Scientist Magazine, UK, 2011
Feature in Discovery Network's Through the Wormhole with Morgan Freeman, 2012
Public Lecture, Univ. of the West Indies, Barbados W.I., 2011
Keynote Address, National Geographic School Publishing Teachers Conference,2011

NOVA ScienceNow, PBS feature , 2011
Google SciFoo Presenter and Participant, 2010
Keynote Address, John Wesley Powell Memorial Lecture, AAAS/Rice University, 2010
PBS Appearance in Series Closer to Truth(4 Episodes), 2010
Public Lecture and TV appearance, The Government of Trinidad and Tobago, 2009
Keynote Address, Temple University Minority Graduate Symposium, 2009
World Science Festival Public Lecture, Genoa, Italy, 2009
Public Lecture, Juniata College, 2009
ATempleton Foundation Promotional Video Film, 2009
Keynote Address, National ScienceTeachers Conference, 2008
Invited Talk, SCIFoo, Google Complex, 2008
Black History Month Keynote Address, NOAA 2008
Featured Video Interview, www.Bigthink.com, 2008