

Curriculum Vitae of Hiranya V. Peiris

Research Interests

Theoretical and observational cosmology; cosmic microwave background; large scale structure; early universe theoretical physics; stellar dynamics; galaxy evolution; statistical methods; optimal numerical algorithms.

Academic Record

- Nov 2003: Doctor of Philosophy: Astrophysics, **Princeton University**
Title: “*WMAP First Year Results: Cosmological Parameters and Implications for Inflation*”
Advisor: Prof. David N. Spergel
- Jun 2001: Master of Arts in Physics, **Princeton University**
- Jun 2000: Master of Arts in Astrophysics, **Princeton University**
- 1994-1998: Bachelor of Arts and Master of Science in Natural Sciences (Physics)
1st Class Honours, **University of Cambridge**

Research Record

- Sep 16 – present: Director, **Oskar Klein Centre for Cosmoparticle Physics**, Stockholm
- Sep 16 – present: Professor in Cosmoparticle Physics, Department of Physics, **Stockholm University**
- Jan 13 – present: European Research Council “Ideas” Laureate, ERC Starting Grant PI
- Oct 15 – present: Professor of Astrophysics, Dept. of Physics and Astronomy, **University College London**
- Oct 12 – Sep 15: Reader, Dept. of Physics and Astronomy, **University College London**
- Oct 09 – Sep 12: University Lecturer, Dept. of Physics and Astronomy, **University College London**
- Oct 09 - Sep 12: STFC Advanced Fellowship, held at **University College London**
- Oct 08 - Sep 09: Junior Research Fellowship, **King's College, Cambridge**
- Oct 07 - Sep 09: STFC Advanced Fellowship, held at Institute of Astronomy, **Cambridge University**
- Oct 04 - Sep 07: Hubble Postdoctoral Fellowship (NASA/STSci), held at the **University of Chicago**
- Oct 04 - Sep 07: Enrico Fermi Fellowship, Enrico Fermi Institute, **University of Chicago**
- Nov 03 - Sep 04: Research Associate, Dept. of Astrophysical Sciences, **Princeton University**
- Summer 1996 & 1997: Summer Undergraduate Research Fellow, *Galileo* Orbiter Science Team, **JPL/Caltech**

Professional Esteem Indicators

- 160+** invited presentations, including seminars, colloquia, and international conferences
- Citation count: **40,080** (InSPIRE/ADS); **121** journal publications; **3** invited review articles
- Vice-President (Astronomy), **Royal Astronomical Society** (2016—)
- ADS Hirsch h-factor: **52**; Hirsch m-factor gradient: **2.8**
- Organizer/session convenor at **18** international symposia

Prizes, Awards, and Competitive Fellowships

Post-PhD

- 2018: Gruber Cosmology Prize (awarded to Planck Collaboration), Gruber Foundation, U.S.A.
- 2018: Breakthrough Prize in Fundamental Physics (awarded to the WMAP Science Team), U.S.A.
- 2017: Svein Rosseland Lecture, University of Oslo, Norway
- 2016: Elected Fellow of the American Physical Society
- 2014: Buchalter Cosmology Prize, co-recipient.
- 2012: Gruber Cosmology Prize (awarded to the WMAP Science Team), Gruber Foundation, U.S.A.
- 2012: Fowler Prize, Royal Astronomical Society, U.K.
- 2009: Philip Leverhulme Prize, The Leverhulme Trust, U.K.
- 2008: Junior Research Fellowship, King’s College, Cambridge
- 2007: STFC Advanced Fellowship, UK Science and Technology Facilities Council
- 2007: Halliday Prize, given to the top scientist selected for STFC Advanced Fellowship
- 2007: Kavli Frontiers Fellow, US National Academy of Science (of 76 named in all fields in 2007)
- 2004 & 2007: 2 Group Achievement Awards to WMAP Science Team awarded by NASA
- 2004: Hubble Postdoctoral Fellowship (NASA/STSci), held at University of Chicago
- 2004: Enrico Fermi Fellowship, Enrico Fermi Institute, University of Chicago, U.S.A.

Prizes, Awards, and Competitive Fellowships (contd.)

Pre-PhD

2002: Harold W. Dodds Honorary Fellowship, Princeton University, U.S.A.

1998: Merit Fellowship in Natural Sciences and Mathematics, Princeton University, U.S.A.

1998: Poesner Scholar of New Hall, University of Cambridge

1997 & 1996: Summer Undergraduate Research Fellowship, California Institute of Technology, U.S.A.

Professional Affiliations and Service

Societies: Royal Astronomical Society, American Astronomical Society, Institute of Physics (UK), American Physical Society

Projects: Member, Wilkinson Microwave Anisotropy Probe Science Team (2002-2006)

Member, CMBPol Mission Concept Study (2008-2009)

Member, Planck High Frequency Instrument Core Team (2009-)

Coordinator, joint CMB studies working group, Herschel-SPIRE Legacy Survey Study

Member, Science Working Group, Cosmic Origins Explorer (CORe) Mission Proposal

Member, Dark Energy Survey (DES) Collaboration (2013-)

Full Member, Large Synoptic Survey Telescope (LSST) Collaboration (2013-)

Member, Dark Energy Spectroscopic Instrument (DESI) Collaboration (2015-)

Referee: Monthly Notices of the Royal Astronomical Society, Physical Review Letters, Physical Review D, Journal of Cosmology and Astroparticle Physics, Science, General Relativity and Gravitation, Classical and Quantum Gravity

Panels: DiRAC (UK National HPC facility) Resource Allocation Committee, astronomy panel
Computing Advisory Panel to Science & Technology Facilities Council, U.K.

External Advisory Committee, Simons Observatory

Science Advisory Board, Flatiron Institute

European Research Council Consolidator Grants PE9 panel member

LSST DESC Collaboration Council Member

LSST DESC Publication Board Member

LSST Corporate Operations Committee Member

General Member, Aspen Center for Physics

Editor: Physics Letters B

Reviewer: Canadian Space Agency Small Missions in Space Science, 2007

Science & Technology Facilities Council Astronomy Theory Standard Grants, 2008

Science & Technology Facilities Council Advanced Fellowships, 2008, 2011

L'Agence Nationale de la Recherche (ANR), France, 2010, 2016

Science & Technology Facilities Council Consolidated Grants, 2012, 2015, 2018

Science & Technology Facilities Council Ernest Rutherford Fellowships, 2012, 2013, 2016

European Research Council Consolidator Grants 2016

Teaching

Departmental teaching

- Lecturer, PHASM336, Advanced Physical Cosmology (UCL, 4th year / Masters level course) 2010-2015
- Completed UCL Postgraduate Certificate in Learning and Teaching in Higher Education, Module A (2011)
- Lecturer, PHAS3136 Cosmology & Extragalactic Astronomy (UCL, 3rd year course) 2009-2010
- Lecturer, Part III Maths Cosmology (DAMTP, Cambridge) 2008-2009
- Teaching Assistant for AST 203: *The Universe*, Princeton University, Spring 1999

Project students

- UCL: [2010-2011] Liyan Xu, [2009-10] Simon Hall, Niall Gibson, [2014-2015] Jasleen Matharu, [2016-2017] Dina Traykova
- Cambridge: [2008-09] Matt Anderson, [2007-08] Arianne Shahvisi

Other

- Lecturer, ERC training course on numerical methods in early universe cosmology, ICC, University of Barcelona, Spain (Jun 2011)

- Faculty, Perimeter Scholars International, Perimeter Institute, Waterloo, Canada (Dec 2009)
- Lecturer, UniverseNet Cosmology Summer School, Oxford, U.K. (Sept 2008)
- Lecturer, Summer School "Cosmology with CMB and LSS", ICTS-IUCAA, Pune, India (Aug 2008)
- Lecturer, JEDI 2 Workshop on Creativity and Research, UCT, South Africa (Jul 2008)

Research Student Supervision¹

As primary supervisor on a research project

- Tristan Smith (Graduate, CalTech) 2006, 1 journal paper [Fellow, U.C. Berkeley]
- Cora Dvorkin (Graduate, U. Chicago) 2006-2009, 3 journal papers [Fellow, IAS Princeton]
- Daniel Baumann (Graduate, Princeton) 2007, 1 journal paper [Fellow, IAS Princeton]
- Brett Friedman (Undergraduate, U.C. Irvine) 2007, 1 journal paper
- Jean-Rene Gauthier (Graduate, U. Chicago) 2007-2008 [Fellow, CalTech]
- Jiajun Xu (Graduate, Cornell University) 2007-2008, 1 journal paper [Fellow, Wisconsin-Madison]
- Michael Mortonson (Graduate, U. Chicago) 2008-2009, 1 journal paper [Fellow, Ohio State]
- Andrew Pontzen (Graduate, Cambridge) 2008-2009, 2 journal papers [Fellow, Cambridge University]
- Thibaut Josset (Undergraduate, ENS-Cachan) 2012, 1 journal paper
- Layne Price (Graduate, University of Auckland) 2013-2015, 3 journal papers

As PhD/Research Masters supervisor

- Simeon Bird (Graduate, Cambridge) 2007-2011, 3 journal papers [Fellow, IAS Princeton]
- Anjali Tripathi (Undergraduate/Marshall Scholar, Cambridge) (2009-2010) [PhD, Harvard University]
- Stephen Feeney (Graduate, UCL) 2009-2012, 5 journal papers [Postdoc, Imperial College London]
*Royal Astronomical Society Michael Penston Thesis Prize (runner-up),
UCL Jon Darius Memorial Thesis Prize*
- Boris Leistedt (Graduate, UCL) 2011-2014, 4 journal papers [Simons Fellow, New York University]
*Royal Astronomical Society Michael Penston Thesis Prize (runner-up)
UCL Jon Darius Memorial Thesis Prize*
- Keir Rogers (Graduate, UCL) 2014-2017, 4 journal papers [Oskar Klein Centre Fellow, Stockholm]
- Luisa Lucie-Smith (Graduate, UCL) 2015 –, 1 journal paper
- Dina Traykova (Undergraduate) (2016-2017) 1 journal paper [PhD, Oxford University]
- Christian Setzer (Graduate, Stockholm University) 2017 –
- Axel Widmark (Graduate, Stockholm University) 2018 –

Grants

Current Grants

- Dec 2017: "Fundamental Physics from Cosmological Surveys", Reg. No. 2017-04212, Swedish Research Council, Sweden (PI/ 4,110,000 SEK (€404k); 2 Co-Is)
- Jan 2017: "GREAT: Gravitational Radiation and Electromagnetic Astrophysical Transients", Reg. No. 2016-06012, Swedish Research Council, Sweden (Co-I/ 21,492,000 SEK (€2.2M); PI: Goobar, 2 other Co-Is)
- July 2015: "UK Involvement in LSST: Phase A (UCL)" ST/N00258X/1, Science and Technology Facilities Council, U.K. (PI/ £147,388; 2 Co-Is)
- Jan 2013: "CosmicDawn: Understanding the Origin of Cosmic Structure" ERC Starting Grant 306478, European Research Council (PI/ €1.5M, 0 Co-Is)

Past Grants

- Jan 2013: "Cosmological Constraints on the Very Early Universe", Royal Society International Exchange grant with University of Auckland, New Zealand (PI/ £12,000)
- Oct 2012: "Testing the Multiverse", New Frontiers in Astronomy and Cosmology, University of Chicago (Co-I/ US\$273,330; PI: Aguirre, 1 other Co-I)
- Apr 2012: "UCL Astrophysics Consolidated Grant 2012-2015" ST/J001511/1, Science and Technology Facilities Council, U.K. (Co-I/ £1.872M; PI: Lahav, 17 other Co-Is)

¹ First position after graduation shown in square brackets for students that remained in academia.

Grants (contd.)

- Sep 2011: “Newton International Fellowship”, Royal Society (UK PI/ £66,000, International PI: McEwen)
Aug 2011: FQXi Mini Grant for travel, Foundational Questions Institute (PI / US\$5,000)
Feb 2011: “Cosmology from Surveys” UCL cosmology group grant, ST/I000879/1, Science and Technology Facilities Council (Co-I/ £468,086; PI: Lahav, 2 other Co-Is)
Jan 2011: “Detecting signatures of eternal inflation using WMAP and Planck data”, FQXi Large Grant, Foundational Questions Institute (PI / US\$112,331, 1 Co-I)
Nov 2010: Philip Leverhulme Prize, The Leverhulme Trust (PI/£70,000)
Sep 2010: “Support for an International Meeting”, Royal Astronomical Society (PI/£2,000)
Oct 2007: Halliday Prize, Science and Technology Facilities Council (PI / £50,000, 0 Co-Is)
Oct 2007: “Cosmic Acceleration: Connecting Theory and Observation”, STFC Advanced Fellowship E004121, Science and Technology Facilities Council (PI / £502,956, 0 Co-Is)
Apr 2009: “Research in Theoretical Astronomy, 2009-14”, IoA Theory Rolling Grant, Science and Technology Facilities Council, U.K. (Co-I/ £2.439M; PI: Efstathiou, 12 other Co-Is)
Oct 2007: “Cosmic Acceleration”, Marie Curie International Reintegration Grant IRG-203314, European Commission (PI / €100,000, 0 Co-Is)
Oct 2004: “Constraining Fundamental Physics with CMB and Complementary Data”, Hubble Fellowship, HF-01177.01-A, NASA/ST.Sci. (PI / US\$275,248, 0 Co-Is)
Feb 2004: “Analysis of WMAP Data”, Astrophysics Data Program NNG04GC88G, NASA (Co-I, US\$133,935; PI: Verde, 0 other Co-Is)

Organization of International Conferences

- SOC, *CosmoCruise 2019*, Mediterranean Sea, Aug 2019
Organiser and SOC, Kavli workshop on *Consistency of Cosmological Datasets*, Cambridge, May 2018
Co-organizer, *Perfect Pixels Accurate Astrophysics Correct Cosmology*. Aspen Center for Physics, Jun-Jul 2018
Session Convenor, 42nd COSPAR Scientific Assembly, Pasadena, CA, U.S.A., July 2018
SOC, *COSMO21: Statistical Challenges in 21st Century Cosmology*, Valencia, Spain, May 2018
SOC, EWASS2018, *European Week of Astronomy and Space Science*, Liverpool, U.K., April 2018
SOC, *COSMO21: Statistical Challenges in 21st Century Cosmology*, Chania, Greece, May 2016
SOC, Alan Turing Institute Summit: *Big Data in the Physical Sciences*, Royal Society, Jan 2016
SOC, *CosmoCruise 2015*, Mediterranean Sea, Sept 2015
Co-organizer, *Accurate Astrophysics – Correct Cosmology*, RAS London, Jul 2015
Session Convenor, Biomedical and Astronomical Signal Processing Frontiers (BASP15), Jan 2015
Co-organizer, *Unsolved Problems in Astrophysics & Cosmology*, Benasque Center for Physics, Feb 2011
Session Convenor, International Conference for High Energy Physics (ICHEP2010), Paris, Jul 2010
Co-organizer, *Fingerprints of the Very Early Universe*, Aspen Center for Physics, May-Jun 2009
Session Chair, Dark Energy Conference, Galileo Galilei Institute, Florence, Mar 2009
Co-organizer, *Snowdon Problems in Modern Cosmology* Workshop, Aug 2008
Session Chair, *Cosmic Microwave Radiation* conference, Aspen Center for Physics, Jan 2008
Cosmology Session Convenor, 13th PASCOS International Symposium, London, Jul 2007
Co-organizer, *Life Beyond the Gaussian* Workshop at the KICP, U. Chicago, Jun 2006

Departmental Service

UCL

- Ph.D. viva examiner, Cyrille Doux (APC, Université Paris Diderot, Nov 2017)
- Ph.D. viva examiner, Darryl Wright (Queens University Belfast, Nov 2015)
- Ph.D. viva examiner, Laura Wolz (UCL, Sept 2014)
- Ph.D. viva examiner, Mikjel Thorsrud (Oslo, Sept 2014)
- Ph.D. thesis examiner, Asaf Ben-David (Tel Aviv, Feb 2014)
- Ph.D. viva examiner, Joseph Elliston (QMUL, May 2013)
- Ph.D. viva examiner, Manda Banerji (UCL, Sep 2009)
- M.Phil transfer interview, Adam Hawken (May 2010)
- PhD first year interview, Fotini Economou (Sept 2010)

- M.Phil transfer interview, Emily Hall (Nov 2010)
- M.Phil transfer interview, Fotini Economou (July 2011)
- PhD final year interview, Adam Hawken (July 2011)
- PhD first year interview, Maayane Soumagnac (Oct 2011)
- M.Phil transfer interview, Maayane Soumagnac (Jul 2012)
- Organizer, Cosmology Journal Club, University College London, 2009–
- Organizer, UCL Astrophysics Colloquium series, UCL, 2009–2011
- Organizer, London Cosmology Discussion Meetings (LCDM), 2010–2016

Institute of Astronomy, Cambridge

- Member, Graduate Admissions Committee (2007–2009)
- Academic staff appraiser (2008-2009)
- Organizer, Cosmology Journal Club, Institute of Astronomy (2007–2009)
- Postgraduate Penultimate Year interview, Luke Barnes (Jun 2008)
- Certificate of Postgraduate Studies examination, Eliu Huerta (Aug 2008)
- Postgraduate Penultimate Year interview, Samira Hammimeche (Nov 2008)

University of Chicago

- Organizer, Kavli Institute for Cosmological Physics Seminar Series, U. Chicago, 2006–2007

Invited Scientific Presentations (selected)

I have given over 160 invited talks (including all the major annual international symposia relevant to my area of expertise). Multidisciplinary international meetings are indicated by (*). Full listing at the end of the CV.

May 2017: Svein Rosseland Lecture 2017, Oslo, Norway

Jan 2017: “Towards fundamental physics from the cosmic microwave background”, Big Apple Colloquium, New York, U.S.A.

*Jul 2016: Plenary talk, 21st International Conference on General Relativity and Gravitation, New York, U.S.A.

*Dec 2015: Plenary talk, XXVIII Texas Symposium on Relativistic Astrophysics, Geneva, Switzerland

June 2015: Plenary talk, *Rencontres de Blois 2015* International Symposium, Blois, France

Aug 2014: Plenary talk, 14th COSMO International Symposium, Chicago, U.S.A.

*May 2014: Invited talk, International Astronomical Union symposium *Statistical Challenges in 21st Century Cosmology* (IAU306), Lisbon, Portugal

Apr 2014: Invited talk, PONT d'Avignon 2013 International Cosmology Meeting, Avignon, France

Jun 2013: Plenary talk, National Astronomy Meeting (NAM2013) held at the University of St. Andrews, U.K

*Sept 2012: Plenary talk, *Big Bang, Big Data, Big Computers* workshop, APC Laboratory, Paris, France

Jul 2011: Invited talk, Early Universe Cosmology International Symposium, Perimeter Institute, Canada

Dec 2010: Plenary talk, International Symposium on Non-Gaussianities, Allahabad, India

Dec 2009: Joint Harvard/MIT/Tufts Cosmology Colloquium, Harvard University, U.S.A.

*Oct 2009: Plenary talk, “Statistical Frontier of Astrophysics”, IPMU Tokyo, Japan

Sep 2009: Plenary talk, 9th COSMO International Symposium, CERN, Switzerland

*Dec 2008: Invited talk, XXIV Texas Symposium on Relativistic Astrophysics, Vancouver, Canada

Aug 2008: Plenary talk, Early Universe workshop, IUCAA, Pune, India

Jun 2008: Invited talk, CMB Polarization Workshop: Theory and Foregrounds, Fermilab, U.S.A.

Apr 2008: Invited talk, PONT d'Avignon 2008 International Cosmology Meeting, Avignon, France

Jan 2008: Invited talk, “Cosmic Microwave Radiation”, Aspen Center for Physics, U.S.A.

May 2007: Plenary talk, *Rencontres de Blois 2007* International Symposium, Blois, France

Jun 2006: Plenary talk, “Inflation+25” International Conference, Paris, France

*Apr 2005: Invited talk, 2005 American Physical Society Meeting, Tampa, FL, U.S.A.

*Dec 2004: Plenary talk, String Cosmology Workshop, National Taiwan Normal University, Taipei

Dec 2004: Invited talk, 8th Paris Cosmology Colloquium, Ecole Internationale Daniel Chalonge

*Jun 2004: Plenary talk, 10th Annual German-American Frontiers of Science Symposium, Germany

*Feb 2004: Invited talk, Winter Conference on Particle Physics, Aspen Center for Physics, U.S.A.

Nov 2003: Keynote talk, 6th RESCEU International Symposium, Tokyo, Japan

Public Outreach

I have provided comments / short articles / reviews for: *Astronomy Magazine*, *Nature*, *Discover*, *New Scientist*, *The Observatory*.

- Group blog, <http://www.earlyuniverse.org>
- “Cosmoparticle”, Sci-art Collaboration with Penelope Rose Cowley (Jan-May 2017)
<http://www.peneloperosecowley.com>
- Invited public lecture at the Royal Institution (Mar 2016)
- Selected by Royal Astronomical Society in “21 Female Fellows to watch in the 21st Century” (Jan 2016)
- Invited speaker at New Scientist Live, Instant Expert, London (May 2015)
- Institute of Physics Public Lecture for the “International Year of Light”, Glasgow (Feb 2015)
- Interview for major feature on my research in *Quanta* magazine (public engagement arm of the Simons Foundation, USA) (Nov 2014)
- Featured in STFC profile in celebration of Ada Lovelace Day (Oct 2014)
- Played the presenter role in the episode “Why are we here?” in the international version of the major BBC programme “Human Universe” (hosted by Brian Cox in the UK version) (filmed Aug 2014)
- Times Higher Education opinion piece (Mar 2014)
- BBC *Newsnight*, ITV, Channel 4, BBC Radio 4, BBC World Service, BBC Radio Wales interviews on BICEP2 announcement (Mar 2014)
- Cambridge Astronomical Society talk (Feb 2014)
- Video Interview for Origins event at CERN (July 2013)
- Selected as one of “10 Astronomy’s Rising Stars”, *Astronomy Magazine* (July 2013)
- Speaker at TEDxCERN (May 2013)
- Spacetalk at Royal Greenwich Observatory (March 2013)
- Featured in RCUK “Careers in Research” case study (Oct 2012)
- Invited speaker, British Interplanetary Society (July 2012)
- FQXi podcast on the cosmic microwave background (July 2012)
- Invited speaker, Hampstead Garden Suburb Astronomical Society (May 2012)
- UCL Science Centre Lecture to several hundred 6th Formers and Teachers (March 2012)
- Invited speaker, Cambridge Scientific Society (Feb 2012)
- Guest on the Big Science FM radio show and podcast (Sep 2011)
- Invited speaker, Society for Popular Astronomy, U.K. (Jul 2011)
- University of Manchester “Jodcast” (Nov 2010)
- Opinion piece for the *New Scientist*: “Cosmology’s not broken, so why try to fix it?” (Aug 2010)
- Featured scientist on Guardian Science Weekly podcast (Jul 2010)
- Talk to MPs and policymakers, RCUK event “Impacts: people and skills” (Jun 2010)
- Interview and researcher profile for Research Councils UK “Impacts” publication (Apr 2010)
- Cambridge Astronomical Association talk (Aug 2009)
- Aspen Center for Physics Dialogue (Nov 2008)
- Astronomer portrait for “Explorers of the Universe” exhibition, Royal Albert Hall [STFC-funded project for International Year of Astronomy 2009, Max Alexander] (Nov 2008)
- Speaker, South Hampstead High School Careers Conference (Jun 2008)
- Interview for Slacker Astronomy monthly podcast (May 2007)
- 90 min Workshop for Great Lakes Planetarium Association (Oct 2006)
- Featured scientist in “Beyond the Solar System” DVD, NASA Universe Education Forum / Harvard-Smithsonian Center for Astrophysics (2005)
- CSLP Class Presentation, Old Bridge High School, NJ, U.S.A. (May 2004)
- Invited Lecture for Amateur Astronomers Association of New York City (Mar 2004)
- Organizer, Princeton Observatory Weekly Public Star-watch (2000-2001)

Referees

Prof. David Spergel

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Scientific Presentations² (full list)

- Apr 2018: “The posterior predictive distribution as a measure of tension”, invited talk, *Statistical Challenges for Large Scale Structure in the Era of LSST*, Oxford, United Kingdom
- Mar 2018: “Towards fundamental physics from cosmological surveys”, Astrophysics Seminar, Lund University
- Oct 2017: “Towards fundamental physics from cosmological surveys”, GRAPPA@5, Amsterdam
- Sep 2017: “Towards fundamental physics from cosmological surveys”, Alba Nova colloquium, Stockholm University
- Aug 2017: “Machine Learning for Classification in Cosmology”, *Understanding Cosmological Observations*, Benasque, Spain
- Jul 2017: “Towards fundamental physics from the cosmic microwave background”, Stephen Hawking 75th Birthday Conference, Cambridge, U.K.
- May 2017: “The Universe: a detective story”, Svein Rosseland Lecture 2017, Oslo, Norway
- Apr 2017: “LSST: What will it do for transient science?”, *Big Questions in Astrophysics KAW100* Symposium, Lund, Sweden
- Mar 2017: “Towards fundamental physics from the cosmic microwave background”, Royal Society Theo Murphy meeting on *Higgs Cosmology*, Chichley Hall, U.K.
- Jan 2017: “Towards fundamental physics from the cosmic microwave background”, Big Apple Colloquium, New York, U.S.A.
- Sep 2016: “Towards fundamental physics from the cosmic microwave background”, STFC Astronomy Summer School, University of Hull, U.K.
- Jul 2016: “Towards fundamental physics from the cosmic microwave background”, 21st International Conference on General Relativity and Gravitation, New York, U.S.A.
- Jun 2016: “Towards fundamental physics from the cosmic microwave background”, *From the Vacuum to the Universe*, Humboldt Kolleg Symposium, Austria
- Jun 2016: “Inference, Machine Learning and Data Compression for the LSST Era”, LSST@Europe2, Belgrade, Serbia
- Mar 2016: “Towards fundamental physics from the cosmic microwave background”, Imperial College London Astrophysics Group Seminar, U.K.
- Mar 2016: “Towards fundamental physics from cosmological surveys”, Space Telescope Science Institute Colloquium, U.S.A.
- Dec 2015: “Towards fundamental physics from cosmological surveys”, Plenary Speaker, XXVII Texas Symposium on Relativistic Astrophysics, Geneva, Switzerland
- Nov 2015: “Towards fundamental physics from cosmological surveys”, *String-Pheno-Cosmo 2015*, Galileo Galilei Institute, Florence, Italy
- Sep 2015: “The very early universe: from observations to fundamental physics”, GPE@60, Cambridge, U.K.
- July 2015: “From precision to accuracy: cosmology with large imaging surveys”, *Theoretical & Observational Progress on the Large-scale Structure of the Universe* conference, ESO, Garching, Germany
- July 2015: “The very early universe: from observations to fundamental physics”, Solvay-Perimeter-APC Workshop on *Cosmological Frontiers in Fundamental Physics*, Brussels, Belgium
- June 2015: “Constraints on Inflation” Plenary Speaker, *Rencontres de Blois 2015* International Symposium, Blois, France
- May 2015: “From precision to accuracy: cosmology with large imaging surveys”, Astrophysics Seminar, Mullard Space Sciences Laboratory, U.K.
- May 2015: “Cosmological inflation: from observations to fundamental physics”, Gravity Group Seminar, University of Southampton, U.K.
- Apr 2015: “Planck’s view of the origin of cosmic structure”, Physics Society Colloquium, Department of Physics, McGill University, Canada
- Apr 2015: “From precision to accuracy: cosmology with large imaging surveys”, Cosmology Seminar, Department of Physics, McGill University, Canada
- Apr 2015: “From precision to accuracy: cosmology with large imaging surveys”, Cosmology Seminar, Perimeter Institute, Canada
- Feb 2015: “Planck’s view of the origin of cosmic structure”, Departmental Physics Colloquium, University of Glasgow, U.K.

² All are invited talks unless denoted “contributed talk”.

- Jan 2015: “Cosmological Anomalies”, invited talk at the *Beyond LCDM* Symposium, Oslo, Norway
- Sept 2014: “From precision to accuracy: cosmology with large imaging surveys”, MIAPP workshop on *Cosmology after Planck*, Garching, Germany
- Aug 2014: “Cosmological inflation: from observations to fundamental physics”, plenary talk for *COSMO14*, Chicago, U.S.A.
- Aug 2014: “Constraints on primordial non-Gaussianity from 800,000 photometric quasars”, *Status and Future of Inflationary Theory workshop*, KICP, University of Chicago, U.S.A.
- Jul 2014: “Planck’s view of the origin of the Universe”, Aspen Colloquium, Aspen Centre for Physics, U.S.A.
- Jul 2014: “Science with large imaging surveys”, *Science on the Sphere workshop*, Royal Society, Chichley Hall, U.K.
- Jun 2014: “Cosmological inflation: from observations to fundamental physics”, keynote talk at the Higgs Symposium on *New Horizons in Particle Cosmology*, Edinburgh, U.K.
- May 2014: “Anomalies”, invited talk at the International Astronomical Union symposium on *Statistical Challenges in 21st Century Cosmology* (IAU306), Lisbon, Portugal
- May 2014: “Cosmological constraints on dark radiation”, Particle Physics Theory seminar, University of Edinburgh, U.K.
- Apr 2014: “Cosmological constraints on dark radiation”, invited talk at the *PONT d’Avignon 2014* International Cosmology Meeting, Avignon, France
- Jan 2014: “Planck’s view of the origin of cosmic structure”, Departmental Physics Colloquium, University College London, U.K.
- Nov 2013: “Planck’s view of the origin of cosmic structure”, Astronomy Seminar, Queen Mary London, U.K.
- Sep 2013: “The Way Forward”, *Constraining the early universe in the post Planck era workshop*, Royal Society, Chichley Hall, U.K.
- Aug 2013: “The Way Forward”, *New Challenges for Early Universe Cosmologists* workshop, Lorentz Center, Leiden, The Netherlands
- July 2013: “Testing inflation with combined power- and bispectrum”, *Cosmological Frontiers in Fundamental Physics* conference, Perimeter Institute, Waterloo, Canada
- June 2013: “Planck’s view of the origin of cosmic structure”, plenary talk at the National Astronomy Meeting (NAM2013) held at the University of St. Andrews, U.K.
- June 2013: “Testing inflation with combined power- and bispectrum”, CERN Institute on *Cosmology and Fundamental Physics with Planck*, CERN, Geneva, Switzerland
- June 2013: “Testing inflationary models with Planck”, *Cosmology in the Planck Era* workshop, Princeton Center for Theoretical Science, Princeton, U.S.A.
- June 2013: “Testing inflationary models with Planck”, *Cosmological Perturbations Post-Planck* workshop, Helsinki, Finland
- May 2013: “Planck implications for inflation”, Bethe Forum: *Planck and the Early Universe*, Bethe Center for Theoretical Physics, Bonn, Germany
- Apr 2013: “Testing inflationary models with Planck”, *Observations and Theoretical Challenges in Primordial Cosmology* conference, KITP, Santa Barbara, U.S.A.
- Apr 2013: “Is there evidence for additional neutrino species in cosmology?”, *Primordial Cosmology* workshop, KITP, Santa Barbara, U.S.A.
- Feb 2013: “Hunting for relics from the early universe in the CMB”, Fowler Prize talk, Royal Astronomical Society Ordinary Meeting, London, U.K.
- Nov 2012: “Hunting for Early Universe Relics in the CMB”, Institute for Astronomy Colloquium, Edinburgh, U.K.
- Sept 2012: “Hunting for Early Universe Relics in the CMB”, plenary talk, *Big Bang, Big Data, Big Computers* workshop, Laboratoire AstroParticule et Cosmologie, Paris, France
- May 2012: “First observational tests of Eternal Inflation”, Astrophysics and Space Research Seminar, University of Birmingham, U.K.
- Feb 2012: “First observational tests of Eternal Inflation”, Cosmology Seminar, University of Sussex, U.K.
- Jan 2012: “First observational tests of Eternal Inflation”, HEP/Astrophysics Colloquium, RWTH Aachen, Germany
- Dec 2011: “Challenges of the Early Universe”, 5th Austria-France-Italy symposium: *Clues to a Mysterious Universe*, Innsbruck, Austria
- Nov 2011: “First observational tests of Eternal Inflation”, Colloquium, Laboratoire AstroParticule et Cosmologie, Paris, France

- Nov 2011: "First observational tests of Eternal Inflation", Cambridge Cosmology Lunch, DAMTP, University of Cambridge, U.K.
- Nov 2011: "First observational tests of Eternal Inflation", Astro/particle seminar, Weizmann Institute, Israel
- Nov 2011: "The physics of the CMB", Pedagogical seminar to the High Energy Physics group, Weizmann Institute, Israel
- Oct 2011: "First observational tests of Eternal Inflation" Joint ICTP/SISSA Colloquium, Trieste, Italy
- Sept 2011: "First observational tests of Eternal Inflation", Astrophysics Seminar, Mullard Space Science Laboratory, University College London, U.K.
- Aug 2011: "First observational tests of Eternal Inflation", *Current and Future Challenges of the Dark and Early Universes* international workshop, Copenhagen University, Denmark
- July 2011: "First observational tests of Eternal Inflation", *String Theory and Precision Cosmology* international workshop, Cornell University, U.S.A.
- July 2011: "First observational tests of Eternal Inflation", *Challenges for Early Universe Cosmology* international workshop, Perimeter Institute, Canada
- June 2011: "Exploring the origin and evolution of structure in the universe", ICC Colloquium, University of Barcelona, Spain
- May 2011: "Cosmology at sub-mm wavelengths: Overview", *Unveiling the Far-IR and Sub-mm Extragalactic Universe* international workshop, Irvine, California, U.S.A.
- Apr 2011: "First observational tests of Eternal Inflation", *Bubbles in the Sky* international workshop, UC Davis, California, U.S.A.
- Mar 2011: "First observational tests of Eternal Inflation", String Theory Seminar, University of Amsterdam, The Netherlands
- Dec 2010: "First observational tests of Eternal Inflation", *Primordial Features and Non-Gaussianities 2010* international workshop, Allahabad, India
- Nov 2010: "Fingerprints of the Early Universe", JBCA Astrophysics Colloquium, University of Manchester, U.K.
- Nov 2010: "Fingerprints of the Early Universe", Royal Astronomical Society Ordinary Meeting, London, U.K.
- Sept 2010: "Fingerprints of the Early Universe", *New Directions in Modern Cosmology* Workshop, Lorentz Center, Leiden, The Netherlands
- Aug 2010: "Fingerprints of the Early Universe", UniverseNet Cosmology Workshop, Niels Bohr Institute, Copenhagen, Denmark
- June 2010: "Fingerprints of the Early Universe", *From Planets to Galaxies 2010*, Eotvos Astrophysics Workshop, Budapest, Hungary
- June 2010: "Fingerprints of the Early Universe", Plenary talk, *Cosmic Enigma* Joint UCL-Weizmann Institute Symposium, London, U.K.
- June 2010: "Fingerprints of the Early Universe", cosmology seminar, Imperial College, U.K.
- May 2010: "Fingerprints of the Early Universe", Institute for Astronomy seminar, Edinburgh, U.K.
- May 2010: "Fingerprints of the Early Universe", ICC seminar, University of Durham, U.K.
- May 2010: "Fingerprints of the Early Universe", CosmoVIA virtual lecture, <http://cosmovia.org>
- April 2010: "Fingerprints of the Early Universe", Astronomy Group Seminar, University of Nottingham, U.K.
- Mar 2010: "Fingerprints of the Early Universe", Institute of Physics in Ireland Spring Weekend, Ireland
- Mar 2010: "Fingerprints of the Early Universe", Astrophysics Colloquium, Oxford University, U.K.
- Dec 2009: "The nature of primordial fluctuations: Concordance or Discordance?", Joint Harvard/MIT/Tufts Cosmology Colloquium, Harvard University, U.S.A.
- Oct 2009: "Fingerprints of the Early Universe", 3rd Austria-France-Italy symposium: *Fundamental Physics Questions*, Innsbruck, Austria
- Oct 2009: "The critical role of statistics in Cosmic Microwave Background studies", Plenary talk for *Statistical Frontier of Astrophysics*, IPMU Tokyo, Japan
- Sept 2009: "Prospects for CMB observations", plenary talk for *COSMO09*, CERN, Switzerland
- May 2009: "Polarization Tests of CMB Temperature Anomalies: A Last Stand Before Planck!", ICG Seminar, University of Portsmouth, U.K.
- May 2009: "Polarization Tests of CMB Temperature Anomalies: A Last Stand Before Planck!", Cosmology Seminar, Imperial College London, U.K.
- Apr 2009: "Polarization Tests of CMB Temperature Anomalies: A Last Stand Before Planck!", Cambridge Cosmology Lunch, DAMTP, University of Cambridge, U.K.
- Apr 2009: "Fingerprints of the Early Universe", Colloquium, Laboratoire AstroParticule et Cosmologie, Paris, France

- Mar 2009: "Polarization Tests of CMB Temperature Anomalies: A Last Stand Before Planck!" Gravity and Particles Seminar, University of Nottingham, U.K.
- Dec 2008: "Primordial Black Holes, Eternal Inflation, and the Inflationary Parameter Space After WMAP5" XXIV Texas Symposium on Relativistic Astrophysics, Vancouver, Canada
- Dec 2008: "Fingerprints of the Early Universe", Cosmology seminar, Perimeter Institute, Canada
- Aug 2008: "Fingerprints of the Early Universe", *Link to Early Universe* workshop, IUCAA, Pune, India
- July 2008: "Fingerprints of the Early Universe", JEDI 2 Workshop, University of Cape Town, South Africa
- Jun 2008: "Testing Inflation with CMBPOL", CMB Polarization Workshop: *Theory and Foregrounds*, Fermilab, U.S.A.
- May 2008: "Observing Brane Inflation", Theoretical Physics Colloquium, Utrecht University, The Netherlands
- May 2008: "Primordial Black Holes, Eternal Inflation, and the Inflationary Parameter Space After WMAP5", Cambridge Cosmology Lunch, DAMTP, University of Cambridge, U.K.
- May 2008: "Observing String Inflation", Astronomy Seminar, Queen Mary London, U.K.
- Apr 2008: "Review of WMAP 5 year Results", *PONT d'Avignon 2008* International Cosmology Meeting, Avignon, France
- Mar 2008: "Observing String Inflation", Astrophysics Seminar, University of Sussex, U.K.
- Jan 2008: "Observing String Inflation", *Cosmic Microwave Radiation* Conference, Aspen Center for Physics, U.S.A.
- Nov 2007: "Observing String Inflation", BIPAC Seminar, Oxford University, U.K.
- Nov 2007: "Observing String Inflation", Cambridge Cosmology Lunch, DAMTP, University of Cambridge, U.K.
- Oct 2007: Invited Fellow, US National Academy of Sciences Kavli *Frontiers of Science* Symposium, U.S.A.
- Oct 2007: "Observing String Inflation", High Energy Theory Seminar, Imperial College, London, U.K.
- Oct 2007: "Primordial Gravitational Waves from String Inflation?" Wednesday Astrophysics Seminar, Institute of Astronomy, University of Cambridge, U.K.
- July 2007: "Phenomenology of D-Brane Inflation with General Speed of Sound" (contributed talk) 13th International Symposium on Particles, Strings and Cosmology, Imperial College, London, U.K.
- May 2007: "WMAP and Constraints on Dark Matter and Dark Energy" Plenary Speaker, *Rencontres de Blois 2007*, France
- May 2007: "Understanding Cosmic Acceleration: Connecting Theory and Observation" Astronomy seminar, Northwestern University, U.S.A.
- Apr 2007: "Understanding Cosmic Acceleration: Connecting Theory and Observation" Astronomy Colloquium, Ohio State University, U.S.A.
- Apr 2007: "Dynamical Behavior of Generic Dark Energy Models" Hubble Fellows Symposium, Space Telescope Science Institute, U.S.A.
- Feb 2007: "Understanding Cosmic Acceleration: Connecting Theory and Observation" Special seminar, Columbia University, U.S.A.
- Feb 2007: "Understanding Cosmic Acceleration: Connecting Theory and Observation" Astronomy Colloquium, UC Los Angeles, U.S.A.
- Feb 2007: "Understanding Cosmic Acceleration: Connecting Theory and Observation" TAC Seminar, UC Berkeley, U.S.A.
- Jan 2007: "Understanding Cosmic Acceleration: Connecting Theory and Observation" Physics Astronomy joint special seminar, Pennsylvania State University, U.S.A.
- Jan 2007: "Understanding Cosmic Acceleration: Connecting Theory and Observation" HEP/Astrophysics Seminar, University of Michigan, U.S.A.
- Dec 2006: "Inflation after 3 years of WMAP" (contributed talk) XXIII Texas Symposium on Relativistic Astrophysics, Melbourne, Australia
- Aug 2006: "Inflation after 3 years of WMAP", Benasque Cosmology Workshop, Spain
- July 2006: "Inflation after 3 years of WMAP", Astrophysics Seminar, University of Sussex, U.K.
- June 2006: "Inflation after 3 years of WMAP", plenary speaker, "Inflation+25" Conference, Paris
- May 2006: "Inflation after 3 years of WMAP", Michigan Inflation Workshop, U.S.A.
- May 2006: "Inflation after 3 years of WMAP" Wednesday Astrophysics Seminar, Institute of Astronomy, Cambridge, U.K.
- May 2006: "Inflation after WMAP 3" Astrophysics Group Seminar, University College London, U.K.
- Apr 2006: "Inflation after 3 years of WMAP" Hubble Fellows Symposium, Space Telescope Science Institute, U.S.A.
- Mar 2006: "Inflation after WMAP II", Space Telescope Science Institute Colloquium, U.S.A.

- Mar 2006: "Inflation after WMAPII", U.C. Irvine CMB Workshop, U.S.A.
- Dec 2005: "Parameter Estimation, Slow Roll and the Inflationary Potential" KICP Inaugural Symposium: *New Views of the Universe*, Chicago, U.S.A.
- Jul 2005: "Revisiting High-velocity White Dwarfs with the SDSS" (contributed talk) LG2005: *Mass and Mystery in the Local Group*, Institute of Astronomy, Cambridge, U.K.
- Jul 2005: "Optimizing CMB Polarization Experiments to Constrain Inflationary Physics" Wednesday Astrophysics Seminar, Institute of Astronomy, Cambridge, U.K.
- Jun 2005: "Optimizing CMB Polarization Experiments to Constrain Inflationary Physics" 9th Paris Cosmology Colloquium, Ecole Internationale Daniel Chalonge, Paris, France
- May 2005: "Can Cosmology Test Stringy Physics?" Astrophysics and Cosmology Seminar, University of Wisconsin, Madison, U.S.A.
- Apr 2005: "Constraining Early Universe Physics using Cosmology: Present and Future" Special Physics Seminar, Harvard University, U.S.A.
- Apr 2005: "CMB Measurements and Early Universe Physics" APS Meeting, Tampa, FL, U.S.A.
- Apr 2005: "Can Cosmology Test Stringy Physics?" Hubble Fellows Symposium, Space Telescope Science Institute, U.S.A.
- Mar 2005: "Can Cosmology Test Stringy Physics?" Astro-Cosmo Seminar, University of Pennsylvania, U.S.A.
- Feb 2005: "Can Cosmology Test Stringy Physics?" KIPAC Coffee Talk, Stanford Linear Accelerator Center, U.S.A.
- Jan 2005: "Observing Trans-Planckian Signatures in the Cosmic Microwave Background" KICP Seminar, Univ. of Chicago, U.S.A.
- Jan 2005: "Constraining Early Universe Physics using Cosmology: Present and Future" YCAA Seminar, Yale University, U.S.A.
- Dec 2004: "WMAP and Early Universe Cosmology" Cosmology Seminar, Institute for High Energy Physics, Beijing, China
- Dec 2004: "WMAP and the Very Early Universe" String Cosmology Workshop, National Taiwan Normal University, Taipei, Taiwan
- Dec 2004: "WMAP and Early Universe Cosmology" 8th Paris Cosmology Colloquium, Ecole Internationale Daniel Chalonge, Paris, France
- Dec 2004: "1.5 Year Results from WMAP" HEP/Astro Seminar, Univ. of Michigan, Ann Arbor, U.S.A.
- Nov 2004: "Can we see Planck/String Physics in the Cosmic Microwave Background?" TAC Seminar, U.C. Berkeley, U.S.A.
- Sept 2004: "Can we see Planck/String Physics in the Cosmic Microwave Background?" UK Cosmology Workshop, Edinburgh, U.K.
- Aug 2004: "Can we see Planck/String Physics in the Cosmic Microwave Background?" Wednesday Astrophysics Seminar, Institute of Astronomy, University of Cambridge, U.K.
- Jul 2004: "Can we see Planck/String Physics in the Cosmic Microwave Background?" 20th IAP Colloquium on CMB Physics and Observation (contributed talk), Paris, France
- Jun 2004: "Constraining Dark Energy with Cosmic Microwave Background Observations" Plenary Speaker, 10th Annual German-American Frontiers of Science Symposium, Hamburg, Germany
- Feb 2004: "Cosmic Microwave Background and WMAP Results" Winter Conference on Particle Physics, Aspen Center for Physics, Aspen, CO, U.S.A.
- Dec 2003: "First Year WMAP Results: Implications for Cosmology and Inflation" Astrophysics Seminar, U.C. Santa Barbara, U.S.A.
- Nov 2003: "First Year WMAP Results: Implications for Cosmology and Inflation" Theoretical Astrophysics and Relativity Seminar, California Institute of Technology, U.S.A.
- Nov 2003: "First Year WMAP Results: Implications for Cosmology and Inflation", Principal Speaker, 6th RESCEU International Symposium on *Frontier in Astroparticle Physics and Cosmology*, Tokyo, Japan
- Oct 2003: "First Year WMAP Results: Implications for Inflation" Astrophysics Seminar, University of Manchester (Jodrell Bank), U.K.
- Oct 2003: "First Year WMAP Results: Implications for Inflation" Wednesday Astrophysics Seminar, Institute of Astronomy, University of Cambridge, U.K.
- Jun 2003: "Future Cosmology with WMAP" Aspen Workshop on *The Microwave Background after WMAP*, Aspen Center for Physics, Aspen, CO, U.S.A.
- Apr 2003: "First Year WMAP Results: Implications for Cosmology and Inflation" Spring Astrophysics

- Colloquium, Princeton University, U.S.A.
- Apr 2003: “First Year WMAP Observations: Implications for Inflation” Astrophysics Seminar, Institute for Advanced Study, U.S.A.
- Mar 2003: “First Year WMAP Observations: Implications for Inflation” Theory Group Seminar, Brown University, U.S.A.
- Mar 2003: “First Year WMAP Observations: Implications for Inflation” CfA Theoretical Physics Division Seminar, Harvard University, U.S.A.
- Mar 2003: “First Year WMAP Satellite Results & their Implications for Inflation” Keynote Speaker, Royal Astronomical Society Meeting on *Cosmic Microwave Background and Fundamental Physics*, London, U.K.
- Mar 2003: “First Year WMAP Satellite Results & their Implications for Inflation” Astrophysics Seminar, University of Sussex, U.K.
- Feb 2003: “First Year WMAP Observations: Implications for Inflation” 2nd CMBNet Workshop on “Science and Parameter Extraction”, Oxford, U.K.
- Feb 2003: “First Year WMAP Observations: Implications for Inflation” Astronomy Department Colloquium, Columbia University, U.S.A.