

## **Curriculum Vitae**

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## **Employment History**

2008 – now Director of Beecroft Institute of Particle Astrophysics and Cosmology (BIPAC), UK  
2016 – now Research Professor (RSIV) at the University of Oxford  
2008 – 2016 Professor of Astrophysics at the University of Oxford  
2006 – 2008 Reader in Physics at the University of Oxford  
2000 – 2006 Lecturer in Physics at University of Oxford  
2000 – 2005 University Research Fellow of the Royal  
2000 – now Fellow and Tutor in Physics of Oriel College.  
1999 – 2000 CERN Fellow, Theory Group, CERN, Geneva.  
1995 – 1999 Postdoctoral Research Fellow, Centre for Particle Astrophysics, University of California at Berkeley, USA.

## **Education**

1992 – 1995 PhD in Theoretical Physics,  
Imperial College, London, UK  
Advisor: Andreas Albrecht  
Topic: *Observational Consequences of Cosmological Phase Transitions*  
1986 – 1991 Licenciatura in Physical Engineering,  
Instituto Superior Técnico, Lisbon, Portugal

## **Awards and membership of societies**

2016 – 2021 European Research Council Advanced Grant  
2012 – Associate visiting fellow (by invitation), Higgs Centre, Edinburgh, UK  
2012 – 2013 Leverhulme Research Fellowship, UK  
2010 – Fellow (by invitation) Institute of Physics (IoP)  
2009 – Member of Royal Astronomical Society (RAS)  
2008 Associate Faculty of African Institute for Mathematical Sciences (by invitation)  
2007 University Teaching Award

2004	Royal Society Merit Award
2002	ISI Science Watch, joint 2 <sup>nd</sup> most cited scientist across all fields
2000 – 2005	Royal Society University Research Fellowship
1999	PPARC Advanced Fellowship (declined)
1994	Gulbenkian Foundation Fellowship (declined)

## **Grants**

I am one of the founders and the director of the Beecroft Institute of Particle Astrophysics and Cosmology (BIPAC) which has attracted over €3.5M in private funding over the last 19 years to focus on theoretical and phenomenological aspects of cosmology.

- PI on ERC Advanced Grant (2016-2021)
- Co-I on STFC Consolidated Grant in Astrophysics (2012-present)
- PI on Oxford Martin School grant on Computational Challenges in Cosmology (2010-2015)
- PI on STFC Rolling Grant in Theoretical Cosmology (2007-2012)
- Co-I on STFC Standard Grant on Experimental Radio-Astronomy (2007-2012)
- Co-I on STFC Rolling Grant in Theoretical Cosmology (2004-2007)
- Co-I on Royal Society Networking Grant with UKZN, SA
- Co-I on Royal Society/CNRS network grant with University of Paris in Orsay
- Co-I on Leverhulme Grant on the nature of dark matter (2000-2003)
- PI on PPARC Standard Grant on the Statistics of the CMB (2002-2004)
- Co-I on Marie Curie Network on The Physics of the CMB CMBNET (2001-2005)
- Co-I (Oxford representative) on STFC grant for UK Cosmology Network
- Co-I (Oxford representative) on STFC COSMOS supercomputing grant
- Co-I on NASA ADS grant on statistical methods in the CMB COMBAT (1996-1998)

## **Professional Activities**

- Member of University Research Fellow Committee, Royal Society, UK (2012-2015)
- Member of International Network Committee, Royal Society, UK (2007- now)
- Member of senior faculty hiring committees, including the Savilian Professorship at Oxford (2000- now)
- Assessor for ERC consolidator and starting grants (2012-now)
- Member of Ernest Rutherford Grants Panel, STFC, UK (2013-2015)
- Member of Astronomy Working Group, ESA (2006-2009)
- Member of MPLS (Oxford) Communication Strategy Committee (2007-2008)
- Member of UK Space Sciences Advisory Committee (2006-2009)
- Member of Astronomy Grants Panel, STFC, UK (2006-2008)
- Evaluator, Marie Curie Fellowships, FP6, Brussels, Belgium (2002-2004)
- Member of Academic Committee in Physics, responsible for educational policy (2002-2005)

- Assessor for PPARC and STFC PDRA and Advanced Fellowships (2005- now)
- External reviewer for the US NSF and DOE, the CNRS, and the Austrian, Swiss, American, Canadian, Danish, Chilean, Norwegian, Polish, Portuguese, Israeli, German and Georgian Science Foundations (2000-now)
- Reviewer for Physical Review, Physics Letters, Journal of Cosmology and Astroparticle Physics, General Relativity and Gravitation, Classical and Quantum Gravity, Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Astronomy and Astrophysics (1995- now)
- External or internal examiner for approximately 70 PhD students in UK, Australia, USA, France, Switzerland, Norway, Finland, Spain, Sweden, Malta, Portugal and South Africa (2000- now)

### **Major Collaborations**

- Member of LISA consortium (2018 – now)
- Member of Vera Rubin Observatory (LSST) collaboration (2015-now)
- Member of Core Cosmology Science Working Group for the SKA (2013-now)
- Work Package Leader in Euclid Collaboration (2011- 2018)
- Member of CBASS collaboration (2010-2015)
- Member of FASTSOUND collaboration (2009-2013)
- Member of Weave collaborations (2009-2011)
- Member of QUIET collaboration (2006-2009)
- Member of CBI collaboration (2005-2008)
- Member of BOOMERanG collaboration (1997-2003)
- Member of MAXIMA collaboration (1997-2003)

### **Teaching and Mentoring (since 2000)**

- Supervision of graduate students: Mario Santos (graduated 2002, faculty at UWC, Cape Town); Patricia Castro (2003, consultant for Capgemini); Chiara Caprini (2004, faculty CEA, Saclay); Jo Dunkley (2005, faculty Princeton), Caroline Zunckel (2007, currently faculty UKZN, Durban), Tom Zlosnik (2007, currently postdoc CEICO, Prague), David Sutton (2011, data scientist), David Marsh (2012, faculty Gottingen), Edward Macaulay (2012, postdoc Portsmouth), Philip Bull (2013, faculty QMUL), Tessa Baker (2013, faculty QMUL), Danielle Leonard (2016, faculty Newcastle), Francesca von Brown-Bates (2017, civil service), James Scargill (2016, teacher), James Bonifacio (2017, faculty Mississippi), Macarena Lagos (2017, postdoc Chicago), Christiane Lorenz (2019, postdoc ETH Zurich), Oliver Tattersall (2019, postdoc Oxford), Darsh Kodwani (2020, data scientist), Dina Traykov (expected graduation 2021), Deaghlán Bartlett (expected graduation 2022). Jamie Bamber (expected graduation 2022)
- Supervision (and co-supervision) of postdocs: Martin Kunz (faculty at Geneva), Alessandro Melchiorri (faculty at Rome), Jamie Portsmouth (software engineer Autodesk), Dan Hooper (faculty Fermilab), Kavilan Moodley (faculty UKZN), Marian Douspis (now f Orsay), Constantino Skordis (faculty CEICO, Prague),

Paolo Cabella, Joseph Zuntz (faculty, Edinburgh), Brad Johnson (faculty at Virginia), Tim Clifton (faculty at QMUL, London), Andrew Pontzen (faculty UCL), Julien Merten (Head of Data Science, Mercedes-Benz), Sigurd Naess (senior scientist CCA), Kate Land (co-founder of Havelock London), David Mota (faculty at Oslo), Armin Shafieloo (faculty at KASI), Anze Slosar (Senior Scientist at Brookhaven), Ingunn Wehus (faculty at Oslo), Thibaut Louis (CNRS researcher), Min Su-Shin (faculty at Seoul), Chris Gordon (faculty at Canterbury, NZ), Yohan Dubois (faculty at IAP Paris), Harley Katz (CTO of Probably Genetics), Krzysztof Bolejko (faculty Tasmania), Sirichai Chongchitnan (faculty at Warwick), Johannes Noller (faculty Portsmouth), David Alonso (faculty Oxford), Hans Winther (faculty Oslo), Elisa Chisari (faculty Utrecht), Mark Richardson (Outreach officer at Queen's University).

- Supervision of undergraduate projects: Rosanna Hardwick, James Scargill, Bruno Balthazar, James Gundry
- Taught at undergraduate level in the department of physics: coordinator and lecturer of 4<sup>th</sup> year Astrophysics major option, lecturer of 3<sup>rd</sup> year Astrophysics and Cosmology option (up to 2010), lecturer of (compulsory) 3<sup>rd</sup> year General Relativity and Cosmology course (upto 2015), lecturer of MMathPhys course in Cosmology, lecturer of Complex Analysis course. Tutored at Oriel college: 1<sup>st</sup> year mathematics, 2<sup>nd</sup> year mathematics, quantum mechanics, statistical mechanics, astrophysics, general relativity and cosmology. Taught at graduate level: introduction to the CMB and introduction to topological defects.

## Publications

As of Jan 2021, according to Google Scholar, I currently have 27K citations. with an average of 90 citations per paper (10K citations since 2016) with 11 papers with more than 500 citations and another 31 with more than 100 citations. My h-index is 70.

## Peer Reviewed Publications

- 1) *Euclid preparation – XI. Mean redshift determination from galaxy redshift probabilities for cosmic shear tomography*, Euclid collaboration, submitted to Astron. & Astroph. (2021)
- 2) *Growth of accretion driven scalar hair around Kerr black holes*, J. Bamber *et al*, submitted to Phys. Rev. D (2021)
- 3) *Testing Gravity on Cosmic Scales: A case study of Jordan-Brans-Dicke Theory*, S. Joudaki, P.G.Ferreira, N.A.Lima and H.A.Winther, submitted to Phys. Rev. D (2021)
- 4) *Euclid preparation – IX. EuclidEmulator2 – Power spectrum emulation with massive neutrinos and self consistent dark energy perturbations*, Euclid collaboration, submitted to Astron. & Astroph. (2021)
- 5) *Cosmic shear power spectra in practice*, A. Nicola *et al*, submitted to JCAP, (2021)
- 6) *Spatially offset black holes in the Horizon-AGN simulations and comparison to observations*, D.J. Bartlett, H. Desmond, J. Devriendt, P.G.Ferreira and A. Slyz,

- MNRAS, 500, 4639 (2021)
- 7) *Euclid preparation – X. The Euclid photometric-redshift challenge*, Euclid collaboration, *Astron. & Astroph.*, 644, A31 (2020)
  - 8) *Galaxy morphology rules out astrophysically relevant Hu-Sawicki  $f(R)$  gravity*, H. Desmond and P.G.Ferreira, *Phys. Rev. D* 102, 10 104060 (2020)
  - 9) *Euclid preparation – VIII. The complete calibration of the colour-redshift relation survey: VLT/KMOS observations and data release*, Euclid collaboration, *Astron. & Astroph.* 642, A192 (2020)
  - 10) *Noise angular power spectrum of gravitational wave background experiments*, D. Alonso, C. Contaldi, G. Cusin, P.G. Ferreira and A. Renzi, *Phys. Rev. D* 101, 124048 (2020)
  - 11) *Theoretical priors in scalar-tensor cosmologies: thawing quintessence*, C. Garcia-Garcia, E. Bellini, P.G. Ferreira, D. Traykova and M. Zumalacárregui, *Phys. Rev. D* 101, 063508 (2020)
  - 12) *Detecting the anisotropic astrophysical gravitational wave background in the presences of shot noise through cross-correlations*, D. Alonso, G. Cusin, P.G. Ferreira, C. Pitrou, submitted to *Phys. Rev. D* (2020)
  - 13) *Anomalous decay rate of quasinormal modes*, M. Lagos, P.G. Ferreira, O.J. Tattersall, submitted to *Phys. Rev. D* (2020)
  - 14) *Scale invariant gravity and black hole ringdown*, P.G. Ferreira and O.J. Tattersall, *Phys. Rev. D* 101, 024011 (2020)
  - 15) *Scale independent  $R^2$  inflation*, P.G. Ferreira, C.T. Hill, J. Noller and G.G. Ross, *Phys. Rev. D* 100 123516 (2019)
  - 16) *Testing self-interacting dark matter with galaxy warps*, K. Pardo, H. Desmond, P.G. Ferreira, *Phys. Rev. D* 100 123006 (2019)
  - 17) *Euclid preparation: VI. Verifying the Performance of Cosmic Shear Experiments*, P. Paykari *et al*, submitted to *Astron. & Astroph.* (2019)
  - 18) *Growth of massive scalar hair around a Schwarzschild black hole*, K Clough, P.G. Ferreira, M. Lagos, *Phys. Rev. D* 100, 063014 (2019)
  - 19) *The Phenomenology of Beyond Horndeski gravity*, D. Traykova, E. Bellini, P.G. Ferreira, *JCAP* 2019, 035 (2019)
  - 20) *Cosmological Tests of Gravity*, P.G. Ferreira, *ARAA*, 57, 335 (2019)
  - 21) *Black holes, gravitational waves and fundamental physics: a roadmap*, L. Barack *et al*, *Class. and Quan. Grav.* 36, 143001 (2019)
  - 22) *The Novel Probes Project – Tests of gravity on astrophysical scales*, T.Baker *et al*, submitted to *Rev. Mod. Phys.* (2019)
  - 23) *Forecasts for low spin black hole spectroscopy in Horndeski gravity*, O. Tattersall and P.G.Ferreira, *Phys. Rev. D* 99, 104082 (2019)
  - 24) *Modelling baryonic feedback for survey cosmology*, N.E. Chisari *et al*, submitted to *JCAP* (2019)
  - 25) *The fifth force in the local cosmic web*, H. Desmond, P.G. Ferreira, G. Lavaux and J. Jasche, *MNRAS* 483, L64 (2019)
  - 26) *Polarization of stochastic gravitational wave background through diffusion by massive structures*, G. Cusin, R. Durrer and P.G. Ferreira, *Phys. Rev. D* 99, 023534 (2019)
  - 27) *Inertial spontaneous symmetry breaking and quantum scale invariance*, P.G.

- Ferreira, C.T. Hill and G.G. Ross, Physical Review D 98, 116012 (2018)
- 28) *Cosmology and fundamental physics with the Euclid satellite*, L. Amendola *et al* (2018)
  - 29) *The effect on cosmological parameter estimation of a parameter dependent covariance matrix*, D. Kodwani, D. Alonso and P.G. Ferreira, Open Journal of Astroph. Astro.1811.11584 (2018)
  - 30) *Fifth force constraints from galaxy warps*, H. Desmond, P.G. Ferreira, G. Lavaux and J. Jasche, Phys. Rev. D98, 083010 (2018)
  - 31) *Fifth force constraints from separation of galaxy mass components*, H. Desmond, P.G. Ferreira, G. Lavaux, J. Jasche, Phys. Rev. D98, 064015 (2018)
  - 32) *Emergent dark energy from dark matter*, T. Kobayashi, P.G. Ferreira, Phys. Rev. D97, 121301 (2018)
  - 33) *Inflation in a scale-invariant universe*, P.G. Ferreira, C.T. Hill, J. Noller, G.G. Ross, Phys. Rev. D97, 123516 (2018)
  - 34) *Quasinormal modes of black holes in Horndeski gravity*, O.J. Tattersall and P.G. Ferreira, Phys. Rev. D97 104047 (2018)
  - 35) *Speed of gravitational waves and black hole hair*, O.J. Tattersall, P.G. Ferreira and M. Lagos, Phys. Rev. D97, 084005 (2018)
  - 36) *A general theory of linear cosmological perturbations: stability conditions, the quasistatic limit and dynamics*, M. Lagos, E. Bellini, J. Noller, P.G. Ferreira and T. Baker, JCAP 2018, 021 (2018)
  - 37) *Reconstructing the gravitational field of the local Universe*, H Desmond, P.G. Ferreira, G. Lavaux, J. Jasche, MNRAS, 474, 3152 (2018)
  - 38) *General theories of linear gravitational perturbations to a Schwarzschild Black Hole*, O.J. Tattersall, P.G. Ferreira and M. Lagos, Phys. Rev. D97, 044021 (2018)
  - 39) *Impact of relativistic effects on cosmological parameter estimation*, C.S. Lorenz, D. Alonso, P.G. Ferreira, Phys. Rev. D97, 023537 (2018)
  - 40) *Comparison of Einstein-Boltzman solvers for testing general relativity*, E. Bellini *et al*, Phys. Rev. D97, 023520 (2018)
  - 41) *Strong constraints on cosmological gravity from GW170817 and GRB170817A*, T. Baker *et al*, Phys. Rev. Lett. 119, 251301 (2017)
  - 42) *Covariant approach to parametrized cosmological perturbations*, O.J. Tattersall, M. Lagos and P.G. Ferreira, Phys. Rev. D96, 064011 (2017)
  - 43) *Cosmology of an infinite dimensional universe*, D. Sloan and P.G. Ferreira, Phys. Rev. D96, 043527 (2017)
  - 44) *Hi\_Class: Horndeski in the Cosmic Linear Anisotropy Solving System*, M. Zumalacárregui, E. Bellini, I. Sawicki, J. Lesgourgues, P.G. Ferreira, JCAP 2017, 019 (2017)
  - 45) *Calibrating photometric redshifts with intensity mapping observations*, D. Alonso, P.G. Ferreira, M.J. Jarvis, K. Moodley, Phys. Rev. D95 064038 (2017)
  - 46) *No fifth force in a scale invariant universe*, P.G. Ferreira, C.T. Hill, G.G. Ross, Phys. Rev. D95, 964038 (2017)
  - 47) *Observational future of scalar-tensor theories*, D. Alonso, E. Bellini, P.G. Ferreira and M. Zumalacárregui, Phys. Rev. D95, 063502 (2017)
  - 48) *Weyl Current, scale invariant inflation, and Planck scale generation*, P.G. Ferreira, C.T. Hill, G.G. Ross, Phys. Rev. D95, 043507 (2017)

- 49) *A general theory of linear cosmological perturbations: bimetric theories*, M. Lagos and P.G. Ferreira, JCAP 2017, 047 (2017)
- 50) *Scale-independent Inflation and the Hierarchy Generation*, P.G. Ferreira, C.T. Hill and G.G. Ross, Phys. Lett. B 763, 174 (2016)
- 51) *Reconstructing cosmic growth with kinetic Sunyaev-Zel'dovich observations in the era of stage IV experiments*, D. Alonso, T. Louis, P. Bull, P.G. Ferreira, Phys. Rev. D94, 043522 (2016)
- 52) *A general theory of linear cosmological perturbations: scalar-tensor and vector tensor theories*, M. Lagos, T. Baker, P.G. Ferreira and J. Noller, JCAP, 2016, 007 (2016)
- 53) *The Subaru FMOS galaxy redshift survey (FASTSOUND). IV. New constraint on gravity theory from redshift space distortions at  $z \sim 1.4$* , T. Okamura et al, PASJ 68, 38 (2016)
- 54) *On the phenomenology of extended Brans-Dicke theories*, N. Aguiar and P.G. Ferreira, JCAP 01 010 (2016)
- 55) *Testing gravity with  $E_G$ : mapping theory onto observations*. C.D. Leonard, P.G. Ferreira and C. Heymans, JCAP 1512, 051 (2015)
- 56) *Weak lensing of large scale structure in the presence of screening*. N. Tessore, H.A. Winther, R.B. Metcalfe, P.G. Ferreira and C. Giocoli, JCAP 1510, 036 (2015)
- 57) *Constraining ultra-large scale cosmology with multiple tracers in optical and radio surveys*, D. Alonso and P.G. Ferreira, Phys. Rev. D92, 063525 (2015)
- 58) *Ultra Large-Scale cosmology with next-generation experiments*, D. Alonso, P. Bull, P.G. Ferreira, R. Maartens, M. Santos, Astroph. Journ. 814, 145 (2015)
- 59) *The Vainshstein mechanism beyond the quasi-static approximation*, H. Winther, P.G. Ferreira, Phys. Rev. D92 064005 (2015)
- 60) *A CMB Gibbs sampler for localized secondary anisotropies*, P. Bull et al, Astroph. Journ. Suppl, 219, 10 (2015)
- 61) *The Subaru FMOS Galaxy Redshift Survey (FASTSOUND): Overview of the survey targeting on H-alpha emitters at  $z \sim 1.4$* , Tonegawa, M et al (with P.G. Ferreira) submitted to P.A.S.P. (2015)
- 62) *Testing General Relativity with current and future astrophysical observations*, E. Berti et al (with P.G. Ferreira), Class. Quant. Grav 32 243001 (2015)
- 63) *C-Band All-Sky Survey: a first look at the Galaxy*, M.O. Irfan et al (with P.G. Ferreira), Monthly Notices of the Royal Astronomical Society, 448, 3572 (2015)
- 64) *Exploring degeneracies in modified gravity with weak lensing*, D. Leonard, T. Baker, P.G. Ferreira, Phys. Rev. D91, 083504 (2015)
- 65) *TDiff and Weyl Invariant Massive Spin-2: Linear Theory*, J. Bonifacio, P.G. Ferreira, K. Hinterbichler, accepted to JCAP (2015)
- 66) *Fast route to nonlinear clustering statistics in modified gravity theories*, H.A. Winther and P.G. Ferreira, Phys. Rev. D91, 123507 (2015)
- 67) *A search for ultra-light axions using precision cosmological data*, R. Hlozek, D. Grin, D.J.E. Marsh, P.G. Ferreira, Phys. Rev. D91, 103512 (2015)
- 68) *Late time cosmology with 21 cm intensity mapping*, Astroph. Journ. 803, 21 (2015)
- 69) *Blind foreground subtraction for intensity mapping experiments*, D. Alonso,

- P.Bull, P.G.Ferreira and M.Santos, Monthly Notices of the Royal Astronomical Society, 447, 400 (2015)
- 70) *Accelerated expansion in the effective field theory of a radiation dominated universe*, B. Balthazar, P.G. Ferreira, Phys. Rev. D91, 061502 (2015)
  - 71) *Cosmological perturbations in massive bigravity*, M. Lagos, P.G. Ferreira, JCAP 1412, 026 (2014)
  - 72) *Cycles of interactions in multi-gravity theories*, J.H.Scargill, J.H.Noller, P.G.Ferreira, JHEP, 1412, 160 (2014)
  - 73) *Quintessence in a quandary: prior dependence in dark energy models*, D.J.E.Marsh, P. Bull, P.G. Ferreira, A. Pontzen, Phys. Rev. D90, 105023 (2014)
  - 74) *New gravitational scales in cosmological surveys*, T. Baker, P.G. Ferreira, D. Leonard M. Motta, Phys. Rev. D90, 124030 (2014)
  - 75) *Fast simulations for intensity mapping experiments*, D. Alonso, P.G. Ferreira, M. Santos, Monthly Notices of the Royal Astronomical Society, 444, 3183 (2014)
  - 76) *Tensor interpretation of BICEP2 results severely constrains axion dark matter*, Phys. Rev. Lett. 113, 011801 (2014)
  - 77) *Interacting spin-2 fields in the Stuckelberg picture*, J.H. Noller, J. Scargill, P.G. Ferreira, JCAP, 1402, 007 (2014)
  - 78) *Noether identities and gauge fixing the action for cosmological perturbations*, Phys. Rev. D89, 024304 (2014)
  - 79) *Relativistic scalar fields and the quasi-static approximation in theories of modified gravity*, J. Noller, F. von Brown-Bates, P.G. Ferreira, Phys. Rev. D89, 023521 (2014)
  - 80) *A fast route to modified gravitational growth*, T. Baker, P.G. Ferreira, C. Skordis, Phys. Rev D89, 024026 (2014)
  - 81) *A few cosmological implications of tensor non-localities*, A. Maroto, P.G. Ferreira, Phys. Rev. D88, 123502 (2013)
  - 82) *Cosmology on ultra-large scales with HI Intensity mapping- limits on primordial non-Gaussianity*, S. Camera, M. Santos, P.G. Ferreira, L. Ferramacho, Physical Review Letters. 111, 171302 (2013)
  - 83) *The Parametrized Post-Friedmann framework for theories of modified gravity: concepts, formalism and examples*, T. Baker, P.G. Ferreira, C. Skordis, Physical Review D87, 024015 (2013)
  - 84) *Axiverse cosmology and the energy scale of inflation*, D.J.E. Marsh, D. Grin, R. Hlozek, P. G. Ferreira, Physical Review D D87, 121701 (2013)
  - 85) *Cosmology with Eddington inspired gravity*, J. Scargill, M. Banados, P.G. Ferreira, Physical Review D86, 103533 (2012)
  - 86) *Power Spectrum Estimation from Peculiar Velocity Catalogues*, E. Macaulay, H.A. Feldman, P.G. Ferreira, A.H. Jaffe, S. Agarwal, M. J. Hudson, R. Watkins, Monthly Notices of the Royal Astronomical Society, 425, 1709 (2012)
  - 87) *Cosmology and fundamental physics with the Euclid satellite*, L. Amendola *et al*, Living Reviews of Relativity 16, 6 (2013)
  - 88) *Cosmology of axions and moduli: A dynamical systems approach*, D.J.E. Marsh, E.R. Tarrant, E.J. Copeland, P.G. Ferreira, Physical Review D86, 023508 (2012)
  - 89) *A tensor instability in the Eddington inspired Born-Infeld theory of gravity*, C. Escamilla-Rivera, M. Banados, P.G. Ferreira, Physical Review D85, 087302



- (2012)
- 90) *Ricci focusing, shearing and the expansion rate in an almost homogeneous universe*, K. Bolejko and P.G. Ferreira, *Journal of Cosmology and Astroparticle Physics*, 1205, 003 (2012)
  - 91) *Ambiguous Tests of General Relativity on Cosmological Scales*, J. Zuntz, T. Baker, P.G. Ferreira, C. Skordis, *Journal of Cosmology and Astroparticle Physics*, 1206, 032 (2012)
  - 92) *An improved Treatment of Optics in the Lindquist-Wheeler models*, T. Clifton, P.G. Ferreira, K. O'Donnell, *Physical Review D*85, 023502 (2012)
  - 93) *Ultra-light axions: degeneracies with massive neutrinos and forecasts for future cosmological observations*, D. J. E. Marsh, E. Macaulay, M. Trebitsch and P. G. Ferreira, *Physical Review D*86, 023508 (2012)
  - 94) *The kinetic Sunyaev-Zel'Dovich effect as a test of radial inhomogeneity in LTB cosmology*, P. Bull, T. Clifton and P. G. Ferreira, *Physical Review D*85, 024002 (2012)
  - 95) *Modified Gravity and Cosmology*, T. Clifton, P. G. Ferreira, A. Padilla and C. Skordis, *Physics Reports*, 513, 1 (2012)
  - 96) *Towards a fully consistent parametrization of modified gravity*, T. Baker, P. G. Ferreira and C. Skordis, *Physical Review D*84, 124018 (2011)
  - 97) *The Crossing Statistic: Dealing with unknown errors in the Dispersion of Type IA Supernovae*, A. Shafieloo, T. Clifton and P.G. Ferreira, *Journal of Cosmology and Astroparticle Physics*, 08, 017 (2010)
  - 98) *A Slight Excess of Large Scale Power from Moments of the Peculiar Velocity Field*, E. Macaulay, H. Feldman, P.G. Ferreira, M. Hudson, R. Watkins, *Monthly Notices of the Royal Astronomical Society*, 414, 621 (2011)
  - 99) *First Season QUIET Observations*, C. Bischoff and QUIET collaboration, *Astrophysical Journal*, 741, 111 (2011)
  - 100) *Ultra-Light Scalar Fields and the Growth of Structure in the Universe*, D. M. Marsh and P.G. Ferreira, *Physical Review D*82, 103528 (2010)
  - 101) *Eddington's Theory of Gravity and its Progeny*, M. Banados and P.G. Ferreira, *Physical Review Letters* 105, 011101 (2010)
  - 102) *The linear growth rate of structure in Parametrized Post Friedmannian Universes*, P.G. Ferreira and C. Skordis, *Physical Review D*81, 014020 (2010)
  - 103) *Vector field models of modified gravity and the dark sector*, J. Zuntz, T. Zlosnik, F. Bourliot, P.G. Ferreira and G.D. Starkmann, *Physical Review D*81 104015(2010)
  - 104) *Fast and Precise map-making for massively multi-detector experiments*, D. Sutton, J. Zuntz, P.G. Ferreira, M.L. Brown, H.K. Eriksen, B.R. Johnson, A. Kusaka, S.K. Naess, I.K. Wehus, *Monthly Notices of the Royal Astronomical Society* 407, 1387 (2010).
  - 105) *Einstein's theory of gravity and the problem of missing mass*, P.G. Ferreira and G. Starkmann, *Science* 326:812 (2009).
  - 106) *Errors in estimating Omega Lambda due to the fluid approximation*, T. Clifton and P.G. Ferreira *JCAP* 0910:26 (2009).
  - 107) *Archipelagian Universe; Dynamics and Observables in a Universe with Discretized Matter Content*, T. Clifton and P.G. Ferreira, *Physical Review D*80

- 103503 (2009).
- 108) *What the small angle anisotropy of the CMB really tells us about the curvature of the Universe*, T. Clifton, P.G. Ferreira and J. Zuntz, JCAP 0907:029 (2009).
  - 109) *Eddington-Born-Infeld gravity and the large scale structure of the Universe*, M. Banados, P.G. Ferreira and C. Skordis, Physical Review D79 063511 (2009).
  - 110) *Map-making in small scale CMB polarization experiments*, D. Sutton, B. Johnson, M. Brown, P. Cabella, P.G. Ferreira and K. Smith, Monthly Notices of the Royal Astronomical Society 393, 894(2009).
  - 111) *Constraining Lorentz Invariance with Cosmology*, J. Zuntz, P.G. Ferreira and T. Zlosnik, Physical Review Letters, 101, 261102 (2008).
  - 112) *Living in a void: testing the Copernican Principle with distant Supernovae*, T. Clifton, P.G. Ferreira and K. Land, Physical Review Letters 101, 131302 (2008).
  - 113) *Dark matter, modified gravity and the mass of the neutrino*, P.G. Ferreira, C. Skordis and C. Zunckel, a Physical Review D78, 044043(2008).
  - 114) *Constraining primordial magnetic fields with CMB polarization experiments*, J.R. Kristiansen and P.G. Ferreira, Physical Review D77 123004 (2008).
  - 115) *Observing the temperature of the CMB through large scale structure*, P.G. Ferreira and J. Magueijo, Physical Review D78, 061301(2008).
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  - 117) *Generalized Einstein-Aether theories and the Solar System*, C. Bonvin, R. Durrer, P.G. Ferreira, G. Starkman and T. Zlosnik, Physical Review D77 024037 (2008).
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  - 120) *Conservative Estimates of the mass of the Neutrino*, C. Zunckel and P.G. Ferreira, JCAP, 0708:004 (2007)
  - 121) *The Cosmology of a Universe with Spontaneously Broken Lorentz Symmetry*, P.G. Ferreira, G. Starkmann and T. Zlosnik, Physical Review D75, 044014 (2007)
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  - 124) *Implications of the Cosmic Background Imager Polarization Data*, J. Sievers and the CBI collaboration, Astrophysical Journal, 660, 976 (2007)
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- 130) *Constraints on Isocurvature Models from the WMAP first year data*, K. Moodley, M. Bucher, J. Dunkley, P.G. Ferreira and C. Skordis, *Physical Review D* 70, 103520 (2004).
- 131) *The Angular Power Spectrum of NVSS Radio Galaxies*, C. Blake, P.G. Ferreira and J. Borrill, *Monthly Notices of the Royal Astronomical Society*, 351, 923 (2004).
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- 133) *Determining Foreground Contamination in CMB Observations: diffuse galactic emission in the MAXIMA-1 Field*, A. Jaffe and the MAXIMA collaboration, *Astrophysical Journal*, 615, 55 (2004).
- 134) *Correlations Between the WMAP and MAXIMA Cosmic Microwave Background Anisotropy Maps*, A. Jaffe and the MAXIMA collaboration, *Astrophysical Journal*, 605, 607 (2004).
- 135) *Scale of Homogeneity of the Universe*, P. Castro, M. Douspis and P.G. Ferreira, *Physical Review D* 68, 127301 (2003).
- 136) *MAXIMA: A Balloon-Borne Cosmic Microwave Background* B. Rabii and MAXIMA collaboration, *Review of Scientific Instruments*, 77, 7 (2006).
- 137) *An Estimate of Omega without Conventional Priors*, H. Feldman, R. Juszkiewicz, P. Ferreira, M. Davis, E. Gaztanaga, J. Fry, A. Jaffe, S. Chambers, L. da Costa, M. Bernardi, R. Giovanelli, M. Haynes and G. Wegner, *Astrophysical Journal Letters*, 596, 131 (2003).
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- 139) *Multiple methods for estimating the bispectrum of the CMB with an application to the MAXIMA data*, M. Santos and the MAXIMA collaboration, *Monthly Notices of the Royal Astronomical Society*, 341, 623 (2003).
- 140) *Frequentist Estimation of Cosmological Parameters from the MAXIMA-1 CMB Anisotropy Data*, M. Abroe and the MAXIMA collaboration, *Monthly Notices of the Royal Astronomical Society*, 334, 11 (2002).
- 141) *Observational Signatures of Flat, Topologically non-trivial universes: the importance of shape*, R. Bowen and P.G. Ferreira, *Physical Review D* 66, 041302

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- 142) *Have Acoustic Oscillation been Detected in the Current Cosmic Microwave Background Data?*, M. Douspis, P.G. Ferreira, Physical Review D65, 087302 (2002).
  - 143) *Making Maps of the CMB: The MAXIMA Example*, R. Stompor and the MAXIMA collaboration, Physical Review D65, 022003 (2002).
  - 144) *An Estimate of the Cosmological Bispectrum from the MAXIMA-1 CMB map*, M.G. Santos and the MAXIMA collaboration, Physical Review Letters, 88, 241302 (2002)
  - 145) *The Trispectrum of the 4<sup>th</sup> Year COBE DMR data*, M. Kunz, A. Banday, P.G. Castro, P.G. Ferreira, K.M. Gorski, Ap. J. Lett 563, 99 (2001).
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  - 148) *Tests for Gaussianity of the MAXIMA-1 CMB maps*, J.W.P. Wu and the MAXIMA collaboration, Physical Review Letters, 87, 251303 (2001).
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  - 150) *Cosmological Parameters from the MAXIMA-1, BOOMERanG and COBE Observations*, A.H. Jaffe, the MAXIMA and the BOOMERanG collaboration, Physical Review Letters, 86, 3475 (2001).
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  - 153) *Constraints on Cosmological Parameters from MAXIMA-1*, A. Balbi and the MAXIMA experiment, Astrophysical Journal Letters, 545, 1 (2000).
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- 161) *Tensor Microwave Anisotropies from a Stochastic Magnetic Field*, R. Durrer, P.G. Ferreira, and T. Kaniashvili, Physical Review D61, 043001 (2000).
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- 163) *Evidence for non-Gaussianity in the DMR four year sky maps*, P.G. Ferreira, J. Magueijo, K. Gorski, Astrophysical Journal Letters, 503, L1-4 (1998).
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- 176) *Inflation and Squeezed Quantum States*, A. Albrecht, P. Ferreira, M. Joyce and T. Prokopec, Physical Review D50, 4807 (1994).
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Conference proceedings, technical reports and white papers

- 1) *Prospects for fundamental Physics with LISA*, E. Barausse *et al* (2020)
- 2) *Modified Gravity and Dark Energy models Beyond  $w(z)$  CDM testable by LSST*, M. Ishak *et al* (2019)
- 3) *Inflation and Dark Energy from spectroscopy at  $z > 2$* , S. Ferraro *et al* (2019)

- 4) *Dark Matter Science in the Era of LSST*, K. Bechtol *et al* (2019)
- 5) *Cosmology with Phase 1 of the Square Kilometre Array; Red Book 2018: technical specifications and performance forecasts*, D.J. Bacon *et al* (2018)
- 6) *MeerKLASS: MeerKAT large area synoptic survey*, M.G. Santos *et al* (2017)
- 7) *Measuring baryon acoustic oscillations with future SKA surveys*, P. Bull *et al* (with P.G. Ferreira), “Advancing Astrophysics with the SKA” (2014)
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- 9) *Cosmology on the largest scales with the SKA*, S. Camera *et al* (with P.G. Ferreira), “Advancing Astrophysics with the SKA” (2014)
- 10) *Foreground subtraction in intensity mapping with the SKA*, L. Wolz *et al* (with P.G. Ferreira), “Advancing Astrophysics with the SKA” (2014)
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- 12) *Cosmology on the largest scales with intensity mapping*, S. Camera, M. Santos, P.G. Ferreira, R. Maartens, *J. Phys. Conf. Ser.* 566, 1, 012004 (2014)
- 13) *Testing General Relativity with Cosmology: a synopsis of the parametrized post-Friedmann approach*, P.G. Ferreira, T. Baker, C. Skordis, *Gen. Rel. Grav.* 46, 1788 (2014)
- 14) *Probing the accelerating Universe with radio weak lensing in the JVLA sky survey*, M. Brown *et al* (with P.G. Ferreira), White Paper for NRAO call on the VLA Sky Survey
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- 16) *PRISM (Polarized Radiation Imaging and Spectroscopy Mission): A white paper on the ultimate polarimetric spectro-imaging of the microwave and fra-infrared sky*, P. André *et al* (with P.G. Ferreira), submission to ESA call (2014)
- 17) *The rise of a tensor instability in Eddington-inspired gravity*, C. Escamilla-River, M. Banados, P.G. Ferreira, *Proceedings of the 13<sup>th</sup> Marcel Grossman Meeting* (2012)
- 18) *A new golden age: testing general relativity with cosmology*, R. Bean, P.G. Ferreira, A. Taylor, *Phil. Trans. Roy. Soc. A*, 369, 4941 (2011)
- 19) *COre (Cosmic Origins Explorer) A White Paper*, F. Bouchet *et al* (with P.G. Ferreira), submission to ESA call (2011)
- 20) *Clover- measuring the CMB B-mode polarization*, P.K. Grimes *et al* (with P.G. Ferreira), 20<sup>th</sup> International Symposium on Space Terahertz Technology, 1, 97 (2009)
- 21) *The Clover experiment*, L. Piccirillo *et al* (with P.G. Ferreira), *SPIE Astronomical Telescopes+ Instrumentation*, 70201E-10 (2008)
- 22) *Detecting the B-mode polarisation of the CMB with Clover*, C. North *et al* (with P.G. Ferreira), *Proceedings of the 43<sup>rd</sup> Rencontres de Moriond “Cosmology”* (2008)
- 23) *The Cosmic Microwave Background: The MAXIMA Experiment, latest results and consistency tests*, R. Stompor *et al* (with P.G. Ferreira) *Comptes Rendus Physique* (2003)

- 24) *MAXIPOL: A Balloon-borne experiment for measuring the polarization anisotropy of the cosmic microwave background radiation*, B. Johnson *et al* (with P.G. Ferreira), *New. Astron. Rev.*, 47, 1067 (2003)
- 25) *Recent results from the Maxima experiment*, A. Jaffe *et al* (with P.G. Ferreira), *New. Astron. Rev.*, 47, 727 (2003)
- 26) *Do we see acoustic oscillations in the current cosmic microwave background data?*, M. Douspis, P.G. Ferreira, 37<sup>th</sup> Rencontres de Moriond on the cosmological model (2002)
- 27) *Imaging the early universe with the BOOMERANG experiment*, S. Masi *et al* (with P.G. Ferreira), 25<sup>th</sup> Johns Hopkins Workshop on current problems in particle theory (2001)
- 28) *Noise estimation in CMB time-stream and fast map-making. Application to the BOOMERanG98 data*, S. Prunet *et al* (with P.G. Ferreira), *Proceeding of MPA/ESO conference 'Mining the Sky'* (2000)
- 29) *From time ordered data to maximum-likelihood temperature maps of the CMB anisotropy*, R. Stompor *et al* (with P.G. Ferreira) *Proceeding of MPA/ESO conference 'Mining the Sky'* (2000)
- 30) *The quintessential CMB, past and future*, J.R. Bond *et al* (with P.G. Ferreira), *AIP Conf. Proc.* 555, 263 (2001)
- 31) *Novel methods in the statistical analysis of CMB data*, P.G. Ferreira, *New Astronomy Reviews*, 45, 293 (2001)
- 32) *The Deepest Field*, P.De Bernardis *et al* (with P.G. Ferreira), *Deep Fields*, 362 (2001)
- 33) *Detection of anisotropy in the CMB on sub-horizon scales with BOOMERanG*, P. De Bernardis *et al* (with P.G. Ferreira), *Proceedings of IAU symposium 201: New Cosmological Data and the Values of the Fundamental Parameters* (2000)
- 34) *The CMB radiation circa  $\nu 2K$* , J.R. Bond *et al* (with P.G. Ferreira), *Proceedings of neutrino 2000* (2000)
- 35) *CMB anisotropies: status and Boomerang*, J.Ruhl *et al* (with P.G. Ferreira), *PASCOS 99*, 10 (2000)
- 36) *A New Estimator of Omega*, R. Juszkiwicz *et al* (with P.G. Ferreira), *Cosmic Flows Workshop 201*, 194 (2000)
- 37) *CMB analysis of Boomerang and Maxima and the cosmic parameters*, J.R. Bond *et al* (with P.G. Ferreira), *Proceedings of IAU symposium 201: New Cosmological Data and the Values of the Fundamental Parameters* (2000)
- 38) *First results from the BOOMERanG experiment*, P. De Bernardis *et al* (with P.G. Ferreira), *AIP. Conf. Proc.* 555, 85 (2001)
- 39) *Measuring Omega with galaxy streaming velocities*, P.G. Ferreira *et al*, *Proceedings of New Worlds in Astroparticle Physics* (1999)
- 40) *The four year COBE DMR data is non-Gaussian*, *AIP Conf. Proc.* 476, 293 (1999)
- 41) *MAXIMA: An experiment to measure temperature anisotropy in the cosmic microwave background*, A.T. Lee *et al* (with P.G. Ferreira), *AIP. Conf. Proc.* 476, 224 (1999)
- 42) *Where is the COBE maps' non-gaussianity*, J. Magueijo, P.G. Ferreira, K. Gorski, *AIP. Conf. Proc.* 478, 176 (1999)

- 43) *CMB likelihood functions for beginners and experts*, A. Jaffe, J.R. Bond, P.G. Ferreira, L. Knox, AIP. Conf. Proc. 476, 249 (1999)
- 44) *Velocity Statistics and N-body simulations as a cosmological probe*, J.E. Baker, M. Davis and P.G. Ferreira, Bulletin of the American Astronomical Society 30, 1157 (1998)
- 45) *Evidence for non-Gaussianity in the CMB*, J. Magueijo, P.G. Ferreira, K.M. Gorski, Workshop on the Cosmic Microwave Background and the Planck Mission, Santander, Spain (1998)
- 46) *The impact on cosmology of a primordial scaling field*, P.G. Ferreira, 3<sup>rd</sup> International Symposium on Sources and Detection of Dark Matter in the Universe (DM98)
- 47) *Non-Gaussian spectra in the CMB*, P.G. Ferreira, Proceedings of the 18<sup>th</sup> Texas Symposium (1997)
- 48) *Microwave anisotropies from random sources*, P.G. Ferreira, Proceedings of 31<sup>st</sup> Moriond Astrophysics (1996)

### Popular Science

- 1) *A fresh look at Einstein's Prague period*, P.G. Ferreira, Nature 579, 23 (2020)
- 2) *Astronomy and the Future of General Relativity*, P.G. Ferreira, Sky & Telescope, December (2015)
- 3) *First Light*, P.G. Ferreira, New Scientist, XXX (2015)
- 4) *One hundred years of relativity*, P.G. Ferreira, Nature 520, 621 (2015)
- 5) *The Universe expects*, P.G. Ferreira, New Scientist, 223, 38 (2014)
- 6) *Does Dark Energy Really Exist?*, (updated) T. Clifton, P.G. Ferreira, Scientific American, 22, 58 (2013)
- 7) *Time Reborn: from the crisis in physics to the future of the universe*, P.G. Ferreira, Nature 496, 430 (2013)
- 8) *Mr g: A novel about the creation*, P.G. Ferreira, Nature 481, 262 (2012)
- 9) *The pursuit of quantum gravity: memoirs of Bryce DeWitt from 1946 to 2004*, P.G. Ferreira, Nature 471, 161 (2011)
- 10) *Relativity goes large: putting Einstein to the test*, P. G. Ferreira, New Scientist 208, 46 (2010)
- 11) *General Relativity*, New Scientist, 207, 1 (2010)
- 12) *The unfolding of time*, P.G. Ferreira, Nature, 463, 881 (2010)
- 13) *Videotaping the Universe*, P.G. Ferreira, Prospect magazine, May 4 (2009)
- 14) *90 years on- the 1919 eclipse expedition at Príncipe*, R. Ellis, P.G. Ferreira, R. Massey, G. Wozniak, Astron. & Geoph., 50, 4.12 (2009)
- 15) *Do I look flat in this?*, P.G. Ferreira, New Scientist, 203, 22 (2009)
- 16) *Does Dark Energy Really Exist?*, T. Clifton, P.G. Ferreira, Scientific American, 300, 48 (2009)
- 17) *Joseph Cornell and Astronomy: a case for the stars*, P.G. Ferreira, Nature 458, 285 (2009)
- 18) *Through a glass of darkness*, P.G. Ferreira, Science 323, 1431 (2009)
- 19) *Review: The Strangest Man by Grhama Farmelo*, P.G. Ferreira, New Scientist, 201, 43 (2009)



- 20) *Exploring the multiverse*, P.G. Ferreira, Physics World, 46 (2007)
- 21) *Power Play*, P.G. Ferreira, Guardian, 14<sup>th</sup> Jan. (2005)
- 22) *The battle of black holes*, P.G. Ferreira, Guardian, 30<sup>th</sup> April (2005)
- 23) *Why Gödel was a hero to Einstein*, P.G. Ferreira, Physics World 18, 40 (2005)
- 24) *Challenges of cosmic proportion*, P.G. Ferreira, Physics World, 41 (2003)
- 25) *The quintessence of cosmology*, P.G. Ferreira, CERN courier, 39, 13 (1999)

### Books (non-technical)

- 1) *I Am Because You Are*, Eds. P. Goldshmidt, T. Hershman, Freight Book (2015)
- 2) *The Perfect Theory: a century of geniuses and the battle over general relativity*, HMH (US), Little Brown (UK), C.H. Beck (Germany), Athenaeum-Polak & Van Gennepe (Holland), Anagrama (Spain), Presença (Portugal), NHK (Japan), Kachi (Korea), Terra Cognita (Finland), Rizzoli (Italy), Proszynski Media (Poland) (2014)
- 3) *Cloud Choreography and other Emergent Systems*, Keith Tyson (introduction to catalogue) Koenig Books (2009)
- 4) *The State of the Universe: a primer*, Wiedenfield (UK), Presença (Portugal), H.S.T. Press (China)

### Lectures and Seminars

#### Invited lectures and seminars (incomplete)

- 1) *Scale Invariant Gravity*, Gravity Workshop, IST, Lisbon (2019)
- 2) *Testing Gravity with Cosmology*, IST, Lisbon, October (2019)
- 3) *New Physics and Dark Energy*, VII Meeting on fundamental Cosmology, Madrid, September (2019)
- 4) *Relativistic Cosmology in the 21<sup>st</sup> Century*, Eddington Workshop, Principe, May (2019)
- 5) *General Relativity 100 years on*, Sciama Lecture, Trieste, October (2018)
- 6) *Black hole hair and gravitational waves*, Columbia University, April (2018)
- 7) *The ubiquity of the fifth force*, VCES, Vienna (2017)
- 8) *Scale Invariant Gravity*, Fine-tuning Workshop, Crete (2017)
- 9) *Tests of Gravity*, KASI workshop, Korea, April (2017)
- 10) *The state of inhomogeneity*, Workshop on backreaction, Cape Town, February (2017)
- 11) *Cosmological tests of gravity*, Tests of Gravity Workshop, Vancouver, January (2017)
- 12) *Relativistic Cosmology in the 21<sup>st</sup> Century*, University of British Columbia, January (2017)
- 13) *Cosmological tests of gravity*, Higgs Workshop, Edinburgh, January (2017)
- 14) *Testing Gravity with Cosmology*, Columbia University, May (2016)
- 15) *Relativistic Cosmology in the 21<sup>st</sup> Century*, Southampton University, December (2015)

- 16) *Relativistic Cosmology in the 21<sup>st</sup> Century*, University of Leiden, November (2015)
- 17) *Relativistic Cosmology in the 21<sup>st</sup> Century*, IAP, Paris, October (2015)
- 18) *Relativistic Cosmology in the 21<sup>st</sup> Century*, University of Cyprus, Cyprus, September (2015)
- 19) *Relativistic Cosmology in the 21<sup>st</sup> Century*, Albert Einstein Institute, Hannover, July (2015)
- 20) *Relativistic Cosmology in the 21<sup>st</sup> Century*, Albert Einstein Institute, Berlin, July (2015)
- 21) *General Relativity: a new golden age*, National Astronomy Meeting, Llandudno, July (2015)
- 22) *Testing General Relativity with Cosmology*, Albert Einstein Institute, Berlin, April (2015)
- 23) *Gravity and Lambda*, Beyond LCDM conference, Oslo, January (2015)
- 24) *One hundred years of general relativity*, Birmingham Physics, November (2014)
- 25) *The State of the Universe (circa 2014)*, Accelerator Physics Conference, RAL, Oxford, November (2014)
- 26) *The Graviton*, George Ellis Festschrift, UCT, Cape Town, November (2014)
- 27) *The Limits of Cosmology (panel)*, Templeton conference on fine-tuning in cosmology, Tenerife, September (2014)
- 28) *Testing General Relativity with Cosmology*, University of Amsterdam, April (2014)
- 29) *Testing General Relativity with Cosmology*, Pont D'Avignon, Cosmology Conference, April (2014)
- 30) *Gravity and Cosmology: A new golden age?*, University of Miami, Miami, April (2014)
- 31) *Measuring G*, Templeton Workshop on the Constants of Nature, Cambridge, March (2014)
- 32) *On Modified Gravity*, Templeton workshop, Oxford (2014)
- 33) *Cosmological constraints of General Relativity*, Testing GR with Astrophysical Observations, University of Mississippi, Oxford (Miss) January (2014)
- 34) *Testing General Relativity with Cosmology*, LMU, Munich, November (2013)
- 35) *Testing General Relativity with Cosmology*, Higgs Centre, Edinburgh (2013)
- 36) *Conformal Symmetry and Cosmology (panel)*, Conformal Symmetry, Maths Institute, Oxford, September (2013)
- 37) *Testing General Relativity with Cosmology*, GRG symposium, Warsaw July (2013)
- 38) *Testing General Relativity with Cosmology*, Tales of Lambda, Nottingham, July (2013)
- 39) *Testing General Relativity with Cosmology*, Caltech, California, May (2013)
- 40) *Testing General Relativity with Cosmology*, University of Heidelberg, Heidelberg, May (2013)
- 41) *Testing General Relativity with Cosmology*, Catholic University (PUK), Chile, April (2013)
- 42) *Measuring the growth rate*, Journal club, ROE, Edinburgh, March (2013)
- 43) *Cosmological tests of gravity*, Strong Gravity Beyond GR, Lisbon, March (2013)

- 44) *The return of cosmological scalar fields*, Axion Cosmophysics. KEK, Tsukuba, November (2012)
- 45) *Testing General Relativity with Cosmology*, Cardiff University, Cardiff, October (2012)
- 46) *Testing General Relativity with Cosmology*, Liverpool John Moore University, Cardiff, September (2012)
- 47) *Testing General Relativity with Cosmology*, Institute of Physics, London, September (2012)
- 48) *Testing General Relativity with Cosmology*, COSMO-12, Beijing, September (2012)
- 49) *Testing General Relativity with Cosmology*, Spanish Relativity Conference, Guimarães, Portugal, September (2012)
- 50) *Testing General Relativity with Cosmology*, DAMTP, Cambridge, June (2012)
- 51) *Testing General Relativity with Cosmology*, Perimeter Institute, Waterloo, May (2012)
- 52) *Cosmological Tests of Gravity*, Testing Gravity with Astrophysical and Cosmological Observations, IPMU, Tokyo, January (2012)
- 53) *Cosmological Tests of Gravity*, University of Durham, Durham, UK January (2012)
- 54) *The cosmological landscape*, Lisa Pathfinder Workshop, Oxford, December (2011)
- 55) *Cosmological Tests of Gravity*, Imperial College, London, November (2011)
- 56) *Cosmological Tests of Gravity*, Oxford University, November (2011)
- 57) *Cosmological Tests of Gravity*, University of Hertfordshire, Herts, November (2011)
- 58) *Cosmological Lorentz Violation*, Lorentz Violation Workshop, Cambridge, October (2011)
- 59) *General Relativity: a new golden age?*, Royal Society Meeting, Chichester Hall, March (2011)
- 60) *The Dark Energy Hypothesis*, University of St Andrews, St Andrews, December (2009)
- 61) *The Dark Energy Hypothesis*, Southampton University, Southampton, November (2009)
- 62) *The Dark Energy Hypothesis*, Nottingham University, Nottingham, November (2009)
- 63) *The Dark Energy Hypothesis*, Edinburgh University, Edinburgh, November (2009)
- 64) *The Dark Energy Hypothesis*, New Worlds in Astroparticle Physics, São Tomé, September (2009)
- 65) *The Archipelagian Universe*, FXQI workshop, Warwickshire, July (2009)
- 66) *On modified gravity as an alternative to dark matter*, Chinese Academy of Sciences, Beijing, February (2009)
- 67) *The Dark Energy Hypothesis*, University of Birmingham, Birmingham, February (2009)
- 68) *The Dark Energy Hypothesis*, University of Sussex, Sussex, November (2008)
- 69) *The Dark Energy Hypothesis*, UFRJ, Rio de Janeiro, April (2008)

- 70) *The Dark Energy Hypothesis*, Indian Academy of Sciences, Hyderabad, India, March (2008)
- 71) *On modified gravity as an alternative to dark matter*, Institute of Astronomy, Cambridge, February (2008)
- 72) *On modified gravity as an alternative to dark matter*, Institute of Cosmology, Portsmouth, December (2007)
- 73) *On modified gravity as an alternative to dark matter*, University of Leeds, Leeds, November (2007)
- 74) *TeVes and large scale structure*, University of Southampton, Southampton, November (2007)
- 75) *TeVes as an alternative to dark matter*, Dark Matter workshop, Fermilab, May (2007)
- 76) *TeVes as an alternative to dark matter*, UCL, London, November (2006)
- 77) *A gravitational solution to the dark matter problem*, Galilei Institute, Florence, October (2006)
- 78) *A gravitational solution to the dark matter problem*, Philosophy Department, Oxford, October (2006)
- 79) *A gravitational solution to the dark matter problem*, Imperial College, London, May (2006)
- 80) *TeVes and large scale structure*, Workshop on Modified Gravity, ROE, Edinburgh, April (2006)
- 81) *TeVes and large scale structure*, UCT, Cape Town, March (2006)
- 82) *Initial Conditions of the Universe*, University of Nottingham, Nottingham, November (2005)
- 83) *Initial Conditions of the Universe*, ROE, Edinburgh, September (2005)
- 84) *Initial Conditions of the Universe*, UKZN, Durban, April (2005)
- 85) *Initial Conditions of the Universe*, University of Groningen, Netherlands, February (2005)
- 86) *Initial Conditions of the Universe*, University of Sheffield, November (2004)
- 87) *Initial Conditions of the Universe*, University of Sussex, November (2004)
- 88) *Initial Conditions of the Universe*, UCL, London, October (2004)
- 89) *Initial Conditions of the Universe*, JENAM, Granada, September (2004)
- 90) *Initial Conditions of the Universe*, Ifrane University, Morocco, July (2004)
- 91) *Initial Conditions of the Universe*, Institute for Cosmology, Portsmouth, July (2004)
- 92) *Initial Conditions of the Universe*, Geneva University, Geneva, June (2004)
- 93) *Initial Conditions of the Universe*, Imperial College, London, May (2004)
- 94) *The State of the Universe*, Universidad Autonoma Madrid, Madrid, May (2004)
- 95) *The initial state of the universe*, University of Toulouse, Toulouse, April (2004)
- 96) *The initial state of the universe*, QMW, London, March (2004)
- 97) *The CMB and the state of the Universe*, KIAS, South Korea, February (2004)
- 98) *The Polarization of the CMB*, Polarization Workshop, Paris, May (2002)
- 99) *Measuring the geometry of the universe with the CMB*, University of Oxford, Oxford, November (2000)
- 100) *Measuring the geometry of the universe with the CMB*, UK Cosmology Network, Durham, September (2000)

- 101) *Measuring the geometry of the universe with the CMB*, DAMTP, Cambridge, September (2000)
- 102) *Measuring the geometry of the universe with the CMB*, SUSY 2000, CERN, Geneva, July (2000)
- 103) *Cosmology of a scaling scalar field*, Paris University Orsay, March (1999)
- 104) *Pairwise streaming velocities and constraints on Omega*, New Worlds in Astroparticle physics, Algarve, September (1999)
- 105) *The COBE data is non-Gaussian*, Modern Cosmology Conference, ICTP, Trieste July (1999)
- 106) *Cosmology of a scaling scalar field*, IAP, Paris, May (1998)
- 107) *Cosmology of a scaling scalar field*, Dark Matter Symposium, UCLA, March (1998)
- 108) *The COBE data is non-Gaussian*, 3K Cosmology, Rome, October (1998)
- 109) *Non-Gaussian spectra in the CMB*, 18<sup>th</sup> Texas Symposium, Chicago (1997)
- 110) *Cosmology of a scaling scalar field*, Fermilab, Batavia, November (1997)
- 111) *Topological defects and the CMB*, Harvard CfA, Boston, November (1994)
- 112) *Topological defects and the CMB*, MIT, Boston, November (1994)
- 113) *Topological defects and the CMB*, CfPA, Berkeley, November (1994)
- 114) *Topological defects and the CMB*, Fermilab, Batavia, November (1994)
- 115) *Cosmic Strings in an open universe*, Imperial College, London, June (1994)

#### Invited Lecture Courses

- 1) *Cosmological Gravity*, NORDITA Winter School, Stockholm (2020)
- 2) *Introduction to Cosmology*, Arab Astronomers Winter School, Marrakesh, November (2016)
- 3) *Cosmological Gravity*, Jaime Tiomno School of Cosmology, Rio de Janeiro, August (2016)
- 4) *The Current State of Cosmology*, School in Sub-Nuclear Physics, Erice, June (2015)
- 5) *The State of the Universe (circa 2014)*, Summer school in GR, Bad Honeff, September (2014)
- 6) *Lectures on modified gravity*, Summer School in Cosmology, Angra do Heroismo, Azores, June (2014)
- 7) *Lectures on modified gravity*, Essential Cosmology for the next generation, Cancun, Mexico January (2014)
- 8) *The Physics of the Cosmic Microwave Background*, SISSA, Trieste, Italy, April (2007)
- 9) *An introduction to astrophysics and cosmology*, AIMS, Cape Town, January (2006)
- 10) *An introduction to astrophysics and cosmology*, AIMS, Cape Town, January (2005)

- 11) *The Physics of the Cosmic Microwave Background*, Cosmology with the CMB, L'Aquila, Italy, June (2005)
- 12) *The Physics of the Cosmic Microwave Background*, ISYA course in Astrophysics, Ifrane, Morocco, July (2004)
- 13) *The Physics of the Cosmic Microwave Background*, KIAS, Seoul, South Korea, February (2004)
- 14) *An introduction to astrophysics and cosmology*, AIMS, Cape Town, January (2004)
- 15) *The Physics of the Cosmic Microwave Background*, Summer school in cosmology, Lake Balaton, Hungary, July (2003)
- 16) *The Physics of the Cosmic Microwave Background*, Troisieme Cycle, Lausanne, Switzerland, May (2003)

### Public lectures

- 1) *The Perfect Theory*, City of Science, Valencia, January (2019)
- 2) *Dark Energy*, Pioneerworks, Brooklyn, November (2018)
- 3) *The Perfect Theory*, Science and Society, Gulbenkian, Lisbon (2018)
- 4) *The Perfect Theory*, Portuguese High School Teacher Convention, Lisbon (2017)
- 5) *Einstein and his Science*, Jewish Book Week, February (2016)
- 6) *The Perfect Theory*, Friends of Imperial, December (2015)
- 7) *The Perfect Theory*, University of Nottingham, November (2015)
- 8) *The Perfect Theory*, University of Portsmouth, November (2015)
- 9) *The Perfect Theory*, Waterstones Bookstore, Oxford, September (2015)
- 10) *The Perfect Theory*, Chemical and Physical Society, UCL London, March (2015)
- 11) *The Perfect Theory panel discussions*, TORCH, Oxford, March (2015)
- 12) *The Perfect Theory*, Oslo University Library, Oslo, January (2015)
- 13) *The Perfect Theory*, Howto Academy, London, November (2014)
- 14) *The Perfect Theory*, Ilkley Book Festival, Ilkley, October (2014)
- 15) *The Perfect Theory*, Words on Walden, Ilkley, October (2014)
- 16) *The Perfect Theory*, Ways with Words, Dartington, July (2014)
- 17) *The Perfect Theory*, interview by Marcus de Sautoy, LRB Bookstore, London July (2014)
- 18) *The Perfect Theory*, Festival of ideas, Bristol June (2014)
- 19) *The Perfect Theory*, Words by the Water, Keswick, March (2014)
- 20) *The Next Big Thing*, FutureFest, London, September (2013)
- 21) *Art and Science* (with Jem Finer and Sian Ede), Gravity Fields Festival, Grantham, September (2012)
- 22) *The centre of the universe*, OCEI, Oxford, March (2013)
- 23) *On time*, University of Lisbon, Lisbon, May (2012)
- 24) *On science* (panel discussion)I, LSE literary festival, London, March (2012)
- 25) *The Problem of Time*, Science Museum, Oxford, November (2011)
- 26) *Big Data in Cosmology*, World Economic Forum, Dalian, China, September (2011)
- 27) *Extra Terrestrial Life* (panel), Oxford Literary Festival, Oxford, April (2011)

- 28) *Computational Challenges in Cosmology*, Royal Society, London, December (2010)
- 29) *Art & Science* (debate), Oxford Art Week, Oxford, May (2010)
- 30) *On Beauty in Mathematics*, Parasol Unit Gallery, London, October (2009)
- 31) *The centre of the universe*, Lisbon University, Lisbon, August (2009)
- 32) *Eddington's Expedition to Príncipe*, São Tomé e Príncipe, May (2009)
- 33) *Eddington's Expedition to Príncipe*, Geographic Society, Lisbon, May (2009)
- 34) *The State of the Universe*, Rotary Club, Woodstock, Oxfordshire, November (2007)
- 35) *The expanding universe*, San Francisco Planetarium, San Francisco, March (1996)
- 36) *The Beginning of the Universe*, Louder than Words workshop, London, March (1994)