

## CURRICULUM VITAE

- Name:** JOHN DAVID BARROW
- Work Address:** Dept. of Applied Mathematics & Theoretical Physics, Centre for Mathematical Sciences, Cambridge University, Wilberforce Road, Cambridge CB3 0WA.  
Tel: 01223-766696. Fax: 01223-765900.  
Email: J.D.Barrow@damtp.cam.ac.uk
- Date of Birth:** 29<sup>th</sup> November 1952
- Place of Birth:** London, England
- Degrees:** BSc (Hons), Mathematics (University of Durham) 1974: 1st Class Honours.  
  
DPhil, Astrophysics (University of Oxford) 1977. Thesis title: 'Non-Uniform Cosmological Models'. Supervisor: Professor D W Sciama FRS.
- Honorary Degrees:** D.Sc. University of Hertfordshire, 1999  
D.Sc. University of Szczecin, 2007  
D.Sc. University of Durham, 2008  
D.Sc. University of Sussex, 2010  
D.Sc. University of S. Wales, 2014
- Honorary Professorship:** Dept of Physics and Astronomy, University of Nanjing, China, 2005
- Honorary Fellowship:** Van Mildert College, Durham University, 2015
- Academic Career:** Ealing Grammar School 1964-71  
Van Mildert College, Durham University 1971-4  
Magdalen College & Dept. of Astrophysics, Oxford University  
1974-7  
Astronomy Dept., Univ. California Berkeley (Lindemann Fellow)  
1977-8  
Christ Church and Dept. of Astrophysics, Oxford (Junior Research Lecturer) 1977-80  
Physics Dept., Univ. California Berkeley (Miller Fellow) 1980-1  
Lecturer, Astronomy Centre, University of Sussex 1981-8  
Nuffield Foundation Science Fellow, University of Sussex 1986-7  
Senior Lecturer, Astronomy Centre, University of Sussex 1988-9  
Reader, Astronomy Centre, University of Sussex, 1989  
Professor, Astronomy Centre, University of Sussex 1989-99

Acting Director, Astronomy Centre, University of Sussex 1989-90  
Royal Society Leverhulme Fellow, University of Sussex 1992-3  
PPARC Senior Fellow, University of Sussex 1994-99  
Director, Astronomy Centre, University of Sussex 1995-99  
Professor of Mathematical Sciences, Dept. Applied Mathematics  
and Theoretical Physics, University of Cambridge, 1999-  
Director, Millennium Mathematics Project, University of  
Cambridge, 1999-  
Professorial Fellow, Clare Hall, Cambridge University, 1999-  
Vice President, Clare Hall, Cambridge University, 2004-7.  
Gresham Professor of Astronomy (and other Physical Sciences),  
Gresham College, London 2003-7  
First Eastern Visiting Cambridge Professor (China and Hong  
Kong) 2005  
Li Ka Shing Foundation Visiting Scholar (China and Hong Kong),  
2006.  
Emeritus Professor of Astronomy, Gresham College, 2007-8  
Gresham Professor of Geometry, Gresham College, 2008-12  
Emeritus Gresham Professor of Astronomy and Geometry, 2012-  
15  
President, British Science Association, Physics and Astronomy  
Section, 2008-9.  
President, British Science Association Mathematics Section, 2011-  
12.  
Fellow, Gresham College, London 2007-10 and 2012-2016, 2016-  
18  
Dean, Clare Hall, Cambridge University, 2017-

**Awards:**

Durham University Mathematical Prize 1973.  
Durham University Prize 1974.  
Collingwood Mathematical Prize (Durham University and London  
Mathematical Society) 1974.  
Johnson Memorial Prize (Oxford University) 1975.  
Wallace Research Prize (Oxford University) 1977.  
Lindemann Fellowship of the English Speaking Union of the  
Commonwealth 1977.  
Junior Research Lectureship, Christ Church, Oxford 1977.  
Gravity Prize (5th), Gravity Foundation Awards 1979.  
Miller Fellowship, University of California at Berkeley 1980.  
Gravity Prize (3rd), Gravity Foundation Awards 1981.  
Nominated for the Bhappu Prize of the International Astronomical  
Union by the Council of the Royal Astronomical Society 1986/7.  
Nuffield Foundation Science Fellowship 1986/87.  
Samuel Locker Award in Astronomy 1989.

Gravity Prize (4th), Gravity Foundation Awards 1993  
Royal Society Leverhulme Senior Fellowship 1992/3.  
PPARC Senior Fellowship (5 years) 1994-9  
Templeton Award 1995.  
Gravity Prize (5th), Gravity Foundation Awards 1997.  
Gordon Godfrey Visiting Professor of Physics, University of New South Wales, Sydney, 1998.  
Kelvin Medal, Royal Glasgow Philosophical Society, 1999  
Wellcome Sci-art 2000 Award, 2000  
Gordon Godfrey Visiting Professor, University of New South Wales, Sydney, December 2000.  
Italian Theatre Awards, Premi Ubu 2002 Prize for best play (awarded for *Infinities*).  
Elected Fellow of the International Society for Science and Religion (FISSR), 2002  
Gresham Professor of Astronomy, Gresham College, 2003-7  
Emeritus Gresham Professor of Astronomy, Gresham College, 2007-  
Elected Fellow of the Royal Society (London), 2003  
Gordon Godfrey Visiting Professor of Physics, University of New South Wales, Sydney, November 2003.  
Italgas Prize for Promulgation of Science 2003, (awarded for *Infinities*).  
Lacchini Prize and Medal of the Unione Astrofili Italiani 2005.  
Honorary Concurrent Professor of Physics, University of Nanjing, China 2005-  
Queen's Anniversary Prize 2006 (to Millennium Mathematics Project).  
Templeton Prize, Templeton Foundation 2006.  
Honorary Citizen, City of Louisville, Kentucky 2006.  
Gresham Professor of Geometry, Gresham College 2008-12.  
Michael Faraday Medal and Prize, Royal Society 2008.  
Gresham Prize, Mercers Company and Corporation of London 2009 (also to Millennium Mathematics Project)  
Kelvin Medal and Prize, Institute of Physics, 2009.  
Elected Fellow of the Academia Europaea, 2009.  
L'Academie Internationale de Philosophie des Sciences, Titular Member, elected 2009.  
Premio Oriente Science (Prize), Colletti Foundation 2010.  
Merck-Serono Prize for Science and Literature, Merck-Serono, Italy, 2011.  
Gravity Research Foundation Research Essay 3rd Prize 2011  
Christopher Zeeman Medal, London Mathematical Society and IMA, 2011  
Premio Antico Pignolo (Literary Prize), Venice 2012

Emeritus Gresham Professor of Geometry, Gresham College,  
2012-  
Dirac Gold Medal and Prize, Institute of Physics 2015  
Honorary Fellow, Van Mildert College, Durham University 2015  
Gold Medal of the Royal Astronomical Society 2016

**Named Lectures:** Centenary Gifford Lectures, Glasgow University 1989  
Elizabeth Scott Memorial Lecture, European Math. Society 1989  
Prime Minister's Science Seminar, 10 Downing St., 1989  
Collingwood Memorial Lecture, Durham University 1990  
Sigma-Tau-Laterza Lectures, University of Milan 1991  
George Darwin Lecture, Royal Astronomical Society 1992  
Spinoza Lecture, University of Amsterdam, Amsterdam 1993  
University of London Annual Physics Lecture, Royal Holloway  
College, London. 1993  
Elizabeth Spreadbury Lecture, University College London 1994  
BBV Science Lectures, Madrid, Bilbao & Tenerife 1994  
Royal Institution Evening Discourse, 1994  
Robert Boyle Memorial Lecture, Oxford 1996  
Amnesty International Science Lecture, Oxford University 1997  
Benedum Lecture, University of West Virginia, 1997  
Kelvin Lecture, Royal Glasgow Philosophical Society, 1999  
Royal Society of Arts Children's Christmas Lecture 1999  
Nicki Shaw Lecture, Cambridge 2000  
London Mathematical Society Popular Lectures, Leeds, Glasgow,  
London, 2000  
Flamsteed Lecture, University of Derby, 2000  
Bologna 2000 Lecture, 2000  
Tyndall Memorial Lecture, University of Bristol, 2001  
Darwin Lecture, Darwin College, University of Cambridge, 2001  
Whitrow Lecture, Royal Astronomical Society, 2002  
Brasher Lecture, University of Kingston, 2002  
Gresham Lectures, Gresham College, London 2003-7  
Isaac Newton Memorial Lecture, King's School Grantham, 2004  
Hubert James Lecture, Purdue University, 2004  
Carl Von Weizsäcker Lectures, Hamburg University, 2004  
McCrea Centenary Lecture, Sussex, 2004.  
Finnish International Year of Physics, Univ. Helsinki, 2005  
Wood Memorial Lecture, Newcastle University, 2005  
Hamilton Lecture, Royal Dublin Society, Trinity College Dublin,  
2005  
Edinburgh Science Festival Address, St Giles Cathedral, 2005  
Knight Lecture, Monkton College, Bath, 2006

Borderlands Lecture, Durham University, 2007  
Boyle Lecture, St Mary-le-Bow, London, 2007  
Roscoe Lecture, John Moore's University, Liverpool, 2007.  
Gunnar and Gunnel Källén Memorial Lecture, Lund, 2007.  
Si-Wei Lectures, National Chengchi University, Taiwan, 2008  
Dennis Sciama Memorial Lectures, Oxford and Trieste, 2008  
David Phillips Memorial Lecture, Cardiff University, 2008.  
Faraday Prize Lecture, The Royal Society, 2009.  
Culford Scholars' Lecture, Culford School, 2009  
Presidential Lecture, BSA Physics and Astronomy Section, Univ  
Surrey, 2009  
Tizard Lecture, Westminster School, 2010  
William Herschel Lecture, University of Bath, 2010  
Van Mildert Trust Lecture, Van Mildert College, University of  
Durham, 2010  
Marcello Anile Memorial Lectures, University Catania, 2011  
Gregynog Lecture, University of Aberystwyth, 2011.  
Real Sociedad Matemática Española, Centenary Lecture,  
Paraninfo, Univ. Zaragoza, 2011.  
Zeeman Lecture, London Math. Soc and Inst. Maths. & its  
Applications, Royal Society, 2012.  
Bernard Lovell Lecture, Jodrell Bank, 2012.  
Presidential Lecture, BSA Mathematics Section, Univ. Aberdeen,  
2012.  
Biennial McCrea Astronomy Lecture, Royal Irish Academy, Cork  
University, 2013.  
Annual Correspondents Day Lecture, Isaac Newton Institute,  
Cambridge, 2014.  
IMO Celebrity Lecture, International Mathematics Olympiad, U  
Cape Town, 2014  
Enriques Lecture, Dipt. Matematico, Univ of Milan, 2014  
10-on-10 Lecture, Para Limes and Alpha-Star, Nanyang  
Technological University, Singapore, 2017  
Gresham College and British Society for the History of  
Mathematics Lecture (Zero is a Hero), Museum of London, 2017

**Committees:**

In-House Research Panel (APS Board of SERC) 1987-8  
Voting delegate representing the Royal Society and the British  
Academy, VIII International Congress on Logic, Methodology, and  
Philosophy of Science, Moscow 1987  
Steering Committee, UK Dark Matter Experiment 1988-9  
Theory and Computation Panel (APS Board of SERC) 1988-92

1989-92 Ground-based Programme Committee (APS Board of SERC)

Anglo-German Gravitational Wave Panel (SERC member) 1990  
 Lisbon Particle Physics and Cosmology School, Organising  
 Committee, 1990

International Organising Committee, Texas Symposia on  
 Relativistic Astrophysics 1990-  
 Co-chair, Local Organising Committee, Texas/ESO-CERN  
 Symposium on Relativistic Astrophysics, Cosmology and  
 Fundamental Physics, Brighton 1991  
 Statistical Challenges in Modern Astronomy, Penn State 1991,  
 Programme Committee  
 Brioni Conference on States of Matter in the Universe, 1991,  
 Organising Committee  
 International Organising Committee, Texas Symposium in  
 Relativistic Astrophysics 1991-  
 Gravitational Radiation Review Panel, (APS Board of SERC) 1994  
 European Union & Council of Europe SEPS Science Committee

1996-1998

Organising Committee M. Grossmann Meeting, Jerusalem 1997  
 Conference Organising Committee, The Non-sleeping Universe,  
 Porto 1997

Board of European Advisors, Templeton Foundation 1995-8, 2000-  
 2004, 2006-9  
 Board of Trustees, Templeton Foundation, 1999-2005, 2006-12  
 Board of Trustees, TWC Foundation, 2006-12  
 Planning Committee, Templeton Foundation, 2005-6  
 British Council Associate Advisor, 1997-8  
 Nuffield Foundation Grants Panel, 1998-  
 Awards Committee, Royal Astronomical Society, 1998-2002  
 Co-organiser, Newton Institute Cambridge programme, Statistics  
 and Astronomy, August 1999.

Millennium Mathematics Project, Management Committee, 1999-  
 Millennium Mathematics Committee, Executive Committee, 1999-  
 Organising Committee Marcel Grossmann Meeting, Rome, 2000  
 Council of the Royal Astronomical Society, 1999-2002  
 THES and OUP Science Writing Prize Judge, 1999-2000, 2002-3  
 Board of Governors, Cheshunt Foundation, 2000-  
 Board of Continuing Education, Cambridge University, 2001-2  
 Inst. of Continuing Education, Cambridge, Board member, 2002-4  
 Finance Committee, Board of Continuing Education, Cambridge  
 University, 2001-2  
 Finance Committee, Inst. of Continuing Education, Cambridge  
 University, 2002-4  
 CARET Advisory Board, Cambridge 2002-3

Gruber Cosmology Prize Committee, 2000-3.  
Board of Governors, Westminster College, Cambridge, 2001-12  
Chair, Audit Committee, Westminster College, 2008, 2009  
International Advisory Committee CosPA, Taiwan, 2002-3  
Forum 21, 2002-4  
Chair, EPSRC Culture and Creativity Grants Panel, 2004  
Advisory Committee, Einstein Centenary Meeting, Paris, 2005.  
Audit Committee, Westminster College, Cambridge, 2005-10  
Scientific Advisory Board, Foundation Questions in Physics and  
Cosmology (FQX) Project, 2005-  
Editorial Advisory Board, University of Cambridge 800<sup>th</sup>  
Anniversary Volume, 2006-8  
International Advisory Committee, CosPA International  
Symposium on Particle Physics & Cosmology, Taipei, 2006.  
Patron, Cambridge Science Festival, 2007-9  
Cambridge Science Week Patrons Committee, 2007-  
Trustee, Van Mildert College Trust, Durham University, 2007-  
2013  
Scientific Advisory Board, World Science Festival, New York,  
2008.  
Royal Society A-Awards Committee, 2005-8  
International Advisory Committee, UNESCO Symposium for  
International Year of Astronomy, Paris 2009.  
Programme Committee, International Conference to Commemorate  
400 years of the Telescope, Beijing, Oct 2008.  
Cosmology and Philosophy, Oxford 2009, Programme Organising  
Committee  
European Project SCIENAR Board Member 2009-  
British Science Association, Physics and Astronomy Section  
committee, 2008-9  
British Science Association, Maths Section committee, 2011-12  
European Mathematics Society Committee on Public Awareness of  
Mathematics, 2008-12  
Cambridge University, Mathematics Depts., Senior Promotions  
Committee, 2010-  
Eurasian International Advisory Board, Templeton Foundation,  
2011-13  
Gresham College Council, Mercers Company and Corp. of  
London, 2011-12  
Gresham College Academic Board, 2007-  
OCR/UCLES Mathematics Council, 2011-2  
Mathematics Advisory Group to Governor of the Bank of England,  
2011-2  
Scientific Organising Committee COSMO 2013, Cambridge,  
2012-3

Infinities and Cosmology Conference, DAMTP, Cambridge, Chair of Organising Committee, 2013.  
 Scientific Organising Committee, Texas Symposium in Relativistic Astrophysics, Dallas 2013.  
 Royal Society Judging Panel, 'Picturing Science' competition, 2013  
 Advisory Group, New Frontiers in Astronomy and Cosmology Grant Competition and Final Conference, Franklin Inst., Univ Chicago, 2014  
 Editorial Board of *The Universe*, Journal of Asia Pacific Org. for Cosmology and Particle Astrophysics, Taiwan 2014  
 Cosmology and the Constants of Nature Conference, DAMTP, Cambridge, Chair of Organising Committee, 2014.  
 Cosmology and Philosophy, Tenerife, Sept 2014, Scientific Programme committee  
 Leverhulme Trust: Leverhulme Physics Prize Committee 2015  
 Clare Hall, Official Fellowship Committee, 2013-2015  
 Clare Hall, Buildings and Estates Committee, 2015-  
 ClareHall, Finance Committee, 2016-  
 Maths World UK Advisory Panel, 2015-  
 Co-organiser, Fred Hoyle Centennial Meeting, Royal Astronomical Society, London 9 Oct 2015  
 Sciama Visiting Fellowship selection committee, SISSA Trieste, 2016-

**Telescope Time:** J. Kapetyn and Isaac Newton Telescopes, La Palma, (7 nights), 1987.  
 Anglo-Australian Telescope, (3 nights), April 1998.  
 Hubble Space Telescope, 12 primary Spacecraft Orbits in Cycle 24  
 General Observer time, 2016-2017

**Memberships:** Fellow of the Royal Astronomical Society (FRAS).  
 Fellow of the Institute of Physics and Chartered Physicist (CPhys FInstP) 1998  
 International Astronomical Union, Member of Commission 47  
 Forum Fellow, World Economic Forum, Davos, Switzerland 1999,  
 2000  
 Fellow of the Royal Society of Arts (FRSA), elected 1999.  
 Fellow, International Society for Science and Religion (ISSR), elected 2002  
 Honorary Fellow, International Society for Science and Religion (ISSR), elected 2017  
 Fellow of the Royal Society of London (FRS), elected 2003.  
 L'Academie Internationale de Philosophie des Sciences, Titular Member, elected 2009.



Member of e-LISA Cosmology Working Group, 2014-

**Misc:**

John D. Barrow Drama Room named at Cranbrook School, Kent, 2007.

John Barrow Dissertation Prize created at Van Mildert College, Durham University, 2007.

Royal Shakespeare Company and Royal Society Presentation and Discussion 'A Dramatic Experiment: Science on Stage', The Royal Society, 11 May 2015,

## PUBLICATIONS: JD BARROW

1. Light Elements and the Isotropy of the Universe, 1976. *Mon. Not. Roy. astr. Soc.*, 175, 359-370.
2. The Synthesis of Light Elements in Turbulent Cosmologies, 1977. *Mon. Not. Roy. astr. Soc.*, 178, 625-650.
3. A Chaotic Cosmology, 1977. *Nature*, 267, 117-120.
4. On the Origin of Cosmic Turbulence, 1977. *Mon. Not. Roy. astr. Soc.*, 179, 47P-49P.
5. The Homogeneity and Isotropy of the Universe, 1977. *Mon. Not. Roy. astr. Soc.*, 181, 719-728 (with R A Matzner).
6. Modern Cosmological Models, 1978. *Science Progress* 65, 129-160.
7. Quiescent Cosmology, 1978. *Nature*, 272, 211-215.
8. Primordial Black Hole Formation in an Anisotropic Universe, 1978. *Mon. Not. Roy. astr. Soc.*, 182, 537-558 (with B J Carr).
9. A Cosmological Limit on the Possible Variation of G, 1978. *Mon. Not. Roy. astr. Soc.*, 184, 677-682.
10. Eternity is Unstable, 1978. *Nature*, 276, 453-459 (with F J Tipler).
11. Analysis of the Singularity Studies of Belinskii, Lifshitz and Khalatnikov, 1979. *Phys. Reports*, 56, 371-402 (with F J Tipler).
12. Pre-galactic Black Holes: A New Constraint, 1979. *Gen. Rel. Gravn.*, 11, 633-638 (with J Silk).
13. The Structure of the Early Universe, 1980. *Scientific American*, April issue, pp118-129 (with J Silk).
14. The Early Stages of the Universe, 1980. Chapter 4, Proc. of the General Meeting of the European Physical Society, Inst. of Physics, Heinemann, London.
15. Galaxy Formation: The First Million Years, 1980. *Phil. Trans. Roy. Soc. A*296, 273-288.
16. Black Holes are not the end of the World, 1979. *Phys. Bulletin*, 30, 149-150.
17. Baryon Asymmetry and Cosmological Asymmetries, 1979. *Mon. Not. Roy. astr. Soc.*, 188, 23P-29P.
18. Evolutionary Cosmological Models, 1979. In 'Problems of the Cosmos', (Einstein Centenary Volume, Enciclopedia Italiana, Rome).
19. Shear Hell-Holes and Anisotropic Universes, 1979. *Gen. Rel. Gravn.*, 11, 383-389 (with B J Carr).
20. The Size of a Bouncing Mixmaster Universe, 1980. *Phys. Rev. D* 21, 336-340 (with R A Matzner).

21. The Baryon Asymmetry of the Universe, 1980. *Surveys in High Energy Physics*, 1, 1-30.
22. The Proton Half-life and the Dirac Hypothesis, 1979. *Nature*, 282, 698-9.
23. Primordial Baryon Generation by Black Holes, 1979. *Mon. Not. Roy. astr. Soc.*, 192, 427-439.
24. Cosmological Constraints on the Scale of Grand Unification, 1980. *Nucl. Phys. B*, 181, 461-487 (with G G Ross).
25. Grand Unification Theories and the Dirac Hypothesis, 1980. *Nature*, 287, 566.
26. Cosmological Baryon Annihilation, 1980. *Mon. Not. Roy. astr. Soc.*, 192, 19P-23P.
27. Coagulation with Fragmentation, 1981. *J. Phys. A*, 14, 729-733.
28. Generic Singularity Studies Revisited, 1981. *Phys. Lett. A*, 82, 441-6 (with F J Tipler).
29. Chaos in the Einstein Equations, 1981. *Phys. Rev. Lett.*, 46, 963-967.
30. Baryosynthesis and the Origin of Galaxies, 1981. *Nature*, 291, 469-472 (with M S Turner).
31. Inflation in the Universe, 1981. *Nature*, 292, 35-38 (with M S Turner).
32. The Growth of Anisotropic Structures in a Friedman Universe, 1981. *Astrophys. J.*, 250, 432-449 (with J Silk).
33. Cosmological Constraints on Elementary Particle Masses in Lemaître Cosmological Models, 1981. *Phys. Lett.*, B 107, 358-362.
34. Cosmology and High Energy Physics, 1981. Proc. Inst. of Physics Conference 'Nuclear Structure and Particle Physics', A Hilger, Bristol.
35. The Lore of Large Numbers: Some Historical Background to the Anthropic Principle, 1981. *Quart. Jl. Roy. astr. Soc.*, 22, 388-420.
36. General Relativity and Non-linear Dynamics, 1982. *Gen. Rel. Gravn.*, 14, 1523-1530.
37. Chaotic Behaviour in General Relativity, 1982. *Phys. Reports* 85, 1-49.
38. Cosmology and Particle Physics, 1982. In 'Cosmology: an Oxford Symposium', ed. A Wolfendale, Reidel, Dordrecht, pp21-38.
39. Dissipation and Unification, 1982. *Mon. Not. Roy. astr. Soc.*, 199, 45P-48P.
40. Massive Particles as a Probe of the Early Universe, 1982. *Nucl. Phys. B*, 208, 501-508.
41. Anthropic Definitions, 1983. *Quart. Jl. Roy. astr. Soc.*, 24, 146-153.
42. Natural Units before Planck, 1983. *Quart. Jl. Roy. astr. Soc.*, 24, 24-26.
43. Neutrino Proliferation, 1983. *Phys. Lett. B*, 125, 377-378.
44. Cosmology and Elementary Particles, 1983. *Fund. Cosmic Physics*, 8, 83-200.

45. Perturbations of a De Sitter Universe, 1983. In 'The Very Early Universe', ed. G Gibbons, S W Hawking and S T C Siklos, Cambridge University Press, Cambridge, pp267-272.
46. Chaos in the Mixmaster Universe, 1983. *Phys. Rev. Lett.*, 50, 134-137 (with D. Chernoff).
47. The Stability of General Relativistic Cosmological Theory, 1983. *J. Phys. A*, 16, 2757-2776 (with A. C. Ottewill).
48. Limits on the Neutrino Number and Baryon Density of a Realistic Universe, 1983. *Mon. Not. Roy. astr. Soc.*, 203, 393-401 (with J Morgan).
49. Monopoles in the Milky Way, 1983. *Phys. Lett. B*, 122, 31-32 (with J Stein Schabes).
50. The Isotropy of the Universe, 1982. *Quart. Jl. Roy. astr. Soc.*, 23, 344-357.
51. Structure of the Cosmic Microwave Background, 1983. *Nature*, 305, 397-402 (with R Juszkiewicz and D H Sonoda).
52. Dimensionality, 1983. *Phil. Trans. Roy. Soc. A*, 310, 337-346.
53. Cosmology, Elementary Particles, and the Regularity of the Universe. In 'Relativistic Astrophysics and Cosmology', 1984. eds. X Fustero and E Verdaguer, World Publ. Singapore pp137-199.
54. Non-linear Gravitational Clustering, 1984. *Mon. Not. Roy. astr. Soc.*, 209, 19-144 (withR Juszkiewicz and D H Sonoda).
55. Percolation Analyses of Observed and Simulated Galaxy Clustering, 1983. *Mon. Not. Roy. astr. Soc.*, 205, 61P-66P (with S P Bhavsar).
56. Inhomogeneous Cosmologies with Cosmological Constant, 1984. *Phys. Lett. A*, 103, 315-318 (with J Stein Schabes).
57. Percolation Studies of Galaxy Clustering, 1984. In 'Clusters and Groups of Galaxies', eds. M Mardirossian, G Giuricin, and M Mezetti, Reidel, Dordrecht (with S P Bhavsar), pp 415-421.
58. New Light on Heavy Light, 1984. *Nature*, 307, 14-15 (with R Burman).
59. Microwave Sky Patterns and the Density of the Universe, 1984. In Proc. 1st ESO-CERN Symposium, ed. G Setti and L van Hove, CERN, Geneva (with R Juszkiewicz and D H Sonoda) pp170-176.
60. Chaotic Behaviour and the Einstein Equations, 1984. In 'Classical General Relativity', eds. W Bonnor, J Islam and M A H MacCallum, CUP, Cambridge pp 25-41.
61. A Bootstrap Resampling Analysis of Galaxy Clustering, 1984. *Mon. Not. Roy. astr. Soc.*, 210, 19P-23P, (with S P Bhavsar and D H Sonoda).
62. The Invisible Universe, 1984. *New Scientist*, August 30, p 28-31 (with J Silk).
63. From Quark to Cosmos, 1984. *Nature*, 308, 13-14 (with J Silk).
64. The Stability of Certain Spatially Homogeneous Cosmological Models, 1985. *Gen. Rel. Gravn.*, 17, 409-416 (with D H Sonoda).

65. Helium Formation in Cosmologies with Anisotropic Curvature, 1984. *Mon. Not. Roy. astr. Soc.*, 211, 221-227.
66. Cosmology, the Existence of Observers and Ensembles of Possible Universes, 1985. In 'Les Voies de la Connaissance', ed. M Cazenave, A Michel, Paris.
67. First-Ranked Galaxies in Groups and Clusters, 1985. *Mon. Not. Roy. astr. Soc.*, 213, 857-869 (with S P Bhavsar).
68. Universal Rotation: How Large Can it be?, 1985. *Mon. Not. Roy. astr. Soc.*, 213, 917-943 (with R Juszkiewicz and D H Sonoda).
69. Closed Universes: Their Evolution and Final State, 1985. *Mon. Not. Roy. astr. Soc.*, 216, 395-402 (with F J Tipler).
70. Microwave Background Spottiness, 1985. *Nature*, 316, 48 (with R Juszkiewicz and D H Sonoda).
71. The Asymptotic Behaviour of Bianchi Universes, 1986. *Phys. Reports*, 139, 1-49 (with D H Sonoda).
72. The Limits of Observational Cosmology, 1985. *Observatory*, 105, 120.
73. Minimal Spanning Trees, Filaments and Galaxy Clustering, 1985. *Mon. Not. Roy. astr. Soc.*, 216, 17-35 (with S P Bhavsar and D H Sonoda).
74. Kaluza-Klein Mixmaster Universes, 1985. *Phys. Rev. D* 32, 1595-8 (with J Stein-Schabes).
75. The Stability of Kaluza-Klein Cosmologies, 1986. *Phys. Lett. B*, 167, 173-177 (with J Stein-Schabes).
76. General Relativistic Cosmological Models and the Cosmic Microwave Background, 1986. *Canadian J. Phys.*, 64, 152-159.
77. Alignments of Clustered Quasars, 1985. *Mon. Not. Roy. astr. Soc.*, 218, 587-592 (with K Subramanian).
78. The Left Hand of Creation: the origin and evolution of the expanding universe, (with J Silk), Basic Books, New York, pp 256.
79. Three-Dimensional Classical Space-Times, 1985. *Classical & Quantum Gravity*, 3, 551- 567 (with A Burd and D Lancaster).
80. The Inflationary Universe -- Birth, Death, and Transfiguration, 1982. *Nature* 298, 801-5 (with M S Turner)
81. Observational Limits on the Time-Evolution of Extra Spatial Dimensions, 1987. *Phys. Rev. D*, 35, 1805-1810.
82. Filaments: What the Astronomer's Eye Tells the Astronomer's Brain, 1987. *Quart. Jl. Roy. Astr. Soc.*, 28, 109-128 (with S P Bhavsar).
83. Chaotic Space-times, 1987. In 'The Physics of Phase Space', Proc. 1st International Conference on Phase Space, pp 18-21, eds. A Zachary & S Kim, Springer LNP Series no. 278, Springer, NY.

84. The Closed-Universe Recollapse Conjecture, 1986. *Mon. Not. Roy. astr. Soc.*, 223, 835- 844 (with G J Galloway & F J Tipler).
85. Uncertainties in the Cluster-Cluster Correlation Function, 1986. *Mon. Not. Roy. astr. Soc.*, 223, P21-P27 (with E N Ling & C Frenk).
86. Topics in Relativistic Cosmology, 1987. Cargèse Lectures in Physics, pp 239-292, eds. B Carter & J Hartle, Plenum, NY.
87. Relativistic Cosmology, 1987. Vancouver Lectures. In 'The Early Universe', pp125-202, eds. W Unruh & G Semanoff, Plenum, NY.
88. The Deflationary Universe: An Instability of the De Sitter Universe, 1986. *Phys. Lett. B*, 180, 335-339.
89. The Homogenisation and Isotropisation of an Inflationary Cosmological Model, 1986. *Phys. Lett. B*, 182, 25-27 (with O Gron).
90. Deflationary Universes with Quadratic Lagrangians, 1987. *Phys. Lett. B*, 183, 285-289.
91. Filaments and Cells -- Reality of Illusions?. *Bull. Amer. Astronomical Soc.* Abstracts of 169th Meeting (with S P Bhavsar). 1987
92. The Inflationary Universe: Modern Developments, 1988. *Quart. Jl. Roy. astr. Soc.*, 29, 101-117.
93. Inflation and No-hair Theorems, 1987. Proc. Paris-Meudon Colloquium -- String Theory, Quantum Cosmology and Quantum Gravity, pp 42-53, eds. H de Vega & N Sanchez , World Scientific, Singapore.
94. Cosmic No-hair Theorems and Inflation, 1987. *Phys. Lett. B*, 187, 12-16.
95. Non-gaussian Statistics and the Microwave Background Radiation, 1987. *Mon. Not. Roy. astr. Soc.*, 228, 407-426 (with P Coles).
96. Life, the Universe and the Anthropic Principle, 1987. *The World and I*, 2, 179-187.
97. The Premature Recollapse Problem in Closed Inflationary Universes, 1988. *Nucl. Phys. B*, 296, 697-709.
98. The Confrontation of No-scale Supergravity with Cosmology, 1988. *Nucl. Phys. B*, 298, 733-747 (with N Deruelle).
99. Chairman's Introduction to Royal Society Discussion meeting on the Material Content of the Universe, 1986. *Phil. Trans. Roy. Soc. A*, 320, 433-34.
100. Introduction to Relativistic Cosmology, 1987. In 'Proc. of the 1st CERN-ESO School on Astroparticle Physics, Erice, pp 487-571, ed. A De Rujula, World Scientific, Singapore.
101. The Inflationary Universe, 1988. In 'Interactions and Structures in Nuclei', pp 135-150, eds. R Blin Stoye & W D Hamilton, Adam Hilger, Bristol.
102. Action in the Universe, 1988. *Nature*, 331, 31-34 (with F J Tipler).
103. Lensing of Supernova Neutrinos?, 1987. *Nature*, 327, 375 (with K Subramanian).

- 104 Inflationary Universes with Exponential Potentials, 1988. *Nucl. Phys. B*, 308, 929-945 (with A Burd).
105. String-driven Inflationary and Deflationary Universes, 1988. *Nucl. Phys. B*, 310, 743-763.
106. The Mysterious Lore of Large Numbers, 1988. Contributed chapter of 'Modern Cosmology in Retrospect', ed. B Bertotti, R Balbinot, S Bergia & A Messina, CUP, Cambridge, pp 67-92.
107. Cosmology Limits the Number of Neutrinos, 1989. *New Scientist* 28th October, p 30 (with N Dombey)
108. Inflation and the Conformal Structure of Higher-order Gravity Theories, 1988. *Phys. Lett. B*, 214, 515-518 (with S Cotsakis).
109. No New Kasner Solution in Higher-Derivative Gravity, 1989. *Mod. Phys. Lett. A*, 4, 519.
110. The New Cosmology, 1988. *Beshara* 6, 19-25.
111. Constants of Physics and the Structure of the Universe, 1988. In 'Unites de Mesure et Constantes Physiques', 30th Saas Fee Lectures, Chapter 8, pp 1-29, eds. M Batato *et al.*, Assoc. Vaudoise, Lausanne.
112. What is the Principal Evidence for the Cosmological Principle?, 1989. *Quart. J. Roy. astr. Soc.*, 30, 163-167.
113. Newtonian No-hair Theorems, 1989. *Class. Quantum Gravity*, 6, 1253-1265 (with G Götz)
114. The Mathematical Universe, 1989. *World & I*, May, pp306-311.
115. Mixmaster Cosmological Model in Theories of Gravity with a Quadratic Lagrangian, 1989. *Phys. Rev. D*, 39, 2187-92 (with H Sirousse-Zia).
116. Microwave Background Constraints on the Voronoi Model of Large-scale Structure, 1990. *Mon. Not. Roy. astr. Soc.*, 244, 557-562 (with P Coles).
117. New Patterns of Explanation in Cosmology, 1989. Venice Conference on Philosophy and Cosmology, ed. U Curi, CUP, pp1-15.
118. The Asymptotic Approach to De Sitter Space-time, 1989. *Phys. Lett. B*, 231, 228-230 (with G Götz).
119. Cosmological Theories: An Overview, 1992. The Astronomy and Astrophysics Encyclopedia, ed. S P Marran, pp 168-9, Van Nostrand, NY and Cambridge UP.
120. Equilibrium Matter Fields in the Early Universe, 1990. *Mon. Not. Roy. astr. Soc.*, 243, 602-609 (with W S Hawthorne).
121. String-driven Inflation, 1990. In 'The Formation and Evolution of Cosmic Strings', eds. G Gibbons, S.W. Hawking & T. Vachaspati, pp 449-464, CUP, Cambridge.
122. Inner Space and Outer Space: The Quest for Ultimate Explanation, 1989. The Centenary Gifford Lectures, ed. N Spurway, Chapter 3, pp 48-103, Blackwell, Oxford.
123. The Inflationary Universe, 1989. In 'New Ideas in Cosmology' 1989, ed. M Shallis, Blackwell, Oxford.

124. The Statistics of Primordial Density Perturbations, 1990. *Mon. Not. Roy. astr. Soc.*, 244, 188-193 (with P Coles).
125. Chaotic Behaviour in Higher-order Lagrangian Theories of Gravity, 1989. *Phys. Lett. B*, 232, 172-176 (with S Cotsakis).
126. Graduated inflationary universes, 1990. *Phys. Lett. B*, 235, 40-43
127. De Sitter Ground States and Boundary Terms in Generalised Gravity, 1989. *Nucl. Phys. B*, 323, 242-252 (with M Madsen).
128. Platonic Relationships in the Universe, 1991. *New Scientist*, April 20<sup>th</sup>, pp40-43.
129. Why is the World Mathematical? *Scienza & Technica Annuario Astronomical, Astrofisica e Cosmologica*, 1990, pp 10-17.
130. Extended Inflationary Universes, 1990. *Nucl. Phys. B* 341, 294-308 (with K Maeda).
131. Projected and Intrinsic Shapes of Galaxy Clusters, 1990. *Mon. Not. Roy. astr. Soc.*, 249, 662-677 (with M Plionis and C Frenk).
132. Primordial Density Fluctuations and the Microwave Background Spectrum, 1991. *Mon. Not. Roy. astr. Soc.*, 248, 52-57 (with P Coles).
133. Baryogenesis in Extended Inflation I: Baryogenesis via Production and Decay of Supermassive Bosons, 1991. *Phys. Rev. D* 43, 977-983 (with E Copeland, E W Kolb & A R Liddle).
134. Baryogenesis in Extended Inflation II: Baryogenesis via Primordial Black Holes, 1991. *Phys. Rev. D* 43, 984-994 (with E Copeland, E W Kolb & A R Liddle).
135. Why is the Universe Mathematical?, 1990. In the Proceedings of 'Truth in Science', ed. V. Erspamer, Acad. Licencei, Rome.
136. Life, the Universe and the Anthropic Principle, In 'The Anthropic Principle', 1990. ed. J Taylor, Penguin.
137. The Behaviour of Intermediate Inflationary Universes, 1990. *Phys. Lett B* 249, 406-410 (with P Saich).
138. Why is the Universe Mathematical, 1990. *Nuovo Civiltà delle Macchine* 4, 175-183.
139. The Origin of the Universe, 1991. In 'La Narrazione delle Origini', ed. L Preta, Laterza, Rome.
140. The Evolution of the Universe, 1991. *New Literary History* 22, 835-856.
141. The Evolution of Black Holes in an Expanding Universe, 1991. *Mon. Not. Roy. astr. Soc.*, 253, 675-682 (with E Copeland & A R Liddle).
142. Some Statistical Problems in Cosmology, 1992. In 'Statistical Problems in Astronomy', eds. A Feigelson and G J Babu, pp 21-45, Springer, NY.
143. Self-regenerating Inflationary Universes in Higher-order Gravity in Arbitrary Dimension, 1991. *Phys. Lett. B* 258, 299-304 (with S Cotsakis).



144. Galaxy Clustering, 1992. In 'Statistical Problems in Astronomy', eds. A Feigelson and G J Babu, pp 163-170, Springer, NY.
145. Making Machines of Gods, 1991. *The Times Higher Ed. Suppl.*, June 1st issue, pp13-14.
146. Baryosynthesis, Gravitation and Hot Big Bang Cosmology, 1992. In 'Latin American Winter School Lectures in Theoretical Physics', ed. D Altschuler, J Nieves, J Ponce de Leon & M Urbriaco, pp 171-214, World Scientific, Singapore.
147. The Entropy of the Universe, 1991. In 'Evolutionary Phenomena in the Universe', ed. P Giannone, F Melchiorri and F Occhineiro, pp 203-210, Italian Physical Society, Conf. Proc., 32, Bologna.
148. The Cosmology of Black Hole Relics, 1992. *Phys. Rev. D* 46, 645-657 (with E Copeland & A R Liddle).
149. Gravitation and Hot Big Bang Cosmology, 1991. In 'The Physical Universe: The Interface Between Cosmology, Astrophysics and Particle Physics', eds. JD Barrow, A Henriques, M Lago & M Longair, pp1-20, Springer-Verlag.
150. Consequences of Extended Inflation, 1992. GIFT Lectures, Proc. St Feliu Lecture School, eds. J Sola *et al.*, pp 179-190, World Scientific, Singapore.
151. The Anthropic Principle, 1992. *L'Umana Avventura*, Feb. issue, pp1-13.
152. Galaxy Clustering, 1992. In 'Statistical Problems in Astronomy', eds. A Feigelson and G J Babu, pp163-170, Springer-Verlag, NY.
153. Theories of Everything: the Quest for Ultimate Explanation, 1991, pp223, Oxford UP, Oxford.
154. Perché il Mondo è Matematico? 1991. In 'Scienza & Technica Yearbook, pp10-15, Mondadori, Milan.
155. L'Origine dell'Universo, 1991. In 'La Narrazione delle Origini', ed. L Preta, pp 5-29, Laterza, Rome.
156. Nuovi Modelli di Spiegazione in Cosmologia, 1991. In 'Il Principio Antropico', ed. B Giacomini, pp17-32, Spazio Libri Editori, Ferrara.
157. Pi in the Sky: Counting, Thinking and Being, 1992. pp317, Oxford UP, Oxford and NY.
158. L'Universo e Matematica?, 1992. *Sfera* 29, 6-20.
159. Stasera tutti do Euclide, 1992. *La Repubblica Cultura*, Dec. 20th, pp2-3.
160. Shaking the Foundations of Mathematics, 1992. *New Scientist*, No. 1848, pp 36-39.
161. Gravitational Memory, 1992. *Physical Review D* 46, R3227-3230.
162. Tempo Cosmologico, 1995. In 'Il Temponella Scienza e nella Filosofia', ed. E Agazzi, pp 97-120, Guida Editori, Naples.
163. Scalar-field Cosmologies, 1993. *Class. Quantum. Gravity* 10, 279-283 (with P Saich).

164. Gravitational Collapse of Rotating Pancakes, 1993. *Class. Quantum. Gravity* 10, 79-91 (with P Saich).
165. Die Entwicklung des Universums, 1993. In 'Neue Kosmologische Perspektiven', Insel Jahrbuch 1993, pp 44-71, ed. E Sens, Insel Verlag, Frankfurt.
166. Life and the Big Bang, 1993. In 'Proc. Varenna School of Physics', ed. E Sindoni, pp1-19, Soc. Ital, di Fisica, Bologna.
167. The Origin of the Universe, pp 150, Orion, London and Basic Books, NY.
168. Grande Quanto Basta, 1993. *Sfera*, 40, 8-35.
169. Cosmological Principles, 1993. In 'The Renaissance of General Relativity and Cosmology', Proc. D W Sciama 65th Birthday Meeting, eds. G F R Ellis, A Lanza and J Miller, pp 201-212, Cambridge UP, Cambridge.
170. The Growth of Large-scale Structure with a Cosmological Constant, 1993. *Mon. Not. Roy. astr. Soc.*, 262, 717-725 (with P Saich).
171. Scalar-tensor Cosmologies, 1992. *Physical Review D* 47, 5329-5335.
172. Perturbation Spectra From Intermediate Inflation, 1993. *Physical Review D* 47, R5219-5223 (with A R Liddle).
173. Relativistic Cosmology and the Regularization of Orbits, 1993. *Observatory* 113, 210-211.
174. Unprincipled Cosmology, 1993. *Quart. Jl. Roy. astr. Soc.*, 34, 117-134.
175. New Types of Inflationary Universe, 1993. *Phys. Rev. D* 48, 1585-1590.
176. In the World's Image, 1993. *Times Higher Ed. Suppl.*, pp 15-16, 16th April
177. Sizing Up the Universe, 1993. *Focus* Oct., pp70-73.
178. Black Hole Memory, 1993. *Gen. Rel & Gravn.*, 26, 1-5.
179. The Universe Began in no Time at all, 1993. *Falmer*, 22, 12-13.
180. Anthropic Principles in Cosmology, 1993. *Vistas in Astronomy*, 37, 409-427.
181. Energia e Materia, 1993. *Sfera*, 34, 16-20.
182. Non-singular Scalar-tensor Cosmologies, 1993. *Phys. Rev. D* 48, 3592-3595.
183. Amplification of Gravitational Waves in Scalar-tensor Theories of Gravity, 1993. *Phys. Rev. D* 48, 3630-3640 (with J P Mimoso and M G Maia).
184. Gravitational Memory, 1993. *Ann. NY Acad. Sci.*, 688, 686-689.
185. La Vita e il Big Bang, 1993. In 'Scienza ed Etica Alle Soglie del Terzo Millenio', Proc. Soc. Ital. di Fisica, 36, 141-156.
186. Perfect Fluid Scalar-tensor Cosmologies, 1994. *Phys. Rev. D* 50, 3746-3754 (with J P Mimoso).

187. Exact Inflationary Universes with Potential Minima, 1994. *Phys. Rev. D* 49, 3055-3058.
188. Cosmological Graviton Production in general Relativity and Related Gravity Theories, 1994. *Phys. Rev. D* 50, 6262- 6296 (with M G Maia).
189. Amplification of Gravitational Waves in Scalar-tensor Theories of Gravity, erratum. 1995. *Phys. Rev. D* 51 5967 (with J P Mimoso and M G Maia).
190. De Allesomvattende Verklaring, 1993. In 'Een goed begin is het hele werk: Beschouwingen over het begin van de kosmos', pp.95-106, Univ. Amsterdam, Amsterdam.
191. An Explosion into Time and Space, 1994. *Independent Suppl.*, 2nd Oct., 66.
192. Caso è determinismo, 1994. In 'Il Caso è la Libertia', eds. M Ceruti et. al., pp 15-27, Laterza, Rome.
193. Theories of Everything, 1994. In *Physics and Our View of the World*, ed. J. Hilgevoord, pp 38-61, Cambridge UP, Cambridge.
195. Il Suono dei numeri, 1994. *La Repubblica*, 4th March, 36.
196. Long-distance Calls, 1994. *Guardian*, 13th Oct., 13.
197. Discussion, 1994. In 'Physics and Our View of the World', ed. J Hilgevoord, p 259-61, Cambridge UP, Cambridge.
198. Vita, morte, è miracoli del i'universo, 1994. *La Repubblica*, 19th Sept., 28.
199. Formalising the Slow-roll Approximation in Inflation, 1994. *Phys. Rev. D*50, 6262 (with A R Liddle and P Parsons).
200. Why the Universe is not Anisotropic, 1995. *Phys. Rev. D*51, 3113-3116.
201. Slow-roll Inflation in Scalar-tensor Theories, 1995. *Phys. Rev. D*51, 2729-2732.
202. Oscillating Universes, 1995. *Mon. Not. R. astr. Soc.*, 275, 850-862 (with M Dabrowski).
203. Inflationary Models with Logarithmic Potentials, 1995. *Phys. Rev. D*52, 5576-5588 (with P Parsons).
204. Generalised Scalar Field Potentials and Inflation, 1995. *Phys. Rev. D*51, 6757-6764 (with P Parsons).
205. New Inflation from Old, 1995. *Class. Quantum Grav.*, 12, 1715-1721 (with P Parsons).
206. How Anisotropic can a Universe be?, 1995. *Ann. NY Acad. Sci.*, 59, 706-709.
207. Theories of Everything, 1995. In 'Nature's Imagination', ed.J Cornwell, pp 45-63, Oxford UP, London & New York.
208. I Limiti della Conoscenza, 1995. In 'L'Uomo: I Limiti, Le Speranze', eds. G Giorello and E Sindoni, pp 105-111, Piemme, Casale Monferrato.

209. Limiti della Scienza, 1995. In 'Terzo Millennio', Proc. Int. School Plasma Physics, Varenna, eds. G Giorello and E Sindoni, pp 101-112, New Press, Como.
210. Stars in their Ancient Eyes, 1995. *Times Higher Ed. Suppl.*, Dec 16th, p16.
211. Musical Cheers and the Beautiful Noise, 1995. *Times Higher Ed. Suppl.*, June 23rd, 19-20.
212. Beauty is in the Eye of the Hunter, 1995. *Times Higher Ed. Suppl.*, Sept. 15th, 18-19.
213. The Wigner Inequalities for a Black Hole, 1996. *Phys. Rev. D* 54, 6563-4.
214. Varieties of Expanding Universe, 1996. *Classical & Quantum Grav.* 13, 2965-2975
215. Time-varying G, 1996. *Mon. Not. R. astr. Soc.*, 282, 1397-1406
216. Cosmological Models of Dimensional Segregation, 1996. *Classical & Quantum Grav.* 13, 2693-2706 (with J. Yearsley).
217. The Formation and Evaporation of Primordial Black Holes in Scalar-Tensor Gravity Theories, 1996. *Phys. Rev. D* 54, 3920-3931 (with B.J. Carr),
218. Limits of Science, 1996. In *Boundaries and Barriers: on the limits to scientific knowledge*, eds. J. Casti & A Karlqvist, pp.1-11, Addison Wesley, Reading Mass.
219. The Behaviour of Cosmological Models with Varying G, 1997. *Phys. Rev. D* 55, 1906-1936 (with P. Parsons)
220. Spatially Homogeneous String Cosmologies, 1997. *Phys. Rev. D* 55, 623-30 (with K.E. Kunze)
221. Kantowski-Sachs String Cosmologies, 1997. *Phys. Rev. D* 55, 630-8 (with M. Dabrowski)
222. Frontiers and Limits of Science, 1997. In *How Large is God?* ed. J.M. Templeton, pp. 203-216, Templeton Foundation Press, Philadelphia.
223. Cosmological Limits on Slightly Skew Stresses, 1997. *Phys. Rev. D* 55, 7451-60
224. Is the World Simple or Complex?, 1997, In *Scienza e Realtà*, ed. E. Mariani, pp. 35-56, I.P.E., Naples.
225. Time in the Universe, 1997. In *The Idea of Progress*, eds A. Burgen, P. McLaughlin & J. Mittelstrass, Pp. 155-174, Walter De Gruyter & Co., Berlin and New York.
226. Some Limits of Science and Scientists, 1997. In *Proc. 3rd International Symposium on Conceptual Tools for Understanding Nature*, Trieste 1995, ed G. Costa, G. Calucci, and M. Giogi, World Scientific, Singapore, pp.1-10.
227. The Origin of the Universe, Proceedings of Reflections on the Birth of the Universe, Varenna, 25/9/96, ed E Sindoni
228. Come i fisici immaginano sia avvenuta la nascita dell'Universo?, 1997. In *La Favola dell'Universo*, eds G.V. Coyne, G. Giorello, and E. Sindoni, Piemme, pp. 144-146, Casale Monferrato.
229. Science: Limits, Boundaries, and Frontiers. In *Il Patto col Diavolo*, ed. P. Donghi, pp. 15-36, Laterza, Rome, 1997.

230. Wigner Inequalities for a Black Hole, 1996. *Phys. Rev. D* 54, 6563-4.
231. Constraints on a Primordial Magnetic Field, 1997. *Phys. Rev. Lett.* 78, 3610-3 (with P.G. Ferreira, and J. Silk)
232. Flat Spots: Topological signatures of open universes, 1997. *Phys. Rev. Lett.* 79, 974-7 (with J. Levin, E. Bunn, and J. Silk)
233. Inhomogeneous String Cosmologies, 1997. *Phys. Rev. D* 56, 741-752 (with K.E. Kunze)
234. Can Inflation be Falsified?, 1997. *Gen. Rel. Gravitation*, 29, 1501-1508 (with A. Liddle).
235. Geodesics in Open Universes, 1997. *Phys. Lett. A* 233, 169-174 (with J. Levin)
236. Chaos in the Einstein-Yang-Mills Equations, 1998. *Phys. Rev. Lett.* 80, 656-9 (with J. Levin)
237. A Gauge-invariant Analysis of Magnetic fields in General Relativistic Cosmologies, 1997. *Classical & Quantum Grav.* 14, 2539-2562 (with C.G. Tsagas)
238. Is the World Simple or Complex?, 1999. in *The Values of Science: Oxford Amnesty Lectures 1997*, ed W. Williams, Oxford Amnesty International Lectures, Westview Press, NY, Pp 80-94.
239. Rational Vote is Doomed, 1997. *Daily Telegraph*, 30 April.
240. The Analogy of Nature, 1999. In *Mission to Abisko* Abisko Symposium, , eds. J. Casti & A. Karlqvist, Perseus Books, NY, pp. 1-6.
241. New Limits on the Variation of Physical Constants, 1998. *Mon. Not. R. Astron. Soc.* 295, 457-462 (with M. J. Drinkwater, J. K. Webb and V.V. Flambaum)
242. Limits on Cosmological Magnetic Fields and Other Anisotropic Stresses, Proc. 4th Paris Cosmology Colloquium, 1997, Pp196-222, eds. H. De Vega, N. Sanchez, World Scientific, Singapore, 1998.
243. Magnetohydrodynamics in the Early Universe and the Damping of Non-linear Alfvén waves, 1998. *Phys. Rev. D* 58, 083502/1-18 (with K. Subramanian),
244. Spherical Curvature Inhomogeneities in String Cosmology, 1998. *Phys. Rev D* 57, 2255-2263, (with K. Kunze)
245. How the Universe Got Its Spots, 1999. *Phys. Rev. D* 58, 123006-1-14 (with J. Levin, E. Scannapieco, G. De Gasperis and J. Silk).
246. Is there chaos in low-energy string cosmology, 1998. *Phys. Rev. D* 57, 1-19 (with M. Dabrowski)
247. New Limits on the Variation of Physical Constants, 1997. IAP Paris Conference Proceedings (with M. J. Drinkwater, J. K. Webb and V. Flambaum)
248. Varying G and other Constants, 1998. Proc. Erice Summer School Current Topics in Astrofundamental Physics: Primordial Cosmology, 1997, ed. N. Sanchez & A. Zichichi, World Scientific, Singapore, pp 269-305.
249. The Origin of the Universe, 1997, *Modern Astronomer* 1 (8), 52-3.

250. Limits on Cosmological Magnetic Fields and Other Anisotropic Stresses, 1998. Proc. Erice Summer School Current Topics in Astrofundamental Physics: Primordial Cosmology, 1997, ed. N. Sanchez & A. Zichichi, World Scientific, Singapore, pp 241-267
251. Cosmological Variations in  $G$  and  $\alpha$ , 1998, in *Particle Cosmology*, Proc. 3rd RESCEU Symposium on Particle Cosmology, Tokyo, Nov 10-13, 1997, ed. K. Sato, T. Yanagida, and T. Shiromizu, Universal Academic Press, Tokyo, pp. 221-236.
252. The Radiation-Matter Transition in Jordan-Brans-Dicke Theory, 1998. Phys. Rev. D 58, 027302-1-4 (with A.R. Liddle and A. Mazumdar).
253. Evidence for Time Variation of the Fine Structure Constant?, 1999. Phys. Rev. Lett. 82, 884-7 (with J.K. Webb, V.V. Flambaum, C.W. Churchill, and M.J. Drinkwater).
254. La complessità è un mucchio di zucchero, 1998. Liberal 1 (issue 2) p174-5, 12 March, 1998
255. Gauge invariant magnetic perturbations in perfect-fluid cosmologies, 1998. Class. Quantum Gravity 15, 1-22 (with C. Tsagas).
256. Gödel Universes in String Theory, 1998. Phys. Rev. D 58, 103502-1-5 (with M. Dabrowski)
257. Microwave Signals from Tangled Magnetic Fields, 1998. Phys. Rev. Lett. 81, 3575-9 (with K. Subramanian)
258. Only Connect, Liberal (1998)
259. Stringy Gödel Universes, Gravity Essay (with M. Dabrowski)
260. Cosmologies with Varying Light-Speed, 1999. Phys. Rev. D59, 043515, 1-8.
261. The Beginning of the Universe, 1998. In *Aspetti del Tempo*, IPS Naples, 8-10 Oct. 1997, ed E. Mariani, pp 67-82.
262. String Cosmology and Chaos, 1998. *Proc. International Seminar Current Topics in Mathematical Cosmology*, 30 March-4 April, 1998, Potsdam, eds. M. Rainer & H-J. Schmidt, World Scientific, Singapore, (with M. Dabrowski). Pp. 53-62.
263. El Origen del Universo, 1998. Revista de Occidente 207, 78-95
264. Cosmology, Design Arguments, and the Anthropic Principle, 1998. Proc. SSQ Conference, Berkeley, June 8th 1998, CTNS.
265. Anisotropic Stresses in an Inhomogeneous Universe, 1999. Phys. Rev. D 59, 043502, 1-8, (with R. Maartens) .
266. Genio e Rugolatezza, 1998. In *Il Libro del Salone: i testi*, ed. E. Gianotti, Salone del Libro, Prosa S.c.r.l., Turin. Pp. 173-179.
267. Varying- $\alpha$  theories and solutions to the cosmological problems, 1998. Phys. Lett. B 443, 104-110 (with J. Magueijo).
268. String Cosmology, 1998. Chaos, Solitons & Fractals 10, 1-9 (with K.E. Kunze).
269. Art and Science: Les Liaisons Dangereuses. In *Art and Complexity*, eds. J. Casti & A Karlqvist, Proc. Abisko Workshop 1998, Elsevier Amsterdam, (2003), pp. 1-20.

270. Solutions to the Quasi-flatness and Quasi-lambda Problems, 1999. Phys. Lett. B 447, 246-250 (with J. Magueijo).
271. Cosmology and the Origin of Life, 1999. In *Origine della Vita Intelligente Nell'Universo: The Origin of Intelligent Life in the Universe*, Proc. Varenna Conference, Varenna, Sept. 1998, ed. E. Sindoni et al, Edizioni New Press, Como. Pp. 7-18.
272. Solving the Flatness and Quasi-Flatness Problems in Brans-Dicke Cosmologies with varying Light Speed, 1999. Class. Q. Gravity, 16, 1435-54 (with J. Magueijo).
273. From Here to Infinity, Templeton Symposium on *Accelerating Creativity*, Washington DC, 15 Feb. 1999, pp1-15., ed. C. Harper.
274. Is Nothing Sacred?, 1999. New Scientist Issue 2196, 21 July, pp 28-32.
275. Entropic Principles, 1999. New Astronomy 4, 333-338.
276. Spatial Variations of Fundamental Constants, 2001. MNRAS 322, 585-8 (with C. O'Toole)
277. Variations on a Constant Theme, 2000. Gen. Rel. Gravitation, 32, 1111-1124.
278. Cosmology, Life, and the Anthropic Principle, 2001. Annals NY Acad. Sciences vol. 950, 139-153, Proc. AAAS Symposium *Cosmic Questions*, April 14-16, 1999, Washington DC, ed. J.B. Miller.
279. Els limits del Mon des la perspectiva de la physica, 1999. Nexus 23, 6-21 Catalunya Centre for Culture, Barcelona ed G. Sebastian. Talk delivered May 3, 1999.
280. Fractals and scars on a compact octagon, 2000. Class. Quantum Gravity 17, L61-8 (with J. Levin)
281. An Entropic Cosmological Principle, 1999. Mod. Phys. Lett. A 16, 1067-71.
282. Some Exact non-vacuum Bianchi VI<sub>0</sub> and VII<sub>0</sub> instantons, 2000. Class. Quantum Grav. 17,1435-45 (With Y. Gaspar and P. Saffin).
283. Life, the Universe, But Not Quite Everything, Dec. 1999. Physics World 12, 31-5.
284. Grande quanto basta, 1999. In *Zero e infinito: I principi di ordine che intervengono in natura*, Cuen, Naples. Pp. 15-40.
285. Le frontiere della scienza. Un dibattito sulla vita, la coscienza, l'universo e I limiti della scienza, 1999. In *Limiti e frontiere della scienza*, ed. P. Donghi, Editori Laterza, Rome. Pp. 47-99 (with G. Cairns-Smith, J. Casti, P.C.W. Davies, & R. Penrose).
286. Can a changing  $\alpha$  explain the supernova results? 2000. Ap. J. Lett. 532, L87 (with J. Magueijo)
287. Chaos and Order in a Finite Universe, 1999. Proc. Of 'The Chaotic Universe', ICRA, Rome, (with J. Levin).
288. L'Origine dell'Universo, 2000. Astronomia 207, 20-29.
289. Can the Universe escape Eternal Acceleration?, 2000. Mon. Not. Roy. Astron. Soc. 316, L41-4 (with R. Bean & J. Magueijo)

290. The Millennium Mathematics Project, 2000 RSA Journal 1 (4) pp 4-6.
291. The Twin Paradox in Compact Spaces, 2001. Phys. Rev. A 63, 044104-0441 (with J. Levin)
292. Mathematical Jujitsu: some informal thoughts about Gödel and physics, 2000. Complexity 5 (5), 28-34
293. Possible Evidence for a variable fine structure constant from QSO absorption lines -- I. Motivations, analysis and results, 2001. Mon. Not. Roy. Astron. Soc , 327, 1208-22, (with M.T. Murphy, J.K. Webb, V.V. Flambaum, V.A. Dzuba, C.W. Churchill, J.X. Prochaska, & A.M. Wolfe).
294. Making Maths Count, Wavelength, 2000. Issue 27 (Oct), pp. 8-10.
295. The Isotropy of Compact Universes, 2001. Class. Quantum Gravity, 18, 1753-66 (with H. Kodama)
296. The Big, the Small, and the In-between, 2001 Project Syndicate J. Rose
297. How Chaos Co-exists with Order, 2002. In *Design and Disorder: Perspectives from Science and Theology*, ESSSAT Proceedings, Lyons 2001, eds. N. Gregersen & U. Görman, T & T Clark, London and Continuum, NY, pp.11-30.
298. Further Evidence for Cosmological Evolution of the Fine Structure Constant, 2001. Phys. Rev. Lett. 87, 091301 (with J. K. Webb, M. Murphy, V. Flambaum, V. Dzuba, C. Churchill, J. Prochaska, & A. Wolfe).
299. The Far, Far Future, 2002. In *The far future universe: eschatology from a cosmic perspective*, ed., G.F.R. Ellis, Templeton Foundation Press, Radnor, pp. 23-40.
300. Time in the Universe -- a Traveller's Guide, 2002. Il Tempo Tra Scienza e Filosofia, Proc. Varenna conference 'The Faces of Time', Sept 25-28th 2000, ed. G. Giorello, E. Sindoni & C. Sinigaglia, edizioni Unicopli, Milan, pp.25-32.
301. Bianchi VIII Empty Futures, 2001. Class Quantum Gravity 18, 1-14 (with Y. Gaspar)
302. Cosmological Evolution of Black Holes in Brans-Dicke Gravity, 2001. Class. Quantum Gravity 18, 4717-23 (with N. Sakai)
303. All Universes Great and Small, 2001. Int. J Mod. Phys D 10 785-790 (with H. Kodama)
304. Is a good long jumper a good high jumper?, 2001. American Journal of Physics 69, 105-6.
305. Scaling Solutions and Reconstruction of Scalar Field Potentials, 2001. Phys. Rev. D 64, 127301 (with C. Rubano)
306. How Mother Nature makes a super Father Time tick, 2001. THES No.1501, 24<sup>th</sup> August, p. 18-19
307. Why is the Universe Mathematical? 2001. In *Frontiers of Life*, vol I *The Origins of Life*, pp. 125-138, Academic Press, NY.
308. A simple varying-alpha cosmology, 2002. Phys. Rev. Lett. 88, 031302 (with H.B. Sandvik & J. Magueijo).
309. A non-constructive proof, Mathematical Digest 124, 9 (2001)



310. Kaluza-Klein Anisotropy in the CMB, 2002. Phys. Lett B. 532, 153-158 (with R. Maartens).
311. Magnetic Brane-worlds, 2001. Class. Quantum Gravity 19, 155-172 (with S. Hervik)
312. The Behaviour of varying-alpha cosmologies, 2002. Phys. Rev. D 65, 063504 (with H. Sandvik and J. Magueijo)
313. Anthropic reasons for non-zero flatness and  $\Delta$ , 2002. Phys Rev. D 65, 123501, (with H. Sandvik and J. Magueijo)
314. Variations of Alpha in Space and Time, 2002. Phys. Rev. D 66, 043515 (with J. Magueijo and H. Sandvik)
315. Evolution of Black Holes in Brans-Dicke Gravity, 2001. (with N. Sakai), Proc. 10<sup>th</sup> Workshop on General Relativity and Cosmology, Osaka, Sept. 2000 (gr-qc/0012067).
316. Viaggiare nel Tempo?, 2001. In *Figli di Crono*, ed. C. Martini, Cortina, Milan, pp. 51-68.
317. Is it e or is it c ? Experimental Tests of Varying Alpha, 2002. Phys Lett. B 549, 284-9 (with J. Magueijo and H. Sandvik).
318. A Cosmological Tale of Two Varying Constants, 2002. Phys. Lett. B 541, 201-10 (with J. Magueijo and H. Sandvik).
319. Domande senza risposta, 2002. In *Matematica e cultura*, ed. M. Emmer, Springer-Verlag, Milan, pp. 13-26.
320. Small-scale microwave background anisotropies due to tangled primordial magnetic fields, 2002. MNRAS 335, L57-61 (with K. Subramanian).
321. Cosmology -- A Matter of All and Nothing, 2002. Astronomy and Geophysics, 43 (4) 8-15.
322. The Weyl Tensor in Spatially Homogeneous Cosmological Models, 2002. Class. Quantum Gravity, 19, 5173-5193 (with S. Hervik).
323. Qualitative Analysis of Universes with Varying Alpha, 2002. Class. Quantum Gravity, 19, 6197-6212 (with D.F. Mota)
324. Infinities: Vivere in eterno, 2002. La Rivista del Libri, No. 7/8, p 11-13.
325. De la science des limites et les limites de science, 2002. In *La complexité, vertiges et promesses: Dix-huit histoires de sciences d'aujourd'hui*, ed. Réda Benkirane, chap XV, pp.311-328, Editions Le Pommier, Paris (2002).
326. Enigma variations, 2002. New Scientist 7<sup>th</sup> Sept. No. 2359, pp. 30-33.
327. Das Leben im Universum: gross, klein und komplex, 2002. In *S.E.T.I.: die Suche nach dem Ausserirdischen*, ed T.D. Wabbel, Beustverlag, Munich, pp. 37-52.
328. What is Time? 2002. In *Big Questions in Science*, ed. H. Swain, J. Cape, London, pp. 21-32.
329. Constants and Variations: from alpha to omega, 2003. Astrophysics and Space Sci. 283, 645-660. Plenary Talk. Proc. of JENAM 2002 Workshop on Variation of Fundamental Constants, Porto,

- Sept. 2002 also published in C.J.A.P. Martins, *The Cosmology of Extra Dimensions and Varying Fundamental Constants*, Kluwer, Dordrecht, (2003), pp. 207-222.
330. Changing Alpha: some matters of gravity, 2002. *Int. J. Mod. Phys. D* 11, 1615-9 (with J. Magueijo and H. Sandvik).
  331. Unusual Features of Varying Speed of Light Cosmologies, 2003. *Phys. Lett. B* 564, 1-7.
  332. Gauge-invariant Perturbations of Varying-alpha Cosmologies, 2003. *Class. Quantum Gravity* 20, 2045-2062 (with D.F. Mota).
  333. More Ado About Nothing, 2004. In *Perché esiste qualcosa invece di nulla?: Vuoto, Nulla, Zero*, ed. S. Moriggi & E. Sindoni, Itaca Libri, Ra., pp.11-28.
  334. The Stability of the Einstein Static Universe, 2003. *Class. Quantum Gravity* 20, L155-L164 (with G.F.R. Ellis, R. Maartens & C. Tsagas).
  335. The Future of Tilted Universes of Bianchi Type, 2003. *Class. Quantum Gravity*, 20, 2841-2854 (with S. Hervik)
  336. Small-scale CMB Polarisation anisotropies due to Tangled Primordial Magnetic Fields, 2003. *Mon. Not. Roy. Astron. Soc.* 344, L31-35 (with K. Subramanian and T.R. Seshadri)
  337. Indefinite Information Processing in Ever-expanding Universes, 2003. *Phys. Lett. B* 566, 1-7 (with S. Hervik)
  338. A Test of a Test for Chaos, 2003. [nlin/0303070](http://nlin/0303070) (with J. Levin)
  339. The Copernican Principle in Compact Spacetimes, 2003. *Mon. Not. Roy. Astron. Soc.* 346, 615-8 (with J. Levin).
  340. Quasi-spherical Gravitational Collapse in Any Dimension, 2004. *Gen. Rel. Gravitation*, 36, 231-243 (with U. Debnath and S. Chakraborty)
  341. Glitch, 2003. *New Scientist*, 7<sup>th</sup> June issue, pp. 44-5.
  342. Varying Alpha in a More Realistic Universe, 2004. *Phys. Lett. B*, 581, 141-6 (with D.F. Mota).
  343. The Long View, 2003. *The Observer Real Time Supplement*, pp. 32-35, 29<sup>th</sup> June issue.
  344. Mapping the Dark Energy with varying Alpha, 2003. *Phys. Lett. B*, 578, 235-240 (with D. Parkinson and B. Bassett)
  345. Wie aus nichts etwas wird, 2004. In *Die Macht der Zeichen*, pp.131-155 Jewish Museum Berlin, eds. D. Tyradellis and M.S. Friedlander, DuMont
  346. The Dynamics and Stability of the Gödel Universe, 2004. *Class. Quantum Gravity* 21, 1773-1789 (with C. Tsagas)
  347. Upstaging the Infinite, 2003. *New Scientist* 27<sup>th</sup> September, p. 34-37.
  348. The Gödel Brane, 2004. *Phys. Rev. D* 69, 064007 (with C. Tsagas)
  349. Local and Global Variations of the Fine Structure Constant, 2003. *Mon. Not. Roy. Astron. Soc.* 349, 291-302 (with D.F. Mota)

- 350 Quando il Cielo si Colora di Nero, 2003. La Repubblica, Diario, p.49., 1<sup>st</sup> Oct.
- 351 Mathematical Explanation, 2004. In *Explanations*, ed. J. Cornwell, Oxford UP, Oxford, pp. 81-109.
- 352 Science in Culture: Gardening by numbers, 2004. Nature 427, 296.
- 353 Varying Alpha in Cosmology, 2004. Mod. Phys Lett. A 19, 951-8, Proc. CosPA 2003, Taiwan.
- 354 Marte: un pianeta tra it mito e la scienza, 2004. La Repubblica, Diario, p45, 7th Feb
- 355 Sudden Future Singularities, 2004. Class. Quantum Gravity 21, L79-L82.
- 356 Chemistry and Sensitivity, 2004. In *Fine Tuning in Chemistry*, eds. J.D. Barrow, S. Conway-Morris, S. Freeland and C. Harper.
- 357 Alles oder Nichts?: Die Vorstellungen vom Urknall und die Konstanten der Natur, 2004. In *Mensch und Kosmos: Unser Bild des Universums*, pp. 208-233, eds. E.P. Fischer and K. Wiegandt, Fischer Taschenbuch Verlag, Frankfurt, (2004).
- 358 Outer Space, 2004. In *Space In Science, Art and Society*, ed. F. Penz, G. Radick & R. Howell, Cambridge UP, Cambridge, pp. 172-200.
- 359 Eddington; leading the field, 2004. Astronomy and Geophysics 45, 3.10-3.13 (with L. Mestel).
- 360 Bouncing Universes with varying Alpha and varying G, 2004. Class. Quantum Grav. 21, 4289-4296 (with D. Kimberly and J. Magueijo).
- 361 Our Universe and Others, 2005. In *Human Approaches to the Universe*, Proc. Academy of Finland Conference, Helsinki, September 2003, ed. E. Martikainen, Luther-Agricola Society, Helsinki, pp. 26-42.
- 362 Inhomogeneous Gravity, 2005. Mon. Not. R. Astron. Soc. 358, 601-13 (with T. Clifton and D.F. Mota)
- 363 Do Fermions and Bosons Produce the Same Gravitational Field?, 2004. Phys. Rev. D 70, 103515 (with R.J. Scherrer)
- 364 Outward Bound, 2005. Physics Teacher (Indian Physical Society), 46, 109-110
- 365 Inconstant Constants, 2005. Scientific American (with J.K. Webb) June issue, pp. 56-63.
- 366 At Home in a Goldilocks Universe, 2005. Science and Spirit , Jan/Feb issue, pp. 42-49.
- 367 More General Sudden Singularities, 2004. Class. Quantum Grav. 21, 5619-5622.
- 368 New Isotropic and Anisotropic Sudden Singularities, 2005. Class. Quantum Grav. 22, 1563-1571 (with C.G. Tsagas)
- 369 Structure and stability of Lukash plane-wave spacetimes, 2005. Class. Quantum Grav. 22, 825-839 (with C.G. Tsagas).
- 370 Doing An Infinite Number of Things Before Breakfast, 2005. New Scientist 29 Jan issue, pp. 28-32.

- 371 Varying Couplings in Electroweak Theory, 2005. Phys. Rev. D 71, 063525 (with D. J. Shaw).
- 372 Einstein as Icon, 2005. Nature 433, 218-291.
- 373 The beginning of the universe (L'inizio dell'Universo), 2005. In *Contesti e Validità del Discorso Scientifico*, eds. L. Cuccurullo & E. Mariani, Armando Editore, Rome, pp.38-65.
- 374 Is the world simple or complex? (I mondo è semplice o complesso?), 2005. In *Contesti e Validità del Discorso Scientifico*, eds. L. Cuccurullo & E. Mariani, Armando Editore, Rome, pp. 164-196.
- 375 Varying Constants, 2005. Phil. Trans. Roy. Soc. 363, 2139-2154.
- 376 Cosmological Constants and Variations, 2005. J. Phys.: Conf. Ser. 24, 253-267.
- 377 Cosmological Constraints on a Dynamical Electron Mass, 2005. Phys. Rev. D 72, 043521 (with J. Magueijo)
- 378 General Cosmological Bounds on Spatial Variations of Physical Constants, 2005. Phys. Rev. D 71, 083520.
- 379 Worlds without end or beginning, 2005. In *The Scientific Legacy of Fred Hoyle*, ed. D. Gough, Cambridge UP, pp.93-101.
- 380 Benvenuti all'Albergo Infinito, 2005. In *Lo Specchio di Carta (vol B) L'Espressione Lirica e Drammatica: Poesia e Teatro*, ed. N. Botta, Loescher Editore, Turin, pp. 358-361.
- 381 The Laws of Nature and the Flaws of Nature, 2005. Proc. Varenna School ed. E. Sindoni in press
- 382 The Variation of G and Primordial Nucleosynthesis, 2005. Phys. Rev. D 71, 123526 (with T. Clifton and R. Scherrer).
- 383 Il nostro universo e gli altri, 2005. KOS speciale: rivista di medicina, cultura e scienze umane (publ. Istituto Scientifico Universitario San Raffaele, Milan), pp 22-27
- 384 Bookends: Infinity and Beyond, 2005. Science and Theology July/August issue, pp.62-63.
- 385 The Laws and Flaws of Nature, 2005. In *Dio, la Natura e la Legge: God and the Laws of Nature*, eds S. Moriggi & E. Sindoni, Angelicum-Mondo X, Milan., 88-92.
- 386 The battle that just rages on and on, 2005. THES (Aug 12), p. 16-17.
- 387 Outward Bound, 2005. In *Spiritual Information*, chap. 21, ed. C.L. Harper, Templeton Fdn Press Conshohocken, pp. 117-120.
- 388 All'origine dell'Universo, 2005. La Scienza , Biblioteca di Repubblica, Suppl. La Repubblica, 20/8/2005, p.44.
- 389 Cosmological Co-evolution of Yang-Mills Fields and Perfect Fluids, 2005 Phys. Rev. D 72, 103512 (with Y. Jin and K-I. Maeda)
- 390 The Power of General Relativity, 2005. Phys. Rev. D 72, 103005 (with T. Clifton)
- 391 Einstein as Icon: how Einstein became the personification of physics, 2005. Association of Asia Pacific Physical Societies Bulletin 15 (5), 2-3.

- 392 Exact Cosmological Solutions of Scale-invariant Gravity Theories, 2005. *Class. Quantum Gravity* 23, L1-6 (with T. Clifton).
- 393 Living in a Simulated Universe, 2007. In *Universe or Multiverse?*, ed B.J. Carr, Cambridge UP. Chap. 27. P.481-486.
- 394 Infinito: Un Peter Pan numerico che gioca con gli interrogativi piu sconcertanti, 2005. *La Repubblica Cultura*, 27/9/2005, pp. 50-1.
- 395 Where things happen that don't: Staging the Infinite, 2005. Proc. Mykonos conference, *Mathematics and Narrative*, ed. A. Alexander *et al.*
- 396 The Existence of Gödel, Einstein, and de Sitter Universes, 2005. *Phys. Rev. D* 72, 123003 (with T.Clifton).
- 397 Anisotropically Inflating Universes, 2006. *Phys. Rev. D* 73, 023007 (with S. Hervik).
- 398 The Local Effects of Cosmological Variations in Physical 'Constants' and Scalar Fields I: Spherically Symmetric Spacetimes, 2006. *Phys. Rev. D* 73, 123505 (with D. Shaw).
- 399 Local Experiments See Cosmologically Varying Constants, 2006. *Phys. Lett. B* 639, 596-599 (with D. Shaw).
- 400 Astro Destiny, 2006. Proceedings of SpoletoScienza 2005, ed. P. Donghi, Laterza, Rome.
- 401 The Local Effects of Cosmological Variations in Physical 'Constants' and Scalar Fields II: Quasi-Spherical Spacetimes, 2006. *Phys. Rev. D* 73, 123506 (with D. Shaw).
- 402 Further Exact Cosmological Solutions to Higher-Order Gravity Theories, 2006. *Class. Quantum Gravity*, 23, 2951-2962 (with T. Clifton).
- 403 The Unexpected Universe, in *Filosofia, Scienza e Bioetica: Studi Internazionali in Onore di Evandro Agazzi*, 2007. Ed. F. Minazzi, Pres. Del Consiglio dei Ministri, Istituto Polygrafico, Rome, p.993-996.
- 404 Decaying Gravity, 2006. *Phys. Rev. D* 73, 104022 (with T. Clifton)
- 405 The Great Basilica of Nature, 2006. *Science and Theology News* (April issue), p.15-16.
- 406 Cosmology: the study of universes, 2006. Sciana Memorial, Venice
- 407 Cosmologies with Energy Exchange, 2006. *Phys. Rev. D* 73, 103520 (with T. Clifton)
- 408 Observable Effects of Scalar Fields and Varying Constants, 2007. *Gen. Rel. Gravn.* 39, 1235-1257 (with D. Shaw)
- 409 Cosmology in Three Dimensions: steps towards the general solution, 2006. *Class. Quantum Gravity* 23, 5291-5322 (with D. Shaw and C. Tsagas)
- 410 The Dominant Balance at Cosmological Singularities, 2007. *J. Phys.: Conf. Ser.* 68, 012004 (with S. Cotsakis)
- 411 Averaging Anisotropic Cosmologies, 2007. *Class. Quantum Gravity*, 24, 1023-1031 (with C.Tsagas).

- 412 On the Evolution of Universes in Quadratic Theories of Gravity, 2006. Phys. Rev. D 74, 124017 (with S. Hervik).
- 413 Intermediate Inflation in the light of the three-year WMAP Observations, 2006. Phys. Rev. D 74, 127305 (with A.R. Liddle and C. Pahud).
- 414 Cosmology with Inhomogeneous Magnetic Fields, 2007. Physics Reports 449, 131-171 (with C.G. Tsagas and R. Maartens).
- 415 Modern Cosmology and Our Place in the Universe, 2008. In *Was ist religion?* Giessen 400<sup>th</sup> Anniversary Research Lectures 2006, eds. E. Gräß-Schmidt and W. Achtner, p. 31-40.
- 416 A Strong Constraint on Ever-Present Lambda, 2007. Phys. Rev. D 75, 067301.
- 417 Gödel and Physics, 2006. Paper delivered at 'Horizons of Truth', Kurt Gödel Centenary Meeting, Vienna, 27-29th April 2006, physics/0612253 published in *Kurt Gödel and the Foundations of Mathematics: Horizons of Truth*, eds. M. Baez, C. Papadimitriou, H. Putnam, D. Scott and C. Harper Jr., chap 11, pp 255-276, Cambridge UP, (2011).
- 418 Some Ups and Downs of Cyclic Universes, 2007. Phys. Rev. D 75, 043515 (with T. Clifton).
- 419 The Cosmology of f(R) Gravity in the Metric Approach, 2007. Phys. Rev. D 75, 084010 (with B. Li).
- 420 Stable Isotropic Cosmological Singularities in Quadratic Gravity, 2007. Phys. Rev. D 75, 123515 (with J. Middleton).
- 421 Eppure l'universo ha un marchio di fabbrica, 2007. Vita e Pensiero 1, 132-138 (Feb.).
- 422 The Cosmology of Modified Gauss-Bonnet Gravity, 2007. Phys. Rev. D 76, 044027 (with B. Li and D.F. Mota).
- 423 The Dynamics of Logamediate Inflation, 2007. Phys. Rev. D 76, 043501 (with N. Nunes)
- 424 The Cosmology of Ricci-Tensor-Squared Gravity in the Palatini Variational Approach, 2007. Phys. Rev. D 76, 104047 (with B. Li and D. Mota).
- 425 Life in the Universe: Big, Small, and Complex, 2008. In *On the Relationship between Science and Philosophy: New Opportunities for a Fruitful Dialogue*, STOQ Research Series ed. G. Auletta, Proc. Gregorian University Workshop on New Interactions between Science and Philosophy, (April 2006), Liberia Edtrice Vaticana, Vatican City, pp. 43-54.
- 426 Detecting a Lorentz-violating Field in Cosmology, 2008. Phys. Rev. D 77, 024032 (with B. Li, and D.F. Mota).
- 427 Some Late-time Asymptotics of General Scalar-Tensor Cosmologies, 2008. Class Quantum Gravity 25, 085012 (with D.J. Shaw)
- 428 The Stability of an Isotropic Cosmological Singularity in Higher-order Gravity, 2008. Phys. Rev. D 77, 103523 (with J. Middleton).
- 429 Slow decay of magnetic fields in open Friedmann universes, 2008. Phys. Rev. D 77, 107302 (with C.G. Tsagas).

- 430 Measure for measure, 2008. *Nature* 453, 35.
- 431 Testing Alternative Theories of Dark Matter with the CMB, 2008. *Phys. Rev. D* 78, 064021 (with B. Li, D.F. Mota, and H. Zhao).
- 432 Varying Alpha: new constraints on seasonal variations, 2008. *Phys. Rev. D* 78, 067304 (with D.J. Shaw).
- 433 Quantum Particle Production at Sudden Singularities, 2008. *Phys. Rev. D* 78, 123508 (with A. B. Batista, J. C. Fabris and S. Houndjo).
- 434 Varying-Alpha Cosmologies with Potentials, 2008. *Phys. Rev. D* 78, 083536 (with B. Li).
- 435 Pop Science's Big Bang, 2008. *Physics World* 21 (10), 30-35.
- 436 Millennium Mathematics for the Millions, 2008. In *The University of Cambridge: an 800th Portrait*, ed. P. Pagnamenta, Third Millennium, p. 66.
- 437 Nasze miejsce we Wszechświecie, 2008. *Postępy Fizyki* 59, (4) 154-159.
- 438 GAUGE: the GrAnd Unification and Gravity Explorer, 2009. *Experimental Astronomy* 23, 549-572 (with G. Amelino-Camelia et al)
- 439 The Classical Stability of Sudden and Big Rip Singularities, 2009. *Phys. Rev. D* 80, 043518 (with S.Z.W. Lip).
- 440 Simple Really : From Simplicity to Complexity -- and Back Again, in *Seeing Further: The Story of science and the Royal Society*, Royal Society 350<sup>th</sup> Anniversary Volume, ed. B. Bryson, Harper Collins, (2010), p. 361-384.
- 441 Does Bulk Viscosity Create a Viable Unified Dark Matter Model?, 2009. *Phys. Rev. D*. 79, 103521 (with B. Li)
- 442 The Stability of Static Ghost Cosmologies, 2009. *Class. Quantum Grav.* 26, 195003 (with C.G. Tsagas)
- 443 Anisotropic Inflation, 2010. *Phys. Rev. D* 81, 023513 (with S. Hervik).
- 444 Rowing and the Subset-Sum Problem Have Their Moments, 2010. *Am. J Phys.* 78, 728-732.
- 445 Là où l'impossible se réalise: L'infini sur scène, 2009. *Côté sciences, Alternatives théâtrales* vol 102-103, 54-56 (Nov 2009 issue) translated by Sarah Glover.
- 446 Varying Constants: Constraints from Seasonal Variations, 2009. *Mem. della Soc. Astron. Ital.* 80, 640-643, Proc. Joint Discussion 9, *Are the Fundamental Constants Varying in Spacetime?*, eds. P. Molaro and E. Vangioni, IAU General Assembly, Rio 2009, (with D.J. Shaw)
- 447 Varying Alpha, 2010. *Annalen der Physik.* 19, 202-210. Proc. Grassmann Meeting, Univ. Szczecin, Sept 2009.
- 448 The Formal Construction of Sudden Cosmological Singularities, 2010. Proc. 12<sup>th</sup> Marcel Grossman meeting on General relativity and Relativistic Astrophysics 2009, eds. T. Damour, R. Jantzen and R. Ruffini, World Scientific, Singapore, (with S. Cotsakis and A. Tsokaros).

- 449 Observational Constraints on the Completeness of Space near Astrophysical Objects, 2010. Phys. Rev. D 81, 063006 (with T. Clifton).
- 450 The Construction of Sudden Cosmological Singularities, 2010. gr-qc/1003.1027 (with S. Cotsakis and A. Tsokaros).
- 451 A General Sudden Cosmological Singularity, 2010. Class. Quantum Grav. 27 165017 (with S. Cotsakis and A. Tsokaros).
- 452 Anisotropic Pressures At Ultra-Stiff Singularities and Cyclic Universes, 2010. Phys. Rev. D 82, 063516 (with K. Yamamoto)
- 453 N-Body Simulations for Coupled Scalar Field Cosmology, 2011. Phys. Rev. D 83, 024007 (with B. Li)
- 454 New Solution of the Cosmological Constant Problems, 2011. Phys. Rev. Lett. 106, 101302 (with D. Shaw).
- 455 Simplicity versus Complexity: Plato and Aristotle Revisited, 2010. Athens Dialogues Proceedings (Nov. 2010).
- 456 Varying  $\alpha$  from N-Body Simulations, 2011. Astrophys. J. 728, 108 (with B. Li and D.F. Mota)
- 457 N-Body Simulations for Extended Quintessence Models, 2011. Astrophys. J. 728, 109 (with B. Li and D.F. Mota).
- 458  $f(T)$  Gravity and Local Lorentz Invariance, 2011. Phys. Rev. D83, 064035 (with B. Li and T. Sotiriou).
- 459 On the Effects of Coupled Scalar Fields on Cosmic Structure Formation, 2011. MNRAS 413, 262–270 (with B.Li).
- 460 A Testable Solution of the Cosmological Constant and Coincidence Problems, 2010. Phys. Rev. D 83, 04351 (with D.J. Shaw).
- 461 Generalizations of Teleparallel Gravity and local Lorentz Symmetry, 2011. Phys. Rev. D 83, 104030 (with T.P. Sotiriou and B. Li).
- 462 Cosmological magnetic field survival, 2011. MNRAS 414, 512-8 (with C.G. Tsagas) .
- 463 From Big Bang to Eternal Inflation, 2011. Standpoint (April issue), 31, 68.
- 464 Large-scale Structure in  $f(T)$  Gravity, 2011. Phys. Rev. D83, 104017 (with T.P. Sotiriou and B. Li)
- 465 The Value of the Cosmological Constant, 2011. Gravity Research Foundation 3<sup>rd</sup> Prize essay, Gen. Relativity and Gravitation, 43, 2555-60, (with D.J. Shaw)
- 466 The Instabilities of the Bianchi Type IX Einstein Static Universe, 2012. Phys. Rev. D 85, 083505 (with K. Yamamoto).
- 467 Difendo Hubble perché le stelle non vanno spente, 2011 La Repubblica 16th Sept. Issue Cultura section p1.



- 468 Sudden Singularities Survive Massive Quantum Particle Production, 2011. Phys. Rev. D 84, 123518 (with A.B Batista, J.C. Fabris, M.J.S. Houndjo and G. Dito)
- 469 Slow Off The Mark, Athletics Weekly, 2011. Sept 29 issue, p.38.
- 470 The Value of the Cosmological Constant, 2011. Int. J. Mod. Phys. D 14, 1-6 (with D.J. Shaw).
- 471 A Generalized Theory of Varying Alpha, 2012. Phys. Rev. D .85, 023514 (with S.Z.W. Lip).
- 472 Quantum Effects Near Future Singularities, 2012. (with A.B. Batista, J.C. Fabris, M.J.S. Houndjo and G. Dito). 2012. Proceedings of the Primeira Reuni~ao Argentino-Brasileira de Gravitacao, Astrofisica e Cosmologia, 4-8 October 2011, Foz de Iguacu, Brasil [arXiv:1201.1138](https://arxiv.org/abs/1201.1138)
- 473 Some Inflationary Einstein-Aether Cosmologies, 2012. Phys. Rev. D 85, 047503
- 474 The Cosmology of Ultimate Concern, 2013 in ' Science and Religion in the Twenty-first Century: The Boyle Lectures at St Mary-le-Bow', eds. R.R. Manning and M. Byrne, SCM Press, London (2013), pp. 59-74.
- 475 Pensare in Piccolo (Smaller and Smaller), 2012. La Repubblica 17/2/2012
- 476 Inconstant Constants, 2012. Extended version of earlier Scientific American article of 200 5in Special Collectors edition of Sci. Amer. *A Matter of Time*, Spring 2012, Vol. 1, no. 1, pp. 70-77 (with J.K. Webb).
- 477 How Usain Bolt Can Run Faster – effortlessly, 2012. Significance 9(2), 9-12.
- 478 The Origin of Cosmic Magnetic Fields: superadiabatically amplified modes in open Friedmann universes, 2012. Phys. Rev. D 86, 023533 (with C.G. Tsagas and K. Yamamoto)
- 479 Raising public awareness in the UK – some snapshots. In *Raising Public Awareness of Mathematics*, eds. E. Behrends, N. Crato and J.F. Rodrigues, Springer, London and NY), pp.3-10, (with R.J. Wilson).
- 480 Do Intergalactic Magnetic Fields Imply An Open Universe? 2012. Phys. Rev. D 86:107302, (with C.G. Tsagas and K. Yamamoto) [gr-qc/1210.1183](https://arxiv.org/abs/1210.1183)
- 481 Astrophysics: conosceremo sempre piu dettagli degli altri mondi, 2012. Panorama (50<sup>th</sup> Anniversary Supplement), Oct. 2012, p115-9.
- 482 Cosmologies in Horndeski's second-order vector- tensor theory, 2013. JHEP 02(2013)146 (with M. Thorsrud and K. Yamamoto)
- 483 Series expansions and sudden singularities, 2013. Proc. Marcel Grossman Meeting MG 13, Stockholm July 2012 (with S. Cotsakis and A. Tsokaros)
- 484 Bouncing Anisotropic Universes with Varying Constants, 2013. Phys. Rev D 88, 023518 (with D. Sloan)
- 485 Limits on variations of the fine-structure constant with gravitational potential from white-dwarf spectra, 2013. Phys. Rev. Lett. 111, 010801 (with J. C. Berengut, V. V. Flambaum, A. Ong, J. K. Webb, M. A. Barstow, S. P. Preval, and J. B. Holberg).
- 486 Geodesics at Sudden Singularities, 2013. Phys. Rev. D 88, 067301 (with S. Cotsakis).

- 487 The General Dynamics of Varying-Alpha Universes, 2013. Phys. Rev. D 88, 103513 (with A. A. H. Graham)
- 488 .Intermediate Inflation from Rainbow Gravity, 2013. Phys. Rev. D 88, 103525 (with J. Magueijo)
- 489 Decathlon: the art of scoring points, 2014. In *50 Visions of Mathematics*, ed. S. Parc 2014. 50<sup>th</sup> Anniversary volume of the IMA, Oxford UP, Oxford, chapter 3
- 490 Inflationary Instabilities of Einstein-Aether Cosmology, 2014. Phys. Rev. D 89, 024001 (with A. Solomon)
- 491 Cosmology: the search for twenty-four (or more) functions, 2014. Phys. Rev. D 89, 064022
- 492 Observational constraints on dual intermediate inflation, 2014. Phys. Rev. D 89, 083525 (with M. Lagos and J. Magueijo)
- 493 Art is Critical, 2014. *Mise en Abyme. Int. Journal of Comparative Literature and Arts*, Vol. 1, Issue 2, 6-7, July/December 2014
- 494 Redshifting of cosmological black bodies in BSBM varying-alpha theories, 2014. Phys. Rev. D 90, 123506 (with J. Magueijo)
- 495 Limits on a Gravitational Field Dependence of the Proton-Electron Mass Ratio from H<sub>2</sub> in White Dwarf Stars, 2014. Phys. Rev. Lett. 113, 123002 (with J. Bagdonaite, E.J. Salumbides, S.P. Preval, M.A. Barstow, M.T. Murphy and W. Ubachs)
- 496 Maximum Tension: with and without a cosmological constant, 2014. *Mon. Not. R. astron. Soc.* 446, 3874 (with G.W. Gibbons)
- 497 Do the constants of nature couple to strong gravitational fields? 2014. 19<sup>th</sup> European White Dwarf Workshop Proceedings EUROWD, Montreal, 2014) pp. 1-4, astro-ph/1410.0809 (with S. P. Preval, M. A. Barstow, J. B. Holberg J. C. Berengut, J. K. Webb, D. Dougan and J. Hu)
- 498 Local varying-alpha theories, 2014. Invited paper for the Special Issue: "Fundamental Constants in Physics and Their Time Variation", *Mod. Phys. Lett. A*, 30(22), 1540029 (with J. Magueijo)
- 499 Singular Inflation, 2015. Phys. Rev. D 91, 083513 (with A.A.H. Graham)
- 500 Dynamical analysis in scalar field cosmology, 2015. Phys. Rev. D 91, 123535 (with A. Paliathanasis, M. Tsamparlis, and S. Basilakos)
- 501 Random Art, 2015. *Interalia Magazine*, March 2015, issue 10, online at <http://www.interaliomag.org/articles/john-d-barrow-random-art/>
- 502 Beyond Number, 2015. *Cambridge Alumni Magazine*, issue 74, Lent term 2015, p. 28-31.
- 503 New Singularities in Unexpected Places, 2015. *Int. J. Mod. Phys. D* 24 (12) 1544012 (with A.A.H. Graham)
- 504 Hyperbolic Inflation in the Light of Planck 2015 Data, 2015. Phys. Rev. D 91, 103517, (with S. Basilakos)
- 505 Viaggiare del tempo, 2016. Paper collected in *Le Cattedere Dei Non Credenti*, dell'Opera del Omnia Cardinal Martini, Vol. 1, Fondazione Carlo Maria Martini, Bompiani, Milan

- 506 Evolution of initially contracting Bianchi Class A models in the presence of an ultra-stiff anisotropic pressure fluid, 2016. *Class. Quantum Grav.* 33, 125004, (with C. Ganguly)
- 507 Classical and Quantum Solutions in Brans-Dicke Cosmology with a Perfect Fluid, 2016. *Phys. Rev. D* 93, 043528 (with A. Paliathanasis, M. Tsamparlis, and S. Basilakos)
- 508 Impossible figures, strings and fractals under market pressure: A consideration of the interconnections of art and mathematics, 2016 *The Art Newspaper* No. 277, p.68, March 2016, essay review of Lynn Gamwell, *Mathematics and Art: A Cultural History*, (pub. Princeton UP).
- 509 Turning on Gravity with the Higgs Mechanism, 2016. *Class. Quantum Grav.* 33, 14LT01 (with S. Alexander and J. Magueijo)
- 510 Cosmological solutions of  $f(T)$  gravity, 2016. *Phys. Rev. D* 94, 023525 (with A. Paliathanasis and P.G.L. Leach)
- 511 Chance, Uncertainty and Unknowability in the Universe and Beyond, 2016. In *Abraham's Dice*, Part I chapter 3, pp36-58, ed. K. Giberson, Oxford UP, Oxford and NY
- 512 Observational Constraints on New Exact Inflationary Scalar-field Solutions, 2016. *Phys. Rev. D* 94, 083518 (with A. Paliathanasis)
- 513 Some Generalities about Generality, 2017. Contributed chapter to *The Philosophy of Cosmology*, chapter 6, eds. J. Silk et al, 2017 Cambridge UP arXiv:1503.05723
- 514 Cosmological Solutions with gravitational particle production and non-zero curvature, 2017. *Phys. Rev. D* 95, 103516 (with A. Paliathanasis and S. Pan)
- 515 Decay of the Cosmic Vacuum Energy, 2017. In *Gravity and the Quantum: Pedagogical Essays on Cosmology, Astrophysics and Quantum Gravity*, Festschrift for T. Padmanabhan, eds. J Singh Bagla and S. Engineer, series Fundamental Theories of Physics 187,(Springer, New York), pp. 61-71, arXiv:1412.5465 (with T. Clifton)
- 516 Dynamical symmetries in Brans-Dicke cosmology, 2017. *Phys. Rev. D* 95, 024021 (with G. Papagiannopoulos, S. Basilakos, A. Giacomini, and A. Paliathanasis)
- 517 Reconstructions of the dark-energy equation of state and the inflationary potential, 2017. CQG submitted [arXiv:1611.06680](https://arxiv.org/abs/1611.06680) (with A. Paliathanasis)
- 518 Kinematics of Einstein-Cartan universes, 2017. *Phys. Rev. D* 95, 104007 (with K. Pasmatsiou and C.G. Tsagas)
- 519 Probing the Gravitational Dependence of the Fine-Structure Constant from Observations of White Dwarf Stars, 2017. *Proc. VARCOSMOFUN 2016*, Univ. Szczecin, , 2017. *Universe* (special issue) 3, 32-8 (with M.B. Bainbridge, M.A. Barstow, N. Reindl, G. Nave, W.-Ü. L. Tchang-Brillet, T.R. Ayres, J. K. Webb, J. D. Barrow, J. Hu, J. B. Holberg, S. P. Preval, W. Ubachs, V.A. Dzuba, V.V. Flambaum, V. Dumont and J.C. Berengut)
- 520 A maximum magnetic moment to angular momentum conjecture, 2017. *Phys. Rev. D* 95, 064040 (with G.W. Gibbons)
- 521 Cyclic Mixmaster Universes, 2017. *Phys. Rev. D* 95, 083515 (with C. Ganguly)

- 522 The Shape of Bouncing Universes, 2017. Int. J. Mod. Phys. D 26, 1743016, Gravity Research Foundation Essay, Honourable Mention (with C. Ganguly)
- 523 Large-scale Stability and Astronomical Constraints for Coupled Dark-Energy Models, 2017. Phys. Rev. D submitted, [arXiv:1706.04953](https://arxiv.org/abs/1706.04953) (with W. Yang and S.Pan)
- 524 Stability of the Kasner Universe in  $f(T)$  Gravity, 2017. Phys. Rev. D in press [arXiv:1709.03432](https://arxiv.org/abs/1709.03432) (with A. Paliathanasis and J. L. Said)
- 525 Cosmological Models in Energy-Momentum-Squared Gravity, 2017. Phys. Rev. D 96, 123517 (with C.V.R. Board)
- 526 Evolution of Cyclic Mixmaster Universes with Noncomoving Radiation, 2017. Phys. Rev. D 96, 123534 (with C. Ganguly)
- 527 No ceiling too high, 2017. Clare Hall Annual Review Oct 2017 issue, (the 2016 Nobel Prize in physics), p28-29
- 528 New integrable models and analytical solutions in  $f(R)$  cosmology with an ideal gas, 2018. Phys. Rev. D, in press [arXiv:1801.01274](https://arxiv.org/abs/1801.01274) (with G. Papagiannopoulos, S. Basilakos and A. Paliathanasis)

### BOOKS

- B1. The Left Hand of Creation: The Origin and Evolution of the Expanding Universe, 1983. Pp. 256. Basic Books, New York and Heinemann, London (with J Silk); paperback eds by Allen & Unwin, London and Basic Bks., NY; 2<sup>nd</sup> enlarged edition 1995, pp 262, publ. Oxford UP, NY and Penguin, London + various languages.
- B2. L'Homme et le Cosmos, 1984. Pp. 113, Radio France Imago, Paris (with F J Tipler).
- B3. The Anthropic Cosmological Principle, 1986. Pp. 706, Oxford University Press, Oxford and New York+ various languages (with F J Tipler), 2<sup>nd</sup> edn. 1996.
- B4. The World Within the World, 1988. Pp. 398, Oxford University Press, London and NY, hard and paper; 2<sup>nd</sup> edn 1995 and various languages.
- B5. Theories of Everything: The Quest for Ultimate Explanation, 1991. Pp. 223, Oxford University Press, London and NY, and various languages. Paperback edns by Vintage, London and Ballantine, NY.
- B6. Pi in the Sky: Counting, Thinking and Being, 1992. Pp. 317, Oxford University Press, London and NY, and various languages. Paperback edns by Penguin, London and Little Brown, NY.
- B7. Perche il Mondo e Matematico?, 1992. Pp. 108, (1991 Sigma-Tau-Laterza Lectures) Laterza , Rome and various languages.
- B8. The Origin of the Universe, 1993. Pp. 150, Basic Books, NY and Orion, London (and 26 languages).
- B9. The Artful Universe, 1995. Pp. 274, Oxford University Press, London and NY and various languages. Paperback edns by Penguin, London and Little Brown, NY.

- B10. *Impossibility: the limits of science and the science of limits*, 1998. Oxford U.P., Oxford and NY. Pp. 279 and various languages.
- B11. *Between Inner Space and Outer Space*, 1999. Oxford U.P., Pp. 274 + various languages.
- B12. *The Universe that Discovered Itself*, 2000. Oxford U.P. , London and New York, pp. 448.
- B13. *The Book of Nothing*, 2000. Jonathan Cape London & Pantheon NY (2001) + various languages, pp.361.
- B14. *Infinites*, 2002. Editizione Piccolo Teatro di Milano, Milan in Italian, pp. 94.
- B15. *The Constants of Nature: From Alpha to Omega*, 2002. Jonathan Cape, London and 2003 Pantheon NY+ various languages, pp. 353.
- B16. *The Infinite Book: A Short Guide to the Boundless, Timeless and Endless*, 2005. Jonathan Cape and Vintage London and Pantheon NY+ various languages, pp. 328.
- B17. *The Artful Universe Expanded*, 2005. 2<sup>nd</sup> edn Oxford UP, London and NY, pp. 321. paperback edn OUP (2011), Actes Sud, France (2015).
- B18 *New Theories of Everything*, 2007. 2<sup>nd</sup> expanded edn., Oxford UP, Oxford and NY, pp. 260.
- B19. *Cosmic Imagery: Key Images in the History of Science*, April 2008. Bodley Head, Random House, London and W.W. Norton, NY, Paidos, madrid and Mondadori, Milan, pp. 610.
- B20 *One Hundred Essential Things You Didn't Know You Didn't Know*, Oct 2008. Bodley Head, Random House, London and W.W. Norton, NY, + various languages, pp.254.
- B21 *Essential Things You Didn't Know You Didn't Know*, 2010. E-book, Bodley Head, London, pp.56.
- B22 *The Book of Universes*, Feb. 2011. Bodley Head, Random House and Norton USA, pp. 354.
- B23 *One Hundred Essential Things You Didn't Know You Didn't Know About Sport*, March 2012, Bodley Head, Random House and Mathematics, W. Norton USA, June 2012.
- B24 *Mathletics*, June 2013. Vintage Random House and W. Norton, NY. Paperback edns.
- B25 *One Hundred Essential Things You Didn't Know about Maths and the Arts*, 2014. Bodley Head, Random House and 2015 Norton USA.

#### **AUDIO BOOKS**

- A1 *The Origin of the Universe*, (3.5 hours reading by JD Barrow) Orion Audio Books, London, 1997
- A2 *Essential Things You Didn't Know You Didn't Know*, Bodley Head. 2010.

#### **ART PROJECTS**

- P1 *Connections in Space*. 2006. CD Rom on mathematical and artistic aspects of space, with R. Bright, M. Kemp and N. Mee (online version at <http://www.btinternet.com/~connectionsinspace/index.html>)
- P2 *Venice Biennale*, 2003. Materials contributed to Katie Holten's Laboratorio della Vigna exhibit representing Ireland ([www.IrelandattheVeniceBiennale.ie](http://www.IrelandattheVeniceBiennale.ie)).

P3 A Dramatic Experiment: Science on Stage, 2015. Panel Discussion, The Royal Society, London 11 May 2015 (<https://royalsociety.org/events/2015/05/dramatic-experiment/>)

### **THEATRE SCRIPT**

T1 'Infinities'. Performed in Italian at the Teatro Piccolo, Milan, directed by Luca Ronconi, 8-28th March 2002 and 5 May-2<sup>nd</sup> June 2003. Performed in Spanish at Nave de Sagunto, Valencia, directed by Vincente Genovès, 19<sup>th</sup> April-12 May 2002. Winner of the Italian 2002 Premi Ubu award for best play (Spettacolo dell'anno) and 2003 Italgas Prize for scientific contributions to Italian culture.

### **NEWSPAPER COLUMNS**

- N1 Why lightweight weightlifters are stronger than heavyweights. It's Not Rocket Science Daily Telegraph Olympic London 2012, July 28 2012, p. S38
- N2 How do archers shoot straight when the laws of physics state they should always miss? It's Not Rocket Science Daily Telegraph Olympic London 2012, July 30, p. S38
- N3 Understanding how to beat the drag factor can help break records in the swimming pool. It's Not Rocket Science Daily Telegraph Olympic London 2012, July 31, 2012, p. S38
- N4 Why do Olympic organisers insist on turning the heat up in the velodrome? It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug. 1, 2012, p. S38
- N5 Why can the seating pattern in a rowing boat be so crucial in the pursuit of gold? It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug 2, 2012, p. S38
- N6 How heptathlon's scoring system has helped lift Jessica Ennis' medal chances, It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug. 3, 2012, p. S38
- N7 Why just running fast is not enough for Usain Bolt to break the world record in the 100m. It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug. 4, 2012, p. S38
- N8 Is there an advantage gained from being right- or left-handed in racket sports? It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug. 6, 2012, p. S38
- N9 Why is the Fosbury Flop the best way for high jumpers to clear the bar at Olympics? It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug. 7, 2012, p. S38
- N10 Does having more people on board your canoe necessarily make it much faster? It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug 8, 2012, p. S38
- N11 How do divers pull off the twists which propel them to Olympic gold medals? It's Not Rocket Science Daily Telegraph Olympic London 2012. Aug. 9, 2012 p. S38
- N12 Why do basketball players seem to hang in the air when they are slam-dunking? It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug. 10, 2012, p.S38
- N13 How do footballers achieve the swerve that has goalkeepers grasping at thin air? It's Not Rocket Science Daily Telegraph Olympic London 2012, Aug. 11, 2012, p. S37
- N14 Dove Sono Tutti? La Repubblica 25 Jan 2013, R2 Cultura, p.43
- N15 Radio Star La Repubblica 9 April 2013, R2 Cultura, p.55

N16 Il Futuro dell'Universo Quei Sgreti del Cosmo che Nessuno Capira Piu, (Bounded in a nutshell), 15<sup>th</sup> July 2013. La Repubblica R2 Cultura, p.29

#### WEB ARTICLES

- W1. Chaos in Numberland: the secret life of continued fractions, PLUS issue 11, 2000. <http://plus.maths.org/issue11/features/cfractions/index.html>
- W2. Chaos, <http://nrich.maths.org/MOTIVATE/conf3/article1.html>
- W3. Mathematics and Sports, [http://motivate.maths.org/conferences/conf23/c23\\_preview.shtml](http://motivate.maths.org/conferences/conf23/c23_preview.shtml)
- W4. Connections in Space website and CD Rom on mathematical and artistic aspects of space, 2006, with R. Bright, M. Kemp and N. Mee <http://www.connectspace.co.uk>
- W5. Outer space- A Sense of Balance, <http://plus.maths.org/issue25/editorial/index.html#john>
- W6. Living in a Simulation, 2003., <http://www.simulation-argument.com/barrowsim.pdf>
- W7. Outer Space -Independence Day, 2003. <http://plus.maths.org/issue26/outerspace/>
- W8. Solution to A Sense of Balance, 2003. <http://plus.maths.org/issue26/outerspace/solution.html>
- W9. Outer Space -Rugby and Relativity, 2003. <http://plus.maths.org/issue27/outerspace/index.html>
- W10. Solution to Independence Day, 2003. <http://plus.maths.org/issue27/outerspace/solution.html>
- W11. Wagons Roll, 2004. <http://www.plus.maths.org/issue28/outerspace/index.html>
- W12. Solution to Rugby and Relativity, 2004. <http://www.plus.maths.org/issue28/outerspace/solution.html>
- W13. Relationships, 2004. <http://www.plus.maths.org/issue29/outerspace/index.html>
- W14 Chaos, 2004 [http://physicaplus.org.il/articles2/barrow\\_eng.html](http://physicaplus.org.il/articles2/barrow_eng.html)
- W15 A Sense of Proportion, 2004. <http://www.plus.maths.org/issue30/outerspace/index.html>
- W16 Solution to Relationships, 2004. <http://www.plus.maths.org/issue30/outerspace/index.html>
- W17 Solution to A Sense of Proportion, 2004. <http://www.plus.maths.org/issue31/outerspace/index.html>
- W18 Two's Company, Three's A Crowd, 2004. <http://www.plus.maths.org/issue31/outerspace/index.html>
- W19 Is this a record?, 2004. <http://www.plus.maths.org/issue32/outerspace/index.html>
- W20 Solution to Two's Company, Three's A Crowd, 2004. <http://www.plus.maths.org/issue32/outerspace/solution.html>
- W22 High Jumping, 2005. [http://nrich.maths.org/public/viewer.php?obj\\_id=2742&part=index](http://nrich.maths.org/public/viewer.php?obj_id=2742&part=index)
- W23 Racing Certainties, 2005. <http://www.plus.maths.org/issue33/outerspace/index.html>
- W24 Solution to Racing Certainties, 2005. . <http://www.plus.maths.org/issue34/outerspace/solution.html>

W25 Monkey Business, 2005. <http://www.plus.maths.org/issue34/outerspace/index.html>

W26 Series, 2005. <http://www.plus.maths.org/issue36/outerspace/index.html>

W27 Solution to Series, 2005. <http://pan.damtp.cam.ac.uk:2004/issue37/outerspace/solution.html>

W28 A Collector's Piece, 2005. <http://www.plus.maths.org/issue37/outerspace/index.html>

W29 Einstein as Icon, 2005. <http://www.plus.maths.org/issue37/features/Einstein/index.html>

W30 A Matter of Gravity, 2006. <http://www.plus.maths.org/issue38/outerspace/index.html>

W31 Solution to A Collector's Piece, 2006. <http://www.plus.maths.org/issue38/outerspace/solution-gifd.html>

W32 Address at Templeton Prize announcement, 2006. [www.templetonprize.org/barrow\\_statement.html](http://www.templetonprize.org/barrow_statement.html)

W33 Superficiality, 2006. <http://www.plus.maths.org/issue39/outerspace/index.html>

W34 Solution to Superficiality, 2006. <http://www.plus.maths.org/issue40/outerspace/solution-gifd.html>

W34 Bridging That Gap, 2006. <http://www.plus.maths.org/issue40/outerspace/index.html>

W35 Some Benefits of Irrationality, 2006. <http://www.plus.maths.org/issue41/outerspace/index.html>

W36 Solution to Bridging That Gap, 2006. <http://www.plus.maths.org/issue41/outerspace/solution.html>

W37 Tally Ho, 2007. <http://www.plus.maths.org/issue42/outerspace/index.html>

W38 Solution to Some Benefits of Irrationality, 2007.  
<http://www.plus.maths.org/issue42/outerspace/solution-gifd.html>

W39 Pylon of the Month, 2007. <http://www.plus.maths.org/issue43/outerspace/index.html>

W40 Emergence, 2007. <http://www.plus.maths.org/issue44/outerspace/index.html>

W41 Blowin' in the Wind, 2007. <http://www.plus.maths.org/issue45/outerspace/index.html>

W42 Solution to Blowin' in the Wind, 2008. <http://plus.maths.org/issue46/outerspace/solution-gifd.html>

W43 How to Rig An Election, 2008. <http://plus.maths.org/issue46/outerspace/index.html>

W44 Venn You Can't Use Venn, 2008. <http://pan.maths.org:2004/issue47/outerspace/index.html>

W45 Pretty Mean Prices, 2008. <http://plus.maths.org/issue48/outerspace/index.html>

W46 Another Christmas Carol, 2008. <http://plus.maths.org/issue49/outerspace/index.html>

W47 When Errors Snowball, 2009. <http://plus.maths.org/issue50/outerspace/index.html>

W48 What happened before the big bang?, 2009. <http://plus.maths.org/latestnews/jan-apr09/bigbang/index.html>

W49 On A Clear Day, 2009. <http://plus.maths.org/issue52/outerspace/index.html>



W50 What is dark energy?, 2009. <http://www.plus.maths.org/latestnews/may-aug09/darkenergy/index.html>

W51 Cosmology of Ultimate Concern, The Boyle Lecture 2007, St. Mary-le-Bow, London  
[http://www.stmarylebow.co.uk/?Boyle\\_Lecture:2007](http://www.stmarylebow.co.uk/?Boyle_Lecture:2007)

W52 Cushioning the Blow, 2010. <http://plus.maths.org/issue54/outerspace/index.html>

W53 Solution to On A Clear Day, 2010. <http://plus.maths.org/issue54/outerspace/solution.html>

W54 Thinking Inside the Box, 2010. <http://pan.maths.org:2004/issue55/outerspace/index.html>

W55 A Question of Tactics, 2010. <http://plus.maths.org/content/outer-space-question-tactics>

W56 The First Harry Beck London Underground Map, Serpentine Gallery Edge Map Marathon, 2010.  
<http://www.edge.org/documents/Edge-Serpentine-MapsGallery/large-38.html>

W57 What goes up must come down, 2011. <http://plus.maths.org/content/outer-space-what-goes-must-come-down&src=fpii>

W58 Ping Pong is Coming Home, 2011. <http://plus.maths.org/content/outer-space-ping-pong-coming-home>

W59 A Constellation of Universes, 2011. Clare Hall Alumni Magazine,  
<http://www.clarehall.cam.ac.uk/index.php?id=859>

W60 A Very Peculiar Practice, 2011. <http://plus.maths.org/content/outer-space-very-peculiar-principle>

W61 What's the Chance of Being Disqualified? 2011.

W62 The Answer to Runnin' in the Wind, 2011. <http://plus.maths.org/content/outer-space-answer-runnin-wind>

W63 Rowing has its Moments, 2012. <http://plus.maths.org/content/outer-space-rowing-has-its-moments?src=aop>

W64 Canoeing and Kayaking, 2012. <http://plus.maths.org/content/outer-space-canoeing-and-kayaking>

W65 Decathlon: The Art of Scoring Points, 2012. <http://nrich.maths.org/8346>

W66 Does Infinity Exist, 2012. <https://plus.maths.org/content/does-infinity-exist>

W67 Olympic Times Too Good To Be True Usually Are But There's a Formula to Find Out, Newsweek magazine online (The Daily Beast) 2 Aug. 2012,  
<http://www.thedailybeast.com/articles/2012/08/02/olympic-times-too-good-to-be-true-usually-are-but-there-s-a-formula-to-find-out.html>

W68 Why Ban Full-Body Olympics Swimsuits? A scientist explains polyurethane., Newsweek magazine online (The Daily Beast) 25 July. 2012 <http://www.thedailybeast.com/articles/2012/07/25/why-ban-full-body-olympics-swimsuits-a-scientist-explains-polyurethane.html>

W69 How Usain Bolt Can Break His World record Without Running Faster in the Olympics., Newsweek magazine online (The Daily Beast) 4 Aug. 2012  
<http://www.thedailybeast.com/articles/2012/08/04/how-usain-bolt-could-break-his-world-record-without-running-faster-in-the-olympics.html>

W70 You Call That An Olympic Sport? , Newsweek magazine online (The Daily Beast) 11Aug. 2012  
<http://www.thedailybeast.com/articles/2012/08/11/you-call-that-an-olympic-sport.html>

W71 How to Bend It Like Beckham. A Scientist Explains, Newsweek magazine online (The Daily Beast) 4 Aug. 2012, <http://www.thedailybeast.com/articles/2012/08/09/how-to-bend-it-like-beckham-a-scientist-explains.html>

W72 Wheelchair speeds, 2012. <http://sport.maths.org/content/wheelchair-racing>

W73 Maths in a Minute: Volleyball, 2012. <http://sport.maths.org/content/maths-minute-volleyball>

W74 Maths in a Minute: Badminton, 2012. <http://sport.maths.org/content/maths-minute-badminton>

W75 Does infinity exist?, 2012. <http://plus.maths.org/content/does-infinity-exist>

W76 Where to stand to look at statues, 2014. <http://plus.maths.org/content/where-stand-look-statues>

W77 You Gussed It, 2015. <https://plus.maths.org/content/outer-space-you-gussed-it>

W78 Playing with Numbers 2015. <https://plus.maths.org/content/playing-number>

W79 Archimedean ice cream cones 2017, <https://plus.maths.org/content/>

## PODCASTS

P1 Cosmic Imagery, 2009. <http://plus.maths.org/podcasts/PlusPodcastMay08.mp3>

P2 What happened before the big bang? 2009. <http://plus.maths.org/podcasts/PlusPodcastJul09.mp3>

P3 Are the constants of nature really constant? 2009. <http://plus.maths.org/podcasts/PlusPodcastJul09.mp3>

P4 Infinity, 2012 [http://plus.maths.org/content/sites/plus.maths.org/files/podcast/barrow\\_edit.mp3](http://plus.maths.org/content/sites/plus.maths.org/files/podcast/barrow_edit.mp3)

P5 Do infinities exist in Nature?, 2013. <http://plus.maths.org/content/do-infinities-exist-nature>

P6 The Mathematics of Sport, The Guardian weekly podcast, 2013.  
<http://www.guardian.co.uk/science/audio/2013/jul/01/podcast-science-weekly-mathematics-john-barrow#start-of-comments>

P7 Big unknowns: is our universe infinite? 2016 <https://www.theguardian.com/science/series/science>

P8 Radio 4 'A History of the Infinite', ed. by Adrian Moore, 19 Sept. 2016

P9 Simplicity and Complexity <https://plus.maths.org/content/stuff-happens-laws-versus-outcomes>

## CONTRIBUTIONS TO WORKS OF REFERENCE

C1. Astronomy, particle physics and philosophy of science entries in the Fontana Dictionary of Modern Thought, Fontana 1988 and in the 1998 edition.

C2. Cosmology and particle physics entries for the MacMillan Dictionary of Astronomy, MacMillan 1987.

- C3. Cosmology and particle physics entries for the Oxford Dictionary of Astronomy, Oxford UP, 1988.
- C4. Reference Encyclopedia of Astronomy and Astrophysics 'Overview of Cosmological Theories', 1989, Cambridge UP.
- C5. Constants of Physics, 1996. Encarta CD-ROM Encyclopedia.
- C6. The Anthropic Principle, 1997. Encyclopedia Britannica.
- C7. The Origins of Counting and the Nature of Mathematics, 1997. Enciclopedia Italiana, Rome.
- C8. Foreword to the Icon Critical Dictionary of Cosmology, ed. P. Coles, Icon Books, Duxford, (1998).
- C9. The Indo-Arab Counting System, 2000. The Greatest Inventions of the Past 2,000 Years, ed J. Brockman, Simon & Schuster, NY.
- C10. The A to Z of the Universe, 2001. Sunday Times Magazine 23<sup>rd</sup> and 30 Sept issues (with M.J. Rees and W. Saslaw).
- C11. Encyclopedia of Science and Religion, 2003. Macmillan Reference USA, Imprint of Gale, New York, ed. J.W.V. van Huyssteen, vols 1&2. Various entries Vol 1: p168, 268-9, 391-2,452-3; Vol.2: p533, 679, 711-2, 745-6, 925.
- C12. What we believe but cannot prove: today's leading thinkers on science in the age of certainty, 2005. Ed. J. Brockman, Free Press, NY, p220.
- C13 Foreword to D. Bohm, *The Special Theory of Relativity*, 2<sup>nd</sup> edn., Routledge, London, 2006.
- C14 New Scientist 50<sup>th</sup> Anniversary Special 1956-2006 *The Big Questions The Next 50 years*, p36, 18<sup>th</sup> Nov 2006.
- C15 Foreword to A. R. Solomon, *Cosmology Beyond Einstein*, Springer Theses series, Springer NY, 2017, p.ix-xi.

#### WORKS EDITED

- D1. The Material Content of the Universe, 1986. Pp. 180, The Royal Society, London (with D W Sciama and P J Peebles).
- D2. Proceedings of the Texas/CERN-ESO Symposium on Relativistic Astrophysics, NY Acad. Sci., 1992. Pp. 840, (with L Mestel and P Thomas).
- D3. The Physical Universe: The Interface Between Cosmology, Astrophysics and Particle Physics, Springer-Verlag, 1991. pp. 312, (with A Henriques, M Lago and M Longair).
- D4. Science and Ultimate Reality: Quantum Theory, Cosmology and Complexity, 90<sup>th</sup> Birthday Volume for John Archibald Wheeler, eds. J.D. Barrow, P.C.W. Davies, & C. Harper, 2004, Cambridge UP, pp.721.
- D5 Fitness of the Cosmos for Life: Biochemistry and Fine-Tuning, eds. J.D. Barrow, S. Conway Morris, S.J. Freeland, and C.L. Harper, 2007, Cambridge UP, pp. 520.
- D6 Water and Life: The unique properties of H<sub>2</sub>O, eds. R.M. Lynden-Bell, S. Conway Morris, J.D. Barrow, J.L. Finney and C.L. Harper, 2010. Taylor & Francis, NY, 400pp.

D7 The Philosophy of Cosmology, eds. K. Chamcham, J. Silk, J.D. Barrow and S. Saunders, 2017  
Cambridge UP, Cambridge, pp.514 ['Choice' selected as an Outstanding Academic Title of 2017 by  
the Association of College & Research Libraries (ACRL)]

### **REVIEWS**

I have also written a large number reviews of books or other pieces of journalism for newspapers, magazines and journals in many languages. These are not listed here. Some were collected and published as the book (B11 above) *Between Inner Space and Outer Space*, 1999. Oxford U.P., Pp. 274.