

PROFESSOR ROBERTO TROTTA MSc(HONS), PhD, FRAS, FHEA

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Nationality: Italian and Swiss • Age: 42 • Languages: Italian (native), English and French (fluent), German (proficient)

ACADEMIA

EDUCATION

- 2011 Certificate of advanced study in learning and teaching. Imperial College London
- 2004 PhD (physics). University of Geneva, Switzerland
- 2001 MSc(Hons) in theoretical physics. Swiss Federal Institute of Technology (ETH), Zurich, Switzerland

ACADEMIC APPOINTMENTS

- Present **Professor of Astrostatistics**, Imperial College London (2019-)
Visiting Professor of Cosmology, Gresham College, London (2019-)
Director, Centre for Languages, Culture and Communication, Imperial College London (2015-)
- 2016 Reader in Astrophysics (equivalent to Associate Professor), Imperial College London
- 2012 Senior lecturer in Astrophysics, Imperial College London
- 2008 Lecturer in Astrophysics (equivalent to Assistant Professor), Imperial College London
- 2005 Sir Norman Lockyer research fellow of the Royal Astronomical Society, University of Oxford
- 2004 Research associate, University of Geneva, Switzerland

PERSONAL FELLOWSHIPS

- Data Science Institute Academic Fellow**, Imperial College London (2017-)
- Elected Fellow**, International Astrostatistics Association (2016-)
- Next Einstein visiting scholar**, AIMS, Cape Town, South Africa (2011-)
- Public Engagement Fellowship, Science and Technology Facilities Council, UK (2013-2017)
- Junior Fellow of St Anne's College, Oxford (2006-2008)
- European Space Agency Fellowship (2005, declined)

HONOURS AND AWARDS

- 2020 Annie Maunder Medal, Royal Astronomical Society, UK
- 2018 Chaire Georges Lemaître 2018, Université Catholique de Louvain, Belgium
President's Award for Leadership in Public Engagement, Imperial College London
- 2017 Significance Lecture, Royal Statistical Society
Outstanding performance award, Imperial College London
Highly commended, President's Award for Excellence in Societal Engagement, Imperial College London
- 2016 Longlisted for the National Coordinating Centre for Public Engagement (NCCPE) Engage Competition Award 2016 (individual project category)
President's Award for Excellence in Teaching, Imperial College London
Faculty of Natural Sciences Prize for Excellence in Teaching, Imperial College London
- 2015 Excellence Award, Stio town hall council, Salerno, Italy
- 2014 Foreign Policy 100 Global Thinkers 2014
British Council English Lecture
Winner, *I'm a Scientist! Get me out of here!* Astronomy Zone online competition

HONOURS AND AWARDS (CONTINUED)

- 2012 Elected to the Royal Astronomical Society Club
- 2011 Merit award, Imperial College London
- 2008 Michelson postdoctoral lectureship prize, Case Western Reserve University, Cleveland, USA
- 2007 Lord Kelvin award lecture, British Association for the Advancement of Science
Merit award, Royal Astronomical Society
Merit award, Oxford University

PROFESSIONAL MEMBERSHIPS

- Fellow Higher Education Academy; Royal Astronomical Society; International Astrostatistics Association
- Member International Society for Bayesian Analysis; International Astronomical Union; Swiss Society for Astronomy and Astrophysics; European Astronomical Society

SCIENTIFIC ACTIVITIES

- GAMBIT Collaboration member (2015-)
- DARWIN-LXe executive board (2015-)
- ATLAS Short Term Associate (2014-2016)
- DARWIN Science Working Package leader (2014-)
- XENON100 Associated Scientist (2014-)
- Fermi Affiliated Scientist (2012-)
- Guest editor, 'Statistical Analysis and Data Mining' special issue (2012)
- Guest editor, 'Physics of the Dark Universe' special issue (2013)
- Editor, Euclid Theory Working Group white paper (2010-)
- Euclid satellite Theory Working Group (2010-)
- Scientific advisor on Dark Energy probes, STFC, UK (2005-2007)
- Co-author of the SuperBayeS public code for the analysis of supersymmetric theories (2006-15)
- 30+ invited scientific talks, 110+ research talks and seminars (2001-)

SERVICE

- Referee, Canada Research Chairs programme (2020)
- Member, STFC Public Engagement Early Career Researcher Network Review Panel (2018-)
- Member, Working Group on Equity and Inclusion of the Commission C1 of the International Astronomical Union (2016-)
- Imperial College London representative, Interdisciplinary Curriculum Group (2015-)
- DARWIN-LXe executive board (2015-)
- Outreach and Knowledge Transfer leader, International Astrostatistics Association (2015-)
- Member, Council of the International Astrostatistics Association (2015-)
- University Research Fellowships referee, Royal Society (2015)
- STFC Rutherford Fellowships panel (2014-15)
- Member, Astrostatistics Committee, International Statistical Institute (2011-)
- Founding member, Imperial Centre for Inference and Cosmology, Imperial College London (2010)
- Jesus College and Peterhouse College fellowships referee, Cambridge (2009)
- Member, 'Astronomy and Geophysics' Editorial board (2009-)
- South African National Research Foundation evaluator (2007-)
- Royal Society international grants panel (2007-2012)
- Referee for Nature Physics, PRL, ApJ, JCAP, JHEP, PLB, Phys. Rev. D, Phys. Rev. E, New Astron., MNRAS, Comp. Phys. Comm., Science and Education (50+ papers)

INSTITUTIONAL RESPONSIBILITIES AT IMPERIAL COLLEGE LONDON

- Chair, Curriculum Review Reference Panel (2018-2019)
- Chair, CLCC Languages Examiners Board (2015-)
- Chair, CLCC Horizons Examiners Board (2015-)
- Chair, President's Award review panel 'Supporting the Student Experience' (2016-)
- Chair, Imperial Horizons Team (2015-)

- Chair, CLCC Management Team (2015-)
- Co-chair, CLCC/CHERS Education Committee (2016-)
- Member, I-Explore Modules Innovation Group (2018-)
- Member, Enterprise Academic Advisory Group (2018-)
- Member, Engagement Strategy Group (2018-)
- Member, Programmes Committee (2015-)
- Member, Imperial SpaceLab Steering Group (2013-)
- Member, Strategy Board, Centre for Performance Science (2016-)
- Member, Online Learning Innovation Group (2017-)
- Member, Academic Partnerships Engagement with Research Steering Group (2016-2018)
- Member, Education Office Management Committee (2015-)
- Member, Imperial College Senate (2016-)
- Member, Imperial Horizons Committee (2015-)
- Member, Task and Finish Group for Assessment (2015-2017)

ORGANIZING OF SCIENTIFIC MEETINGS

- International Executive Committee, 'Inspiration of Astronomical Phenomena' (INSAP, 2017-)
- SOC, 'Astronomical Data Analysis 9', Valencia (2018)
- SOC, 'Astronomical Data Analysis 8', Crete (2016)
- Co-Chair, 'Identification of Dark Matter with a cross-disciplinary approach' workshop, UAM Madrid (2015)
- Chair, 'From Cosmology to Customers: Astrostatistics Solutions to Big Data Problems' industry-academia workshop, Imperial (2014)
- Chair and founder, 'Cosmostat' conference series: Centro Stefano Franscini, Switzerland (2009) and Banff International Research Station (2013)
- Lead organiser, 'Multi-probe identification of Dark Matter', Kavli ITP programme, UCSB (2013)
- Chair, 'DarkAttack12' Centro Stefano Franscini, Switzerland (2012)
- SOC, ICIC inaugural workshop, Imperial College London (2012)
- SOC, 'Statistical Issues in searches', SLAC, Palo Alto (2012)
- SOC, RAS National Astronomy Meeting, Glasgow (2010)
- Co-chair RAS specialist discussion meeting 'Novel methods for the exploitation of large astronomical and cosmological data sets', London (2010).
- Co-chair, IOP dark matter meeting, London (2010)
- Co-chair, Astrostatistics workshop, London (2010)
- Founder and chair, 'The Big Questions' public lecture series (2012) and 'The Sensual Universe' public lecture series (2013), London
- Co-chair, 'Bayesian evidence' workshop, Brighton (2008)
- Co-chair RAS specialist discussion meeting 'Statistical Challenges in Particle Astrophysics and Cosmology', London (2007)
- Co-chair, 'Journées de cosmologie des lacs alpins', Geneva/Annecy/Lausanne/CERN (2002-2005)

TEACHING, SUPERVISION AND EXAMINING

Undergraduate Courses and Lectures

- (1) Lecturer: 'Physics of the Universe', 3rd year physics core course, Imperial (2015-)
- (2) Lecturer: 'Statistics of measurement', 2nd year physics core course, Imperial (2008-2012)
- (3) Associate lecturer: 'Sun, stars and planets', Imperial (2008-2009), 'Cosmology', Imperial (2010-)
- (4) Guest lecturer: 'Communicating Science', Imperial Horizons course, Imperial (2017, 2018)
- (5) Guest lecturer: 'Creative writing', Imperial Horizons course, Imperial (2016)
- (6) Guest lecturer: 'Astrophysics', 4th year option course, Imperial (2010)

Postgraduate Courses and Lectures

- (1) Keynote, Research Computing Summer School, Imperial College London (2019)
- (2) ICIC Data Analysis Postgraduate School, Imperial College London (2018)
- (3) Analytics, Inference, and Computation in Cosmology: Advanced methods, Cargèse, France (2018)
- (4) Astronomical Data Analysis IX Summer School, Valencia, Spain (2018)

- (5) Stats4Astro Astrostatistics School, Autrans, France (2017)
- (6) ISAPP Summer School, Texel, The Netherlands (2017)
- (7) First Italian Astrostatistics School, Milan, Italy (2017)
- (8) European Space Astronomy Centre (ESAC) Statistics Workshop, Villanueva de la Cañada, Spain (2016)
- (9) ADA8 Summer School on Astronomical Data Analysis, Chania, Greece (2016)
- (10) XII School of Cosmology, Cargèse, France (2014)
- (11) Niels Bohr Institute PhD school ‘Statistical methods’, Copenhagen (2014)
- (12) XXVI Winter School ‘Bayesian inference in Astronomy and Astrophysics’, Canary Islands (2014)
- (13) Imperial Centre for Inference and Cosmology STFC Data Analysis School, London (2014)
- (14) 44th Saas Fee Advanced Course on Astronomy and Astrophysics, ‘Cosmology with wide-field surveys’, Switzerland (2014)
- (15) School on Bayesian Analysis in Physics and Astronomy, Stellenbosch, South Africa (2013)
- (16) ICIC Data Analysis Postgraduate School, London (2013)
- (17) ‘Statistical inference’, African Institute for Mathematical Sciences postgraduate course, Cape Town, South Africa (2012)
- (18) ‘Advanced statistical methods for cosmology and astroparticle physics’, Niels Bohr Institute, Copenhagen (2011)
- (19) Cosmology postgraduate lectures, Imperial (2010)
- (20) ‘Advanced statistical methods’ lectures, Imperial (2010)
- (21) ‘Statistical methods for cosmology’, 1st Jayme Tiomno School of Cosmology, Rio de Janeiro (2010)
- (22) ‘Advanced statistical tools for cosmology’, Valencia University (2009)
- (23) ‘Probability theory, statistics and data analysis’ postgraduate lectures, Imperial/UCL (2009)
- (24) ‘The CMB and its statistical interpretation’, Würzburg University postgraduate lecture series (2009)
- (25) ‘Modern cosmology’ postgraduate lectures, Imperial/UCL (2009)
- (26) ‘Advanced statistical tools for cosmology’ postgraduate lectures, U. Autonoma Madrid (2009)

Supervision and Examining

- Current PhD students: W. Rahman (2017-)
- Past PhD students: S. Hoof (Imperial President Scholarship holder, 2015-2019), J. MacKay (Imperial President Scholarship holder, 2014-2018, co-supervisor), H. Shariff (2013-2018), C. Strege (PhD 2014, Winton Capital best PhD thesis in physics prize); M. March (PhD 2011, Springer Thesis prize and Winton Capital best PhD thesis in physics prize)
- 10 MSc/MSci students: M. Von Wietersheim-Kramsta (Imperial, 2019), H. Bouvier, S. Kobayashi (Imperial, 2017), E. Revsbech (co-supervisor, Imperial Statistics Dept, Winton Capital Prize Best Project, 2016), I. Siska, A. Monge Imedio (Imperial, 2016) S. Pak, K. Blanchette (Imperial, 2015), T. Kealy, A. Adam (Imperial, 2009), G. Pisani (co-supervisor, Rome La Sapienza, 2011)
- 32 BSc projects/essays supervised (Imperial, 2011-); 15 Summer interns/UROP/IROP students supervised.
- External examiner: R. Hardwick (PhD, U. of Portsmouth, 2019), J. Faulkner (PhD, U. of Edinburgh, 2018), S. Hee (PhD, U. of Cambridge, 2017), H. Mootoivaloo (MSc, U. of Cape Town, 2017), T. Walwyn (MSc, U of Cape Town, 2016), Y. Akrami (PhD, Stockholm University, 2011), F. Vansyngel (PhD, Institut d’Astrophysique de Paris, 2014), J. Newling (MSc, U. of Cape Town, 2011), H. Silverwood (MSc, U. of Canterbury, NZ, 2013)
- Internal examiner, Imperial College London: Shijing Si (PhD, Statistics Section, 2017), J. Alsing (PhD, 2016), H. Shariff (MSc, 2013).
- Postdocs: K. Mandel (2014), A. Geringer-Sameth (2017-20), Eliel Camargo Molina (2018-20).

INVITED SCIENTIFIC TALKS

- (1) Plenary, Picturing the Invisible conference, UAL, London (2019)
- (2) Keynote, “Artificial Intelligence: Art or Science?” meeting, SISSA, Trieste (2019)
- (3) Keynote, ICTP Trieste (2019)
- (4) AHRC Network meeting (2019)
- (5) Colloquium, University of Bern (2017)
- (6) Colloquium, Indian Institute of Technology Madras (2017)
- (7) Keynote talk, Global Challenges Showcase event, Imperial College London (2016)
- (8) Keynote talk, COSMO21 Conference, Chania, Greece (2016)

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- (9) Southampton Physics Colloquium (2015)
 - (10) BASP Frontiers 2015, Villars, Switzerland (2015)
 - (11) Director's Blackboard Talk, Kavli Institute, Santa Barbara (2013)
 - (12) Invited plenary, Statistical Issues in Searches, SLAC, Stanford (2012)
 - (13) Invited plenary, Astronomical Data Analysis 7, Cargèse (2012)
 - (14) Invited plenary, MaxEnt 2012, Garching (2012)
 - (15) Invited plenary, 58th International Statistics Institute world congress, Dublin (2011)
 - (16) Invited plenary, Statistical Challenges in Modern Astronomy V, Penn State (2011)
 - (17) Invited talk, IOP dark matter meeting, London (2011)
 - (18) Invited plenary, Aspen winter conference "Indirect and direct detection of dark matter", Aspen (2011)
 - (19) Colloquium, AIMS, Cape Town (2011)
 - (20) Colloquium, EPFL, (2010)
 - (21) Invited plenary, PROSPECT workshop, Stockholm (2010)
 - (22) Summary talk, Statistical issues relevant to significance of discovery claims workshop, Banff (2010)
 - (23) Invited plenary, TeV Particle Astrophysics, Paris (2010)
 - (24) Review talk, Ilias/Entapp meeting, CERN, Geneva (2009)
 - (25) Invited talk, National Astronomy Meeting, Hatfield (2009)
 - (26) Michelson Prize lecture, Case Western Reserve University, USA (2008)
 - (27) Invited plenary, ESF exploratory workshop, Oporto (2008)
 - (28) Invited talk, Tools08, Munich (2008)
 - (29) Review talk, XXVI workshop on recent developments in high energy physics and cosmology, Ancient Olympia (2008)
 - (30) Lord Kelvin Award lecture (2007)
 - (31) Invited talk, TeV Particle Astrophysics 2007, Venice (2007)
 - (32) Invited talk, 11th Marcel Grossmann meeting, Berlin (2006)
 - (33) Invited plenary, RAS general meeting, London (2006)
 - (34) Review talk, Recent advances in particle physics and cosmology, Thessaloniki (2005)

CONTRIBUTED CONFERENCE TALKS

- (1) CosmoAI, Ascona, Switzerland (2019)
- (2) Cosmo21, Valencia (2018)
- (3) The Road to the Stars, Santiago de Compostela (2017)
- (4) XENON100 Collaboration Meeting, Mainz, Germany (2016)
- (5) ISI World Statistics Meeting, Hong Kong (2013)
- (6) ISBA World meeting, Kyoto (2012)
- (7) ERC Kickoff meeting, Amsterdam (2011)
- (8) IOP Dark Matter Meeting at King's College (2011)
- (9) 58th ISI World Congress (2011)
- (10) PHYSTAT2011, CERN, Geneva (2011)
- (11) Corfu Summer Institute, Greece (2009)
- (12) cosmstats09, Ascona, Switzerland (2009)
- (13) Galileo Galilei Institute dark energy conference, Florence, Italy (2009)
- (14) Nested Sampling workshop, Cambridge (2008)
- (15) Bayesian evidence workshop, University of Sussex (2008)
- (16) CosmoTools08, Marseille, France (2008)
- (17) Initial Conditions in Cosmology workshop, Würzburg, Germany (2007)
- (18) CERN dark matter workshop, Geneva (2007)
- (19) RAS Young Astronomers Meeting, London (2006)
- (20) St Anne's College, Oxford (2006)
- (21) Identification of Dark Matter Conference 2006, Rhodes, Greece (2006)
- (22) Galileo Galilei Institute Cosmology Workshop, Florence, Italy (2006)
- (23) The Dark Side of the Universe Workshop, Madrid (2006)
- (24) CosmoUK Meeting, Oxford (2006)
- (25) Francesco Melchiorri Memorial Conference, Rome (2006)
- (26) TeV Particle Astrophysics II, Madison, Wisconsin, USA (2006)
- (27) Astroparticle UK Meeting 2006, Sheffield (2006)
- (28) National Astronomy Meeting, Leicester (2006)

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- (29) SKA conference, Oxford (2006)
 - (30) European Dark Energy Network Meeting, Paris (2005)
 - (31) Subaru/Gemini dark energy meeting, Waikoloa, Hawaii (2005)
 - (32) PHYSTAT05, Oxford (2005)
 - (33) Sils Maria Cosmology Workshop, Engadin, Switzerland (2005)
 - (34) ENTApP meeting, CERN, Geneva (2005)
 - (35) 7th Journée des Lacs Alpains de Cosmologie, EPFL Lausanne (2004)
 - (36) 6th Journée de Cosmologie des Lacs Alpains, University of Geneva (2004)
 - (37) Second Aegean Summer School on the Early Universe, Syros, Greece (2003)
 - (38) Sils Maria Cosmology Workshop, Engadin, Switzerland (2003)
 - (39) ATLAS Collaboration Physics Tutorial, CERN, Geneva (2003)
 - (40) X Marcel Grossmann Meeting, Rio de Janeiro, Brasil (2003)
 - (41) CMBNet Workshop on Science and Parameter Extraction, Oxford (2003)
 - (42) 5th Journée de Cosmologie des Lacs Alpains, Annecy (2002)
 - (43) CMBNet Workshop, Geneva (2002)
 - (44) Santa Fe Cosmology Workshop, Santa Fe, New Mexico (2002)
 - (45) CMBNet General Meeting, Frascati, Italy (2001)
 - (46) UK Cosmology Meeting, Ambleside (2001)

Summary: 71 papers in peer reviewed journals (12 of which as first author, including a single-author review article and 3 in *Phys. Rev. Lett.*), 16 conference proceedings, 2 white papers and three chapters in books. Citation count: 7300. H-index: 43 (from SPIRES-HEP, February 23, 2020).

- ★ indicates papers with more than 100 citations (11).
 - ★★ indicates papers with more than 250 citations (3).
 - ★★★ indicates papers with more than 500 citations (2).
- (1) S. Hoof, A. Geringer-Sameth & **R. Trotta**, ‘A Global Analysis of Dark Matter Signals from 27 Dwarf Spheroidal Galaxies using 11 Years of Fermi-LAT Observations’, *JCAP*2, 012 (2020), arxiv:1812.06986
 - (2) E.V. Karukes, M. Benito, F. Iocco, **R. Trotta** & A. Geringer-Sameth, ‘Bayesian reconstruction of the Milky Way dark matter distribution’, *JCAP*09, 046 (2019), arxiv:1901.02463
 - ★★ (3) L. Amendola, **R. Trotta et al** (2018), ‘Cosmology and Fundamental Physics with the Euclid Satellite’, *Living Rev. Rel.* 21, (2018), 1, arxiv:1606.00180
 - (4) R. Hill, H. Shariff, **R. Trotta et al** (2018), ‘Projected distances to host galaxy reduce SNIa dispersion’, *Mon. Not. R. Astron. Soc.* 481, 2 (2018), arxiv:1612.04417
 - (5) H.A. Clark, P. Scott, **R. Trotta** & G.F. Lewis (2018), ‘Dark matter substructure cannot explain properties of the Fermi Galactic Centre excess’, *JCAP*07, 060 (2018), arxiv:1612.01539
 - (6) E.A. Resvbech, **R. Trotta** & D.A. van Dyk (2018), ‘STACCATO: A Novel Solution to Supernova Photometric Classification with Biased Training Sets’, *Mon. Not. R. Astron. Soc.* 473, 3, 3969-3986, arxiv:1706.03811
 - (7) M. Oreshenko, **R. Trotta et al** (2017), ‘Retrieval Analysis of the Emission Spectrum of WASP-12b: Sensitivity of Outcomes to Prior Assumptions and Implications for Formation History’, *ApJL* 847, 1, L3, arxiv:1709.00338
 - (8) The ATLAS Collaboration, G. Bertone, R. Ruiz de Austri and **R. Trotta** (2016), ‘Dark matter interpretation of ATLAS searches for the electroweak production of supersymmetric particles in $\sqrt{s} = 8$ TeV proton-proton collisions’, *JHEP*09(2016)175, arxiv:1608.00872
 - ★★ (9) J. Aalbers, **R. Trotta et al** (2016), ‘DARWIN: Towards the ultimate Dark Matter detector’, *JCAP*11(2016)017, arxiv:1606.07001
 - (10) H. Shariff, S. Dhawan, X. Jiao, B. Leibundgut, **R. Trotta** & D.A. van Dyk (2016), ‘Standardizing Type Ia supernovae optical brightness using Near Infrared rebrightening time’, *Mon. Not. R. Astron. Soc.* 463, 4, 4311-4316 (2016), arxiv:1605.08064
 - (11) S. Liem, G. Bertone, F. Calore, R. Ruiz de Austri, T. M.P. Tait, **R. Trotta** & C. Weniger (2016), ‘Effective Field Theory of Dark Matter: a Global Analysis’, *JHEP*09(2016)077, arxiv:1603.05994
 - (12) G. Jóhannesson, R. Ruiz de Austri, A. C. Vincent, I. V. Moskalenko, E. Orlando, T. A. Porter, A. W. Strong, **R. Trotta**, F. Feroz, P. Graff, M. P. Hobson (2016), ‘Bayesian analysis of cosmic-ray propagation: evidence against homogeneous diffusion’, *ApJ*824, 16 (2016), arxiv:1602.02243
 - (13) H. Shariff, X. Jiao, **R. Trotta** & D. van Dyk (2016), ‘BAHAMAS: new SNIa analysis reveals inconsistencies with standard cosmology’, *ApJ* 827, 1 (2016), arxiv:1510.05954
 - (14) G. Bertone, F. Calore, S. Caron, R. Ruiz de Austri, J. Soo Kim & **R. Trotta** (2015), ‘Global analysis of the pMSSM in light of the Fermi GeV excess: prospects for the LHC Run-II and astroparticle experiments’, *JCAP*04(2016)037, arxiv:1507.07008
 - (15) J. Martin, C. Ringeval, **R. Trotta** & V. Vennin (2014), ‘Compatibility of BICEP2 and Planck in light of inflation’, *Phys. Rev. D* 90:063501,2014, arxiv:1405.7272
 - (16) C. Strece, G. Bertone, G. J. Besjes, S. Caron, R. Ruiz de Austri, A. Strubig & **R. Trotta** (2014), ‘Profile likelihood maps of a 15-dimensional MSSM’, *JHEP*09(2014)081, arxiv:1405.0622
 - ★ (17) J. Martin, C. Ringeval, **R. Trotta** & V. Vennin (2014), ‘The best inflationary models after Planck’, *JCAP* 03(2014)039, arxiv:1312.3529
 - ★★★ (18) L. Amendola, **R. Trotta et al** (Euclid Theory Working Group) (2013), ‘Cosmology and fundamental physics with the Euclid satellite’, *Living Rev. Relativity* 16, (2013), 6, arxiv:1206.1225
 - ★ (19) C. Strece, G. Bertone, F. Feroz, M. Fornasa, R. Ruiz de Austri, **R. Trotta** (2013), ‘Global Fits of the cMSSM and NUHM including the LHC Higgs discovery and new XENON100 constraints’, *JCAP* 04(2013)013, arxiv:1212.2636
 - (20) M. Pato, L.E. Strigari, **R. Trotta** & and G. Bertone (2013), ‘Taming astrophysical bias in direct dark matter searches’, *JCAP*02(2013)041, arxiv:1211.7063
 - (21) C. Strece, **R. Trotta**, G. Bertone, Annika H.G. Peter, Pat Scott (2013), ‘Fundamental statistical limitations of future dark matter direct detection experiments’, *Phys. Rev. D* 86:023507 (2012), arxiv:1201.3631

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- ★ (22) C. Strece, G. Bertone, D.G. Cerdeno, M. Fornasa, R. Ruiz de Austri & **R. Trotta** (2012), ‘Updated global fits of the cMSSM including the latest LHC SUSY and Higgs searches and XENON100 data’, *JCAP* 03(2012)030, arxiv:1112.4192
 - (23) G. Bertone, D. G. Cerdeno, M. Fornasa, L. Pieri, R. Ruiz de Austri & **R. Trotta** (2012), ‘Complementarity of Indirect and Accelerator Dark Matter Searches’, *Phys. Rev. D* 85:055014 (2012), arxiv:1111.2607
 - (24) C. Arina, J. Hamman, **R. Trotta** and Y.Y. Wong (2012), ‘Evidence for dark matter modulation in Co-GeNT?’, *JCAP* 03(2012)008, arxiv:1111.3238
 - (25) G. Bertone, D.G. Cerdeno, M. Fornasa, R. Ruiz de Austri, C. Strece & **R. Trotta** (2011), ‘Global fits of the cMSSM including the first LHC and XENON100 data’, *JCAP* 01(2012)015, arxiv:1107.1715
 - (26) G. Bertone, D. Cumberbatch, R. Ruiz de Austri and **R. Trotta** (2012), ‘Dark Matter Searches: The Nightmare Scenario’, *JCAP* 01(2012)004, arxiv:1107.5813
 - (27) M.C. March, **R. Trotta**, P. Berkes, G.D. Starkman and P.M. Vaudrevange (2011), ‘Improved constraints on cosmological parameters from SNIa data’, *Mon. Not. R. Astron. Soc.* in print, arxiv:1102.3237
 - (28) M.E. Cabrera, J.A. Casas, R. Ruiz de Austri & **R. Trotta** (2010), ‘Quantifying the tension between the Higgs mass and $(g-2)_\mu$ in the CMSSM’, *Phys. Rev. D* 84:015006, arxiv:1011.5935
 - (29) F. Feroz, K. Cranmer, M. Hobson, R. Ruiz de Austri & **R. Trotta** (2011), ‘Challenges of Profile Likelihood Evaluation in Multi-Dimensional SUSY scans’, *JHEP* 1106:042(2011), arxiv:1101.3296
 - (30) J. Martin, C. Ringeval, C. & **R. Trotta** (2011), ‘Hunting Down the Best Model of Inflation with Bayesian Evidence’, *Phys. Rev. D* 83, 063524 (2011), arxiv:1009.4157
 - (31) M.C. March, **R. Trotta**, L. Amendola & D. Huterer (2011), ‘Robustness to systematics for future dark energy probes’, *Mon. Not. R. Astron. Soc.* 415(1):143-152, arxiv:1101.1521
 - ★ (32) M. Pato, G. Bertone, L. Baudis, L. Strigari, R. Ruiz de Austri & **R. Trotta** (2011), ‘Complementarity of Dark Matter Direct Detection Targets’, *Phys. Rev. D* 83:083505, arxiv:1012.3458
 - ★ (33) M. Vardanyan, **R. Trotta** & J. Silk (2011), ‘Applications of Bayesian model averaging to the curvature and size of the Universe’, *Mon. Not. R. Astron. Soc. Lett.* 413, 1, 2011, arxiv:1101.5476
 - (34) M. Bridges, K. Cranmer, F. Feroz, M.P. Hobson, R. Ruiz de Austri & **R. Trotta** (2011), ‘A Coverage Study of the CMSSM Based on ATLAS Sensitivity Using Fast Neural Networks Techniques’, *JHEP* 03(2011)012 arxiv:1011.4306
 - (35) **R. Trotta**, M. Kunz & A.R. Liddle (2011), ‘Designing decisive detections’, *Mon. Not. R. Astron. Soc.* 414, 3, 2337D2344, arxiv:1012.3195
 - (36) G. Bertone, K.C. Kong, R. Ruiz de Austri & **R. Trotta**, (2011), ‘Global fits of the Minimal Universal Extra Dimensions scenario’, *Phys. Rev. D* 83:036008, arxiv:1010.2023
 - (37) L. Roszkowski, R. Ruiz de Austri, **R. Trotta**, Y.-L. S. Tsai & T. A. Varley (2011), ‘Global fits of the Non-Universal Higgs Model’, *Phys. Rev. D* 83, 015014, arxiv:0903.1279
 - ★ (38) **R. Trotta**, G. Johannesson, I.V. Moskalenko, T.A. Porter, R. Ruiz de Austri & A.W. Strong (2011), ‘Constraints on cosmic-ray propagation models from a global Bayesian analysis’, *ApJ*, 729, 106, arxiv:1011.0037
 - (39) G. Bertone, D. G. Cerdeño, M. Fornasa, R. Ruiz de Austri & **R. Trotta** (2010), ‘Identification of dark matter particles with LHC and direct detection data’, *Phys. Rev. D* 82:055008, arxiv:1005.4280
 - (40) M.C. March, G.D. Starkman, **R. Trotta** & P.M. Vaudrevange (2010), ‘Should we doubt the cosmological constant?’, *Mon. Not. R. Astron. Soc.*, 410, 4, 2488-2496, arxiv:1005.3655
 - (41) G.D. Starkman, **R. Trotta** & P.M. Vaudrevange (2009), ‘The Virtues of Frugality – Why cosmological observers should release their data slowly’, *Mon. Not. R. Astron. Soc. Lett.* 401, 1, L15-L18, arxiv:0909.2649
 - (42) L. Roszkowski, R. Ruiz de Austri & **R. Trotta** (2010), ‘Efficient reconstruction of CMSSM parameters using LHC data - A Case Study’, *Phys. Rev. D* 82:055003, arxiv:0907.0594
 - (43) L. E. Strigari & **R. Trotta** (2009), ‘Reconstructing WIMP Properties in Direct Detection Experiments Including Galactic Dark Matter Distribution Uncertainties’, *JCAP* 11 (2009) 019, arxiv:0906.5361
 - (44) **R. Trotta**, R. Ruiz de Austri & C. Perez de los Heros (2009), ‘Prospects for dark matter detection with IceCube in the context of the CMSSM’, *JCAP* 08 (2009) 034 arxiv:0906.0366
 - ★ (45) G.D. Martinez, J.S. Bullock, M. Kaplinghat, L. Strigari & **R. Trotta** (2009), ‘Indirect dark matter detection from dwarf satellites: joint expectations from particle physics and astrophysics’, *JCAP* 0906 (2009) 014, arxiv:0901.3354
 - (46) M. Vardanyan, **R. Trotta** & J. Silk (2009), ‘How flat can you get? A model comparison perspective on the curvature of the Universe’, *Mon. Not. R. Astron. Soc.* 397, 431-444 (2009) arxiv:0901.3354
 - (47) L. Roszkowski, R. Ruiz de Austri, J. Silk & **R. Trotta** (2009), ‘On prospects for dark matter indirect detection in the Constrained MSSM’, *Phys. Rev. B* 671:10-14, arxiv:0707.0622

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- ★ (48) **R. Trotta**, F. Feroz, M.P. Hobson, R. Ruiz de Austri & L. Roszkowski (2008), ‘The impact of priors and observables on parameter inferences in the Constrained MSSM’, *JHEP*, 12, 024, arxiv:0809.3792
 - (49) F. Feroz, B.C. Allanach, M.P. Hobson, S.S. AbdusSalam, **R. Trotta** & A.M. Weber (2008), ‘Bayesian Selection of sign(μ) within mSUGRA in Global Fits Including WMAP5 Results’, *JHEP*, 10, 064, arxiv:0807.4512
 - ★★ (50) **R. Trotta** (2008), ‘Bayes in the sky: Bayesian inference and model selection in cosmology’, *Contemp. Phys.*, 49, 2, 71-104, arxiv: 0803.4089
 - (51) G. Ballesteros, J. A. Casas, J. R. Espinosa, R. Ruiz de Austri and **R. Trotta** (2008), ‘Flat Tree-level Inflationary Potentials in Light of CMB and LSS Data’, *JCAP*0803:018, arxiv:0711.3436
 - (52) M. Kampakoglu, **R. Trotta** & J. Silk (2008), ‘Monolithic or hierarchical star formation? A new statistical analysis’, *Mon. Not. R. Astron. Soc.* 384, 4, 1414-1426, arxiv:0709.1104
 - (53) C. Gordon and **R. Trotta** (2007), ‘Bayesian calibrated significance levels applied to the spectral tilt and hemispherical asymmetry’, *Mon. Not. R. Astron. Soc.* 382, 4, 1859-1863, arxiv:0706.3014
 - ★ (54) L. Roszkowski, R. Ruiz de Austri & **R. Trotta** (2007b), ‘Implications for the Constrained MSSM from a new prediction for b to s gamma’, *JHEP*, 07, 075, arxiv:0705.2012
 - (55) C. Zunckel & **R. Trotta** (2007), ‘Reconstructing the history of dark energy using maximum entropy’, *Mon. Not. R. Astron. Soc.* 378, 865-876, arxiv:astro-ph/0702695
 - (56) **R. Trotta** (2007c), ‘Forecasting the Bayes factor of a future observation’, *Mon. Not. R. Astron. Soc.* 378, 819-824, arxiv:astro-ph/0703063
 - ★ (57) **R. Trotta** (2007b), ‘Applications of Bayesian model selection to cosmological parameters’, *Mon. Not. R. Astron. Soc.* 378, 72-82, arxiv:astro-ph/0504022
 - (58) **R. Trotta** (2007a), ‘The isocurvature fraction after WMAP 3–years data’, *Mon. Not. R. Astron. Soc.* 375, L26-L30, arxiv:astro-ph/0608116
 - (59) L. Roszkowski, R. Ruiz de Austri & **R. Trotta** (2007a), ‘On the detectability of the CMSSM light Higgs boson at the Tevatron’, *JHEP* 04, 084, arxiv:hep-ph/0611173
 - (60) G.D. Starkman & **R. Trotta** (2006), ‘Why anthropic reasoning cannot predict Λ ’, *Phys. Rev. Lett.* 97, 201301, arxiv:astro-ph/0607227
 - (61) M. Kunz, **R. Trotta** & D.R. Parkinson (2006), ‘Measuring the effective complexity of cosmological models’, *Phys. Rev. D* 74, 023503, arxiv:astro-ph/0602378
 - ★ (62) R. Ruiz de Austri, **R. Trotta** & L. Roszkowski (2006), ‘A Markov Chain Monte Carlo analysis of the CMSSM’, *JHEP* 05, 002, arxiv:hep-ph/0602028
 - (63) **R. Trotta** & A. Melchiorri (2005), ‘Indication for primordial anisotropies in the neutrino background from the Wilkinson Microwave Anisotropy Probe and the Sloan Digital Sky Survey’, *Phys. Rev. Lett.* 95, 011305, arxiv:astro-ph/0412066
 - (64) G. Lazarides, R. Ruiz de Austri & **R. Trotta** (2004), ‘Constraints on a mixed inflaton and curvaton scenario for the generation of the curvature perturbation’, *Phys. Rev. D* 70, 123527, arxiv:hep-ph/0409335
 - (65) G. Rocha, **R. Trotta**, C.J.A.P. Martins, A. Melchiorri, P.P. Avelino, R. Bean & P. Viana, (2004), ‘Measuring α in the early Universe: cosmic microwave background polarization, reionization and the Fisher matrix analysis’, *Mon. Not. R. Astron. Soc.* 352, 20–38, arxiv:astro-ph/0309211
 - (66) **R. Trotta** & S.H. Hansen (2004), ‘Constraining the helium abundance with CMB data’, *Phys. Rev. D* 69, 023509, arxiv:astro-ph/0306588
 - (67) C.J.A.P. Martins, A. Melchiorri, G. Rocha, **R. Trotta**, P.P. Avelino & P. Viana (2004), ‘WMAP constraints on varying α and the promise of reionization’, *Phys. Lett. B*, 585, 29, arxiv:astro-ph/0302295
 - (68) **R. Trotta**, A. Riazuelo & R. Durrer (2003), ‘Cosmological constant and general isocurvature initial conditions’, *Phys. Rev. D* 67, 063520, arxiv:astro-ph/0211600
 - (69) C.J.A.P. Martins, A. Melchiorri, **R. Trotta**, R. Bean, G. Rocha, P.P. Avelino & P. Viana (2002), ‘Measuring α in the early universe: CMB temperature, large-scale structure and Fisher matrix analysis’, *Phys. Rev. D* 66, 023505, arxiv:astro-ph/0203149
 - ★ (70) R. Bowen, S.H. Hansen, A. Melchiorri, J. Silk & **R. Trotta** (2002), ‘The impact of an extra background of relativistic particles on the cosmological parameters derived from the cosmic microwave background’, *Mon. Not. R. Astron. Soc.* 334, 760, arxiv:astro-ph/0110636
 - (71) **R. Trotta**, A. Riazuelo & R. Durrer (2001), ‘Cosmic microwave background anisotropies with mixed isocurvature perturbations’, *Phys. Rev. Lett.* 87, 231301, arxiv:astro-ph/0104017

- (1) **R. Trotta**, ‘Bayesian Methods in Cosmology’, Lecture notes for the 44th Saas-Fee Advanced Course on Astronomy and Astrophysics, March 2014, Saas-Fee Advanced Courses New York: Springer (to appear)
- (2) M.C. March, **R. Trotta**, P. Berkes, G.D. Starkman & P.M. Vaudrevange (2011b), ‘Improved cosmological constraints from a Bayesian hierarchical model of supernova type Ia data’, to appear in Hilbe, J.M.(ed), 2012, *Astrostatistical Challenges for the New Astronomy*, Springer Series in Astrostatistics, New York:Springer
- (3) **R. Trotta**, F. Feroz, M.P. Hobson and R. Ruiz de Austri (2011), ‘Recent advances in Bayesian inference in cosmology and astroparticle physics thanks to the Multinest Algorithm’, to appear in Hilbe, J.M.(ed), 2012, *Astrostatistical Challenges for the New Astronomy*, Springer Series in Astrostatistics, New York:Springer
- (4) **R. Trotta**, M. Kunz, P. Mukherjee & D.R. Parkinson (2010), ‘Bayesian Experimental Design and Model Selection Forecasting’, in *Bayesian Methods in Cosmology*, M. Hobson, A. Jaffe, A. Liddle, P. Mukherjee and D. R. Parkinson (Eds), Cambridge University Press (2010)

CONFERENCE PROCEEDINGS

- (1) **R. Trotta** (2018), ‘Junking Astronomy Jargon’, in *Imagining Other Worlds. Proceedings of the 9th Inspiration of Astronomical Phenomena conference.*, N. Campion & C. Impey (Eds), Sophia Centre Press (2018).
- (2) X. Jiao, D. van Dyk, **R. Trotta** & H. Shariff (2016), ‘The efficiency of next-generation Gibbs-type samplers: an illustration using a hierarchical model in cosmology’, in *New Developments in Statistical Modeling, Inference and Application. Selected papers from the 2014 ICSA/KISS Joint Applied Statistics Symposium in Portland, OR*, Z. Jin, M. Liu & X. Luo (Eds), ICSA Books Series in Statistics, Springer (2016).
- (3) M.C. March, **R. Trotta**, P. Berkes, G.D. Starkman and P.M. Vaudrevange (2011), ‘Improved cosmological constraints from a Bayesian hierarchical model of supernova type Ia data’, To appear in Proceedings of the 58th ISI World Statistics Congress, Dublin, Aug 2011
- (4) **R. Trotta**, F. Feroz, M.P. Hobson and R. Ruiz de Austri (2011), ‘Recent advances in Bayesian inference in cosmology and astroparticle physics thanks to the Multinest Algorithm’, To appear in Proceedings of the 58th ISI World Statistics Congress, Dublin, Aug 2011
- (5) **R. Trotta** (2012), ‘Cosmological Bayesian Model Selection: Recent Advances and Open Challenges (with commentary)’, *Statistical Challenges in Modern Astronomy V*, E.D. Feigelson and G.J. Babu (Eds), 127-140, Springer (2012)
- (6) **R. Trotta** & K. Cranmer (2011), ‘Statistical Challenges of Global SUSY Fits’, to appear in *Proceedings of PHYSTAT11*, held at CERN, Jan 2011, arxiv:1105.5244
- (7) **R. Trotta** (2009), ‘Probing dark energy with future surveys’, in: *Proceedings of the conference Cosmology, Galaxy Formation and Astroparticle Physics on the Pathway to the SKA, Oxford, April 2006*, Klöckner, H.R., et al(Eds), 77-81, ASTRON (2009) arxiv:astro-ph/0607496
- (8) L. Roszkowski, R. Ruiz de Austri, & **R. Trotta** (2008), ‘A Bayesian approach to the constrained MSSM’, in: *Proceedings of the PHYSTAT LHC Workshop on Statistical Issues for LHC Physics*, Prosper, H.B., Lyons, L. and De Roeck, L. (Eds), 163-166, CERN
- (9) **R. Trotta**, R. Ruiz de Austri & L. Roszkowski (2007), ‘Direct dark matter detection around the corner? Prospects in the Constrained MSSM’, *Journal of Physics: Conference Series* 60 (2007) 259-263. *Proceedings of the TeV Particle Astrophysics II Workshop, Madison (Wisconsin), Aug 2006*
- (10) **R. Trotta** & G.D. Starkman (2006), ‘What’s the trouble with anthropic reasoning?’, in C. Munoz and G. Yepes, Eds (2006). AIP Conference Proceedings, 878, *2nd International Conference on The Dark Side of the Universe DSU 2006, Madrid (Spain), June 2006*. AIP arxiv:astro-ph/0610330
- (11) **R. Trotta**, R. Ruiz de Austri & L. Roszkowski (2006b), ‘Prospects for direct dark matter searches in the Constrained MSSM’, in *Proceedings of the Sixth International Workshop on the identification of dark matter. Rhodes (Greece), 11-16 Sept 2006*, M Axenides, G. Fanourakis and J. Vergados (Eds), 81-86. London: World Scientific
- (12) **R. Trotta**, R. Ruiz de Austri & L. Roszkowski (2006a), ‘Prospects for direct dark matter detection in the constrained MSSM’, *New Astron. Rev.* 51, 316–320, arxiv:astro-ph/0609126
- (13) **R. Trotta** (2006), ‘Cosmological Bayesian model selection’, in L. Lyons and M. Unel, Eds (2006). *Statistical Problems in Particle Physics, Astrophysics and Cosmology. Proceedings of Phystat05, Oxford, Sept 2005*. London: Imperial College Press

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- (14) **R. Trotta** & R. Durrer (2004), ‘Testing the paradigm of adiabaticity’, in M. Novello & S. Perez Bergliffa, Eds (2006). *The tenth Marcel Grossmann meeting. Proceedings of the MG10 Meeting, Rio de Janeiro (Brazil), July 2003*. London: World Scientific. arxiv:astro-ph/0402032
 - (15) G. Rocha, **R. Trotta**, C.J.A.P. Martins, A. Melchiorri, P.P. Avelino, R. Bean & P. Viana (2003), ‘New constraints on varying α ’, *New Astron. Rev.*, 47, 863–869, arxiv:astro-ph/0309205
 - (16) **R. Trotta** (2003), ‘The cosmological constant and the paradigm of adiabaticity’, *New Astron. Rev.*, 47, 769–774, arxiv:astro-ph/0304525

WHITE PAPERS

- (1) L. Amendola, **R. Trotta** *et al* (2016), ‘Cosmology and Fundamental Physics with the Euclid Satellite’, arxiv:1606.00180
- *** (2) , ‘R. Laureijs, **R. Trotta**, *et al* (2011)’, Euclid Definition Study Report ESA report number ESA/SRE(2011)12, arxiv:1110.3193

BOOK REVIEWS

- (1) **R. Trotta** (2014), ‘Practical Statistics for Astronomers, 2nd Ed (Wall and Jenkins, CUP, 2012)’, *AIAA Journal*, 52, 9, (2014), 2098
- (2) **R. Trotta** (2012), ‘Modern Statistical Methods for Astronomy (Feigelson and Babu, CUP 2012)’, *Mathematical Reviews*, MR2963292
- (3) **R. Trotta** (2008), ‘Statistical challenges in modern astronomy IV (ASP Conference Series, Vol 371)’, *The observatory*, May 2008
- (4) **R. Trotta** (2008), ‘The Oxford book of modern science writing (Richard Dawkins, Ed, OUP 2008)’, *Oxford Today*, 21, 1 (2008), 53

PRIVATE SECTOR

- Present** **Director and co-founder**, Data Fusion Consultants Ltd (2012-), datafusion-consultants.com
Non-executive Director, Imperial Consultants (ICON) (2018-), imperial-consultants.co.uk
Consultant, Imperial Consultants (2010-)
- Expertise** Statistical inference and model selection. Numerical data analysis and data mining. Environmental assessment of risk. Astrophysical phenomena, theoretical physics, space travel and cosmology.
- Training** Bond Solon Expert Witness training programme (2014); Introduction to Intellectual Property Rights (2016).
- Services** Data analysis and interpretation. Probabilistic modeling. Inference, prediction and optimization. Training and workshops: probability theory, inference, numerical methods, computational solutions. Expert witness. Scientific consulting for museums and creative arts industry.
- Clients** **Scientific consultancy:**
- London Science Museum (2008)
 - Deutsches Museum Munich (2006)
 - Catsnake Productions *The Theory of Everything* (2012; winner of “ Audience Award”, Viral Video Awards at the 29th International Short Film Festival Berlin (2013), youtube.com/theoryofeverything).
 - INFRA (2013).
 - Objective Productions *Breaking Magic 1 & 2* (2014).
 - Cinema.ai (2014).
 - Floating Cinema (2014).
 - Magnum Media *Man vs Expert* (2014).
 - Ore Design Jewellery (2015).
 - BBC *Sky at Night* (2015).
 - UP Projects *The Floating Cinema* (2015).
 - The Times Cheltenham Science Festival (2015).
 - Enchanted Lions Books (2016, 2018, 2019).
 - Institute of Physics (2017).
 - The Polish Cultural Institute, London (2018).
 - Left Bank Pictures (2018) *Origin* YouTube Premium series (credited) https://www.youtube.com/watch?v=Povj1x_vmEs.
 - Fantastic Productions, for Netflix feature film (2019).

Statistical consultancy: Clients in the shipping industry, energy industry, property developers, designers, banking and finance, environmental groups, fashion, online commerce.

PUBLIC ENGAGEMENT

PUBLIC LECTURES AND TALKS IN SCHOOLS

- www indicates a video of the event available online (links from robertotrotta.com/public-talks/).
- (1) G-Astronomy Cosmic Dinner, Uig Sands restaurants, Uig bay (2020)
 - www (2) G-Astronomy Cosmic Cocktails and Canapés, An Lanntair restaurant, Stornoway (2020)
 - (3) What has Einstein ever done for you? Gresham Lecture as Visiting Professor of Cosmology, Museum of London (2020)
 - www (4) From the Big Bang to AI, Professorial Inaugural Lecture, Imperial College London (2020)
 - www (5) Weighing the Universe, Gresham Lecture as Visiting Professor of Cosmology, Museum of London (2019)
 - (6) Keynote, Web Summit DeepTech Stage, Lisbon (2019)
 - (7) Liceo Cantonale di Locarno, Talk for the general public, Switzerland (2019)
 - (8) Liceo Cantonale di Locarno, Talk to high school students, Switzerland (2019)
 - (9) Herstmonceaux Science Festival (2019)
 - www (10) Spotlight talk, Great Exhibition Road Festival, London (2019)
 - (11) Multi-Sensorial Dark Matter Experience, Great Exhibition Road Festival, London (2019)
 - (12) Poplar Primary School Space Day (main organizer), Merton Park, London (2019)
 - www (13) Multi-sensorial Dark Matter Experience, Science Museum Lates, London (2019)
 - (14) New Scientist Live, London (2018)
 - (15) Dining with Copernicus, immersive dining experience, Ognisko Restaurant/Polish Cultural Institute, London (2018)
 - (16) STEM workshop for high ability students with high-functioning autism/Asperger's, Imperial College London (2018)
 - (17) Public Engagement Day Pecha Kucha, Imperial College London (2018)
 - (18) The Science of Star Trek, Royal Albert Hall (2018)
 - (19) Stephen Hawking's Universe explained in 1,000 simple words, El Debats del Magnànim, Valencia (2018)
 - (20) Craters on the Moon, Early Years Education Centre, Imperial College London (2018)
 - (21) The Alternative Guide to STEM, Queen's Park Community School, London, winner of audience vote (2018)
 - (22) The Map of the Universe, Data Science Institute, Imperial Festival (2018)
 - www (23) The Science of Star Trek, Imperial Festival (2018)
 - (24) EdFoo Camp, Google HQ, Mountain View (2017)
 - www (25) Il Tempo nell'Universo, Università della Svizzera Italiana, Lugano, Switzerland (2017)
 - www (26) g-ASTRONOMY for people with visual impairment, London (2017)
 - (27) JV Parekh International School, Mumbai, India (2017)
 - (28) Science City Auditorium, Ahmedabad, India (2017)
 - (29) IUCAA, Pune, India (2017)
 - (30) Birla Planetarium, Chennai, India (2017)
 - (31) Second Home cultural programme, London (2017)
 - (32) CLCC Research Seminar, Imperial College London (2017)
 - (33) Being Human Festival, London (2017)
 - (34) g-ASTRONOMY, Cheltenham Science Festival (2016)
 - www (35) Panel: To Infinity and Beyond, Imperial Festival, Imperial College London (2016)
 - www (36) g-ASTRONOMY, Imperial Festival, Imperial College London (2016)
 - (37) Early Years Education Centre, Imperial College London (2016)
 - (38) Jersey School for Girls, Jersey (2016)
 - (39) St Mary's Primary School, Jersey (2016)
 - (40) Jersey Astronomy Club, Jersey (2016)
 - www (41) Why Society Needs Astronomy and Cosmology, Guest Gresham College Lecture, Museum of London (2016)
 - (42) A Matter of Gravity, Royal Astronomical Society public lecture (2016)
 - (43) Big Bang! Daresbury Laboratory (2016)
 - www (44) g-ASTRONOMY, Science Museum Lates, London (2015)
 - (45) Invited talk, Guadalajara International Book Fair, Mexico (2015)

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- (46) Panel: Science in the UK, Guadalajara International Book Fair, Mexico (2015)
 - (47) Panel: The Language of Science, Guadalajara International Book Fair, Mexico (2015)
 - (48) Exploring the Universe, Guadalajara International Book Fair, Mexico (2015)
 - (49) Panel: What scientists can gain from literature, Guadalajara International Book Fair, Mexico (2015)
 - (50) International Astronomy Colloquium Round table, Guadalajara International Book Fair, Mexico (2015)
 - (51) Creative Quarter invited talk, London (2015)
 - (52) The Physics of Star Trek, Royal Albert Hall, London (2015)
 - (53) The Blackett Colloquium, Imperial College London (2015)
 - (54) Imperial Horizons guest lecture, Imperial College London (2015)
 - (55) Across RCA workshop, Imperial College London (2015)
 - (56) Interactive cosmology workshop, Technopop Brixton (2015)
 - (57) Invited talk, Science For Fiction 2015, Imperial College London (2015)
 - (58) Imperial College London Open Day talk (2015)
 - (59) Invited lecture, Graveney School Physics Society (2015)
 - (60) Lightning talk, Google SciFoo Camp, Mountain View (2015)
 - (61) Keynote speech, Graduate School Symposium, Imperial College London (2015)
 - (62) Imperial Open Day talk, Imperial College London (2015)
 - (63) A-level school visit, Imperial College London (2015)
 - (64) Book tour talk, Zurich Dalkey Book Festival, Dublin (2015)
 - (65) The Great Cosmic Cookery Show, The Time Cheltenham Science Festival (2015)
 - (66) Performance at art show opening, Institute for Contemporary Art, London (2015)
 - (67) Book tour event, Imperial Festival (2015)
 - (68) Big Bang Bash event, Edinburgh International Science Festival (2015)
 - (69) Book tour talk, Edinburgh International Science Festival (2015)
 - (70) Soapbox talk, Edinburgh International Science Festival (2015)
 - (71) Invited lecture, Airware, San Francisco (2015)
 - (72) Invited talk, Royal Institution (2015)
 - (73) Book tour talk, Imperial Fringe Festival (2015)
 - (74) Invited talks, Winchester planetarium (2015)
 - www (75) Book tour talk, Commonwealth Club of California, San Francisco (2014)
 - www (76) Invited lecture, Google, Mountain View (2014)
 - (77) Book tour talk, Town Hall Seattle, Seattle (2014)
 - (78) Book tour talk, Powell's Bookstore, Portland, OR (2014)
 - (79) Public lecture, Technopop, Stratford London (2014)
 - (80) Invited lecture, Manchester Science Festival, Manchester (2014)
 - (81) Invited lecture, World Teach In weekend, London (2014)
 - www (82) Invited lecture, English Language Council lecture, London (2014)
 - (83) Multiple public lectures, Imperial Fringe Festival, London (2014)
 - (84) Exhibitor, World Science Fiction Convention 2014, London (2014)
 - (85) IOP public lecture, Salisbury (2014)
 - (86) Public lecture, Imperial College London (2014)
 - (87) Great Cosmic Cookery Show, Imperial Festival (2014)
 - (88) Invited talk, The Observatory, Hertsmonceaux astronomy festival (2014)
 - (89) Invited talk, Science for Fiction workshop, London (2014)
 - (90) Science workshop for families, Cosmic Fun Club, Glasgow Science Centre (2014)
 - (91) Public talk, The Great Cosmic Cookery Show, Imperial Festival, London (2014)
 - www (92) Science workshop for young children, MoonBerry Muffins!, Winchmore Hill (2014)
 - www (93) Invited talk, TEDxHackney 'Radical Beauty' (2014)
 - (94) Invited lecture, Alleyn's School, London (2014)
 - (95) Invited lecture, St Paul's Way Trust School, Tower Hamlet (2014)
 - (96) Multiple invited classroom activities, Norland Place School, London (2014)
 - (97) Classroom activity, St. Joseph's Primary School, London (2014)
 - (98) Invited talk, Bishop Challoner Catholic Collegiate School, London (2014)
 - (99) Invited lecture, The London Oratory School, London (2013)
 - (100) Invited talk, Wimbledon High School, Wimbledon (2013)
 - (101) Invited talks, MENSA Society, Birmingham (2013)
 - (102) Public talk, SPACE at the White Building, London (2013)
 - (103) Invited talk, AstroSoc, Imperial College London (2012)

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- (104) Public talk, Università della Svizzera Italiana, Lugano, Switzerland (2012)
 - (105) Invited talk, Friends of the RAS, London (2011)
 - (106) Public talk, Crayford Manor astronomical society (2011)
 - (107) Invited talk, Westminster School, London (2010)
 - (108) Invited talk, Marlborough College (2009)
 - (109) Public talk, HGS Astronomical Society (2009)
 - (110) Public talk, Newbury Astronomical Society, Newbury (2009)
 - (111) Multiple invited lectures, Festival de Fleurance, France (2009)
 - (112) Public talk, Centro Stefano Franscini, Ascona, Switzerland (2009)
 - (113) Public talk, INTECH Planetarium, Winchester (2009)
 - (114) Public talk, Daresbury Laboratory, Warrington (2009)
 - (115) Multiple invited lectures, Kassel High School, Kassel, Germany (2009)
 - (116) Exhibitor, Royal Society Summer Science Exhibit (2009)
 - www (117) Invited lecture, AA School of Architecture, London (2009)
 - (118) Invited talk, Association for Astronomy Education's Annual General Meeting, London (2008)
 - (119) Public talk and panel discussion, EuroScience Open Forum, Barcelona (2008)
 - (120) Family event, Meet the Scientist! Museum of Science and Industry, Manchester (2008)
 - (121) Invited talk, Tudor Hall School, Banbury (2008)
 - (122) Public lecture, Winchester Planetarium (2008)
 - (123) Public talk, CornerClub, Oxford (2008)
 - (124) Invited talk, Green College, Oxford (2008)
 - (125) Invited lecture, National Particle Physics Masterclass at Oxford University (2008)
 - (126) Multiple lectures, Queen Mary 2 Caribbean Adventure voyage (2008)
 - (127) Public lecture, Oxford University Astrophysics Department (2008)
 - (128) Invited lecture, Oxford University Space and Astronomy Society, Oxford (2007)
 - (129) Invited talk, Bedford school, Bedford (2007)
 - (130) The BA Award Lectures: Lord Kelvin Lecture 2007, York (2007)
 - (131) Public lecture, Royal Astronomical Society, London (2007)
 - (132) Invited lecture, Marlborough College Summer School (2007)
 - (133) Lead exhibitor, Royal Society Summer Science Exhibit, London (2006)
 - (134) Invited activity, Gonville Primary School (2006)
 - (135) Invited lecture, Mansfield College, Oxford (2006)
 - (136) Invited activity, Sonning Common primary school (2006)
 - (137) Invited talk, Bedford school (2005)
 - (138) Public lecture, CERN, Geneva (2005)
 - (139) Invited lecture, Astronomy club of Divonne, France (2005)
 - (140) Public talk, CERN, Geneva, (2004)

SCIENCE COMMUNICATION TEACHING AND TRAINING

- (1) Workshop leader, 'The Sound of Space', Imperial College London and Royal Albert Hall (2018).
- (2) Public Engagement Academy Panel member, Imperial College London (2018).
- (3) Public Engagement for Research Fellows, Imperial College London (2018).
- (4) Communicating Science guest lecture, Imperial College London (2018).
- (5) Science Communication Lecture, ISAPP Summer School (2017).
- (6) Communicating Science guest lecture, Imperial College London (2017).

COURSES FOR THE GENERAL PUBLIC

- (1) Invited lecture, 36th Annual Astronomy Weekend, Oxford (2014)
- (2) Day course (with Matthew Malek), Oxford University Continuing Education (2010)
- (3) Day course (with Bob Lambourne), Oxford University Continuing Education (2009)
- (4) Week-long course, Oxford University Summer School for Adults (2009)
- (5) Multiple lectures, Oxford University Summer School (2009)
- (6) Weekend course, multiple lectures, 30th Annual Astronomy Weekend (2008)
- (7) 20-lectures series for adults, Oxford University Continuing Education (2008)
- (8) Day course (with Bob Lambourne), Oxford University Continuing Education (2008)

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- (9) Day course (with Bernard Carr), Oxford University Continuing Education (2007)
 - (10) 20-lectures series for adults, Oxford University Continuing Education (2006)

ART AND SCIENCE COLLABORATIONS

- (1) *Dinner with Copernicus*, immersive dining experience (with Lab Collective, The Polish Cultural Institute and Ognisko Restaurant), London (2018).
- (2) *All There Was* (with artists O. Hagen and D. Cheeseman), art show at the Institute for Contemporary Art, part of *fig-2* (2015).
- (3) *Urban Sputnik* (with designer V. Harden and others), exhibited at the Royal Institution, Royal Astronomical Society, Imperial College and Kinetica art fair (2011-2012), urbansputnik.com
- (4) *Beyond Entropy* research programme (with architect J. Löffler and artist P. Liversidge), exhibited at the Venice Architecture Biennale, the Milano Triennale and the London Architectural Association (2009-2011), beyondentropy.com
- (5) *The Theory of Everything* video (scientific advisor), winner of “Audience Award”, Viral Video Awards at the 29th International Short Film Festival Berlin (2013), youtube.com/theoryofeverything
- (6) *The All-There-Is* video (with filmmaker L. Melesio Friedman), winner of “Best Portrait of the Life of a Physicist” Award of the FQXi Video Competition (2014), tinyurl.com/o6edrms
- (7) *The Post-Newtonian Orrery* (with artists O. Hagen and D. Cheeseman), 100 best Artangel proposals in 2013.

BOOK

- *The Edge of the Sky: All You Need to Know about the All-There-Is* (Basic Books, 2014), explaining cosmology using only the most common 1,000 words in English. Translated in Korean (Kyobo Centre Books, 2015) and German (C.H. Beck 2015).
- Awards and distinctions:
 - Global Thinker 2014 award for ‘junking astronomy jargon’ (*Foreign Policy*, Nov/Dec 2014).
 - ‘Best Science Books of 2014’, brainpickings.org
 - ‘Great Popular Science Books 2014’, *The Huffington Post’s* Books blog
 - ‘Favorite Physics Books of 2014’, *Scientific American’s* Cocktail Party Physics blog
 - ‘Recommended’ by *Scientific American* (Aug 2014)
 - ‘Most anticipated books of 2014’, *Publishers Weekly*, July 31st 2014
 - Starred review, *Publishers Weekly*, July 21st 2014

BROADCAST MEDIA APPEARANCES

- (1) *Millevoci: Solo interview*, Swiss National Radio, Rete 1 (2019)
- (2) *Millevoci: Buchi Neri*, Swiss National Radio, Rete 1 (2019)
- (3) *Millevoci: Stephen Hawking*, Swiss National Radio, Rete 1 (2018)
- (4) *Telegiornale Edizione delle 20*, RSI Swiss National TV (2018)
- (5) *Millevoci: Hubble e le prime stelle*, Swiss National Radio, Rete 1 (2018)
- (6) *Millevoci: Da dove nasce il tempo?*, Swiss National Radio, Rete 1 (2018)
- (7) *Millevoci: Onde Gravitazionali*, Swiss National Radio (2017)
- (8) *Telegiornale Edizione delle 20*, RSI Swiss National TV (2017)
- (9) *Science Mixtape*, Soho Radio (2017)
- (10) *Chiacchiere Cosmologiche*, Swiss National Radio, Rete 3 (2017)
- (11) *Millevoci*, Swiss National Radio, Rete 1 (2017)
- (12) *Mission Impossible*, ICradio show (2016)
- (13) *Albachiara*, Radio Svizzera Rete 1 (2016)
- (14) *Millevoci*, Swiss National Radio, Rete 1 (2016)
- (15) *Einstein’s Extraordinary Universe*, ABCcatalyst Australia (2015)
- (16) *Neil Delamere’s Sunday Best*, Today FM, Dublin (2015)
- (17) *The Sky at Night*, BBC 4 (2015)
- (18) *Sierra Club Radio* with Orli Cotel (2015)
- (19) *Albachiara*, Radio Svizzera Rete 1 (2014)
- (20) *Al Jazeera Arabic*, news report, Nov (2014)

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- (21) *Inquiry*, WICN public radio, with Mark Lynch (2014)
 - (22) *Between the Covers*, KBOO FM, with Leigh Anne Kranz (2014)
 - (23) *Living on Earth*, with Steve Curwood (2014)
 - (24) *Words on a Wire*, KETP radio, with Daniel Chacòn (2014)
 - (25) *The Jason Mohammad Show*, BBC Radio Wales (2014)
 - (26) *Talk Radio Europe*, with Hannah Murray (2014)
 - (27) *C-SPAN2 Book TV*, talk at the Commonwealth Club of California (2014).
 - (28) *KATU-TV am northwest*, with Helen Raptis and Dave Anderson (2014)
 - (29) *NPR's Weekend Edition Sunday*, with Wade Goodwyn (2014)
 - (30) *Baobab*, Swiss National Radio Rete 3 (2010)
 - (31) *Il Giardino di Albert*, Swiss National TV RSI (2009)
 - (32) *Mille voci*, Swiss National Radio, Rete 1 (2009)
 - (33) *Future Generation Thinkers*, BBC Radio 3 (2008)

PRINT AND ONLINE MEDIA

- (1) *CrowdScience, Why Does Dark Matter, Matter?*, BBC World Service, podcast (2018)
- (2) *Countercurrent* podcast, with Roger Kneebone (2017)
- (3) *Scientists, not the Science* podcast, with Stuart Higgins (2017)
- (4) *Institute of Physics* podcast, with James Dacey (2016)
- (5) *Jersey Evening Post* feature article, Apr 23rd (2016)
- (6) *reporter* Imperial College London magazine interview (2016)
- (7) *A New Language For Science*, Science Writing Resources for Learning blog (2016)
- (8) *The Reading Survey*, Edinburgh Science Festival (2015)
- (9) *Fascination* magazine interview, Summer 2015 (2015)
- (10) fig. 2 "All There Was" podcast, with Jessica Temple (2015)
- (11) *FQXi* podcast, with Sophie Hebden (2015)
- (12) *Fiat Physica* online interview (2015)
- (13) *Book Q&A*, with Deborah Kalb (2015)
- (14) *The Guardian Astronomy Science Weekly* podcast, with Nicola Davies (2014)
- (15) *Institute of Astrophysics of the Canary Islands* podcast (2014)
- (16) *Authors at Google*, video of talk at Google HQ (2014)
- (17) *Il Caffè*, Swiss Italian newspaper interview (2014)
- (18) *popularscience.co.uk* blog post (2014)
- (19) *Science for the People* podcast, with Desiree Schell (2014)
- (20) *Speaking of Science* podcast, with Julie Gould (2014)
- (21) *Can the universe be described in simple English?* British Council's VOICES blog (2014)
- (22) *Living on Earth* podcast, with Steve Curwood (2014)
- (23) *New Books in Physics* podcast, with Meg Rosenburg (2014)
- (24) *In Residence* podcast, with Steve Scher (2014)
- (25) *Imperial Podcast*, with Gail Wilson (2014)
- (26) *Nature* podcast, with Elizabeth Gibney (2014)
- (27) *SCOPE* magazine interview (2013)
- (28) *Pod Academy* podcast (2012)
- (29) *IOP 100-seconds physics* videos (2012)

OTHER ACTIVITIES

- Workshop designer and consultant, 'The Sounds of Space' for secondary schools, a project by Imperial College outreach and Royal Albert Hall (2018).
- International FameLab semi-final judge, Cheltenham (2015)
- Project advisory board, 'Dark Matters: an interrogation of thresholds of (im)perceptibility through theoretical cosmology, fine art and anthropology of science', U. Lancaster (2014-)
- Coordinator, Astrophysics Group outreach activities, Imperial College London (2008-)

PUBLICATIONS FOR THE GENERAL PUBLIC

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- (1) **R. Trotta** (2020), 'From the Big Bang to AI', In *Uncertain Ruins*, Petrel, London, (2020)
 - (2) **R. Trotta** (2019b), 'The Smell of Dark Matter: Dane Mitchell's *Perfume Plumes*', *Art in Print*, Vol 9, 3, Sept-Oct (2019)
 - (3) **R. Trotta** (2019a), 'The Harmony of the Cosmos', Space Spectacular programme brochure Royal Albert Hall, June 2019
 - (4) **R. Trotta** (2018b), 'The Harmony of the Cosmos', Space Spectacular programme brochure Royal Albert Hall, May 2018
 - (5) **R. Trotta** (2018a), 'The Hands-On Universe: Making Sense of the Universe with All Your Senses', *CAPjournal*, 23, Feb 2018 (refereed)
 - (6) **R. Trotta** (2015f), 'The Physics of Star Trek', *Star Trek: The Ultimate Voyage* programme brochure Royal Albert Hall, Nov 1st 2015
 - (7) **R. Trotta** (2015e), 'In so many words: Minute world with big stories to tell', *NewScientist* online, July 30th 2015
 - (8) **R. Trotta** (2015d), 'In so many words: Don't kill small-life before Red World trip', *NewScientist* online, July 24th 2015
 - (9) **R. Trotta** (2015c), 'Hoped-for dark matter flash might instead be the corpses of stars', *NewScientist* online, July 1st 2015
 - (10) **R. Trotta** (2015b), 'In so many words: How to ride the space-wind to the stars', *NewScientist* online, June 4th 2015
 - (11) **R. Trotta** (2015a), 'Simple is Hard', *Army ALT*, Jan-Mar 2015
 - (12) **R. Trotta** (2014e), 'Is the All-There-Is all there is?', *Significance* magazine, December 2014
 - (13) **R. Trotta** (2014d), 'The power of simplicity: explaining All-There-Is with the most common thousand words', *Communicating Astronomy with the Public* journal (CAPj), December 2014 (cover story, refereed)
 - (14) **R. Trotta** (2014c), 'The science of Interstellar: Astrophysics, but not as we know it', *The Guardian*, Nov 5th 2014
 - (15) **R. Trotta** (2014b), 'Can the universe be described in simple English?', British Council's VOICES invited blog post, Nov 12th 2014
 - (16) **R. Trotta** (2014a), 'Mangalyaan: The Power of Science and Simplicity', *The Eastern Eye*, Oct 3rd 2014
 - (17) **R. Trotta** (2013), 'Only one Universe to observe', *SCOPE*, May 2013
 - (18) **R. Trotta** (2012), 'Cosmic Dialogue', *People and Science*, March 2012 (featured article)
 - (19) **R. Trotta** (2007e), 'The trouble with strings. Interview with Lee Smolin', *Newton*, November 2007 (cover story)
 - (20) **R. Trotta** (2007d), 'Dark Matter: Probing the Arche-Fossil', *COLLAPSE* Vol II, March 2007
 - (21) **R. Trotta** (2007c), 'Before the Big Bang', *Newton*, September 2007 (cover story)
 - (22) **R. Trotta** (2007b), 'Mapping out the invisible Universe', *Newton*, April 2007 (cover story)
 - (23) **R. Trotta** (2007a), 'The anthropic principle: Interview with John Barrow', *Newton*, October 2006 (cover story)
 - (24) **R. Trotta** (2006g), 'Cosmologists scoop Nobel Prize for Physics 2006', *LeScienze*, Nov 2006
 - (25) **R. Trotta** (2006f), 'Giant telescopes of the future: the Square Kilometer Array', *LeScienze*, July 2006
 - (26) **R. Trotta** (2006e), 'Latest news from the baby Universe', *LeScienze*, June 2006
 - (27) **R. Trotta** (2006d), 'Interview with James Lovelock', *LeScienze*, April 2006
 - (28) **R. Trotta** (2006c), 'Listening to cosmic sound', *LeScienze*, January 2006.
 - (29) **R. Trotta** (2006b), 'Modified gravity', *Newton*, April 2006
 - (30) **R. Trotta** (2006a), 'Killer asteroids', *Newton*, January 2006
 - (31) **R. Trotta** (2005c), 'Looking at the Universe through neutrinos', *LeScienze*, December 2005
 - (32) **R. Trotta** (2005b), 'The mysterious past of our Universe', *Newton*, October 2005
 - (33) **R. Trotta** (2005a), 'Einstein's legacy', *Newton*, June 2005