PROFESSOR ROBERTO TROTTA MSC(HONS), PHD, FRAS, SFHEA

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Nationality: Italian and Swiss • DOB: 29.04.1977 • Italian (native), English and French (fluent), German (proficient)

ACADEMIA

ACADEMIC APPOINTMENTS

Present	**Professor of Theoretical Physics** (Professore di I fascia), Physics Department, International School for Advanced Studies (SISSA), Trieste (2023-)
	Visiting Professor of Astrostatistics, Imperial College London (2023-)
	Head of Data Science, International School for Advanced Studies (SISSA), Trieste (2021-)
	Visiting Faculty, Data-Driven Management Area, MIB Trieste School of Management (2023-)
2020–22	Associate Professor (Professore di II fascia), Physics Department, International School for Advanced Studies (SISSA), Trieste
2019-22	Professor of Astrostatistics, Imperial College London
2019–22	Visiting Professor of Cosmology, Gresham College, London
2015–20	Director, Centre for Languages, Culture and Communication, Imperial College London
2016–19	Reader in Astrophysics (equivalent to Associate Professor), Imperial College London
2012–16	Senior lecturer in Astrophysics, Imperial College London
2008–12	Lecturer in Astrophysics (equivalent to Assistant Professor), Imperial College London
2005–08	Sir Norman Lockyer research fellow of the Royal Astronomical Society, University of Oxford
2004–05	Research associate, University of Geneva, Switzerland

EDUCATION

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

ABILITAZIONE SCIENTIFICA NAZIONALE

2022	Abilitazione Scientifica Nazionale a professore di I fascia, settore disciplinare FIS 02/A2, valid from 01/06/2022 to 01/06/2032
2020	Abilitazione Scientifica Nazionale a professore di I fascia, settore disciplinare FIS 02/C1, valid from 09/11/2020 to 09/11/2029

PERSONAL FELLOWSHIPS

2017–	**Data Science Institute Academic Fellow**, Imperial College London
2016–	**Elected Fellow**, International Astrostatistics Association
2011–	**Next Einstein visiting scholar**, AIMS, Cape Town, South Africa
2013–17	Public Engagement Fellowship, Science and Technology Facilities Council, UK
2006–08	Junior Fellow of St Anne's College, Oxford
	Junior Fellowship, Linacre College, Oxford (2006, declined)
2005–06	Sir Norman Lockyer Fellow of the Royal Astronomical Society
	European Space Agency Research Fellowship (2005, declined)

Honours and Awards

2022	The Charmian Brinson Honorary Lecture 2022, Imperial College London
2020	Annie Maunder Medal for Outreach, 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
2012	Elected to the Royal Astronomical Society Dining 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

Distinguished Fellowships and Professional Memberships

Elected Fellow	International Astrostatistics Association (2016)
Academic Fellow	Imperial College London Data Science Institute (2018)
Senior Fellow	Higher Education Academy, UK (2021); achieved the status of Fellow in 2011.
Fellow	Royal Astronomical Society
Member	International Society for Bayesian Analysis; International Astronomical Union; Swiss Society for Astronomy and Astrophysics; European Astronomical Society; Gresham Society; Royal Astronomical Society Dining Club
Affiliate Member	Chartered Management Institute, UK (2021)

Continuing Professional Development

2015–21	Imperial Leadership and Management Development Programme (validated by the Chartered Management Institute, UK). Courses: Introduction to management; Introduction to managing groups and teams; Leading successful teams; Effective recruitment and selection; Finance for non-finance managers; Promoting equality and diversity; CPD portfolio; 360 review and action planning; Decision making; Unconscious bias; Managing difficult situations
2016	Introduction to IP rights
2014	Bond Solon Expert Witness training programme

Scientific editor

2021–	Scientific editor, member of the inaugural editorial board of *RAS Techniques and Instruments (RASTI)*, an international and open-access journal in all branches of Astronomy, Astrophysics, and Geophysics edited by the Royal Astronomical Society, dedicated to: advances in methods of collecting and evaluating data, new instrumentation, innovative data processing and modelling, artificial intelligence and machine learning, advances in statistical methods, software for processing data, data analysis and modelling, effective use of high-performance computers.

Scientific Activities

- Member, EuCAIF steering board (2024-)
- Scientific consultant, International Centre for Theoretical Physics (ICTP), Trieste (2022-)
- Programme Committee Member 'ML and AI for science', FVG Data Science Institute (2022-)
- XLZD Consortium direct dark matter detection experiment member (2022-)
- DARWIN direct dark matter detection experiment Executive Board member (2015-); Science Working Package leader (2014-)
- ATLAS Collaboration Short Term Associate (2014-2016)
- XENON100 direct dark matter detection experiment Associated Scientist (2014-2018)
- Fermi Affiliated Scientist (2012-)
- Guest editor, 'Statistical Analysis and Data Mining' special issue (2012); 'Physics of the Dark Universe' special issue (2013)
- Euclid ESA space mission, Theory Working Group member (2010-); likelihood analysis Work Package co-lead (2020-2022)
- 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

- Dutch Research Council evaluator (2024)
- Swiss National Science Foundation evaluator (2024)
- Tenure committee reviewer, School of Statistics, University of Minnesota (2023)
- Evaluator, ERC Starting Grants (2021)
- 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, Astrostatisics 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, RASTI (80+ papers)

Institutional Responsibilities, Management and Leadership

SISSA

- EuroCom project coordinator, (ILAS, 2022-)
- PhD coordinator, Theoretical and Scientific Data Science and Academic Board chair (2021-)
- Head of Group, Theoretical and Scientific Data Science (2021-)
- Member, Giunta dell'Area Fisica (Physics Area Steering Board, 2021-)
- Member, Laboratorio Interdisciplinare per le Scienze Naturali (ILAS, 2021-)
- Physics Area representative, Knowledge Transfer committee (Commissione per la Valorizzazione del talento e il Trasferimento della conoscenza, 2021-)
- Chair of PhD admissions panel, Theoretical and Scientific Data Science group (2021-)
- Physics Area coordinator for the 2014-2019 national assessment exercise (VQR) (2021)
- Deputy SISSA representative, Italian Computing and Data Infrastructure general assembly (2020-)

Gresham College, London

- Member of the Academic Board (2019-2022)

Imperial College London

- Education Strategy and Operations Group (2020)
- Horizons Stream Lead, I-Explore programme (2019-2020)
- Education Office COVID-19 Response Group (2020)
- Chair, Curriculum Review Reference Panel (2018-2019)
- Chair, CLCC Departmental Teaching Committee (2015-2020)
- Chair, President's Award review panel 'Supporting the Student Experience' (2016-2020)
- Chair, Imperial Horizons Team (2015-2020)
- Chair, CLCC Management Team (2015-2020)
- Co-chair, CLCC/CHERS Education Committee (2016-2020)
- Member, I-Explore Modules Innovation Group (2018-2020)
- Member, Enterprise Academic Advisory Group (2018-2020)
- Member, Engagement Strategy Group (2018-2020)
- Member, Programmes Committee (2015-2020)
- Member, Imperial SpaceLab Steering Group (2013-2020)
- Member, Strategy Board, Centre for Performance Science (2016-2020)
- Member, Online Learning Innovation Group (2017-2020)
- Member, Academic Partnerships Engagement with Research Steering Group (2016-2018)
- Member, Education Office Management Committee (2015-2020)
- Member, Imperial College Senate (2016-2020)
- Member, Imperial Horizons Committee (2015-2018)
- Member, Task and Finish Group for Assessment (2015-2017)

ORGANIZING OF SCIENTIFIC MEETINGS

- SOC, 'StatPhys' conference, Imperial College London (2024)
- SOC, 'EuCAIFCon 2024' conference (Amsterdam)
- SOC, 'INSAP XII' conference (Corfu 2024)
- SOC, 'Advanced school in applied Machine Learning', ICTP, Trieste (2024)
- LOC, 'Unsupervised Exploration of Fast Radio Bursts Dynamic Spectra', IFPU Team Research Workshop, Trieste (2024)
- SOC, 'Statistics meets ML', Imperial College London (2024)
- SOC, 'COSMO21' conference, Chania (2024)
- Organizer, 'AI interactions: ChatGPT and beyond', Trieste and online (2023)
- SOC, 'Machine learning enabled searches for new physics in astrophysical data', IFPU Trieste (2023)
- Convenor and moderator, Year of Basic Sciences for Sustainable Development event: Embedding ethics in machine learning, ICTP Trieste (online, 2022)
- SOC, 'Ethical and societal challenges of Machine Learning', ICTP Trieste (online, 2022)
- SOC, 'Mind the gap: How we build, perceive, experience, and share spaces, SISSA (2022)
- SOC, INSAP XI (CalTech 2022O
- 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

Undergraduate Courses and Lectures

(1) Guest lunchtime lecture, 'The machine learning revolution in cosmology', Imperial (online 2021)
(2) Lecturer: 'Physics of the Universe', 3rd year physics core course, Imperial (2015-2020)
(3) Lecturer: 'Statistics of measurement', 2nd year physics core course, Imperial (2008-2012)
(4) Associate lecturer: 'Sun, stars and planets', Imperial (2008-2009), 'Cosmology', Imperial (2010-2020)
(5) Guest lecturer: 'Communicating Science', Imperial Horizons course, Imperial (2017, 2018)
(6) Guest lecturer: 'Creative writing', Imperial Horizons course, Imperial (2016)
(7) Guest lecturer: 'Astrophysics', 4th year option course, Imperial (2010)

Postgraduate Courses at SISSA

(1) Bayesian Methods I, Theoretical and Scientific Data Science PhD programme (2023-)
(2) Ethical aspects of AI, Theoretical and Scientific Data Science PhD programme (2020-)
(3) Intelligenza artificiale e informazione (with Elisabetta Tola), course for the Master in Science Communication (2021-)
(4) Bayesian Methods II, Theoretical and Scientific Data Science PhD programme (2020-2023)
(5) Bayesian inference and machine learning in cosmology, Theoretical and Scientific Data Science PhD programme (2021-)

Postgraduate Lectures, Masterclasses and Graduate Schools

(1) Introduction to Bayesian inference, SISSA Master in HPC, Trieste (2023)
(2) Machine Learning for Business Analytics, MBA in International Business, MIB Trieste (2023)
(3) An introduction to data science, International Master in Physics of Complex System, ICTP Trieste (2022)
(4) Statistics lectures, Cosmology Summer School, ICTP Trieste (2022)
(5) Avventure fra Arte e Scienza nel comunicare la cosmologia (SISSA MSC lecture, 2021)
(6) From Bayes to Machine Learning, Heidelberg Grad Days (2021, online)
(7) Bayesian Inference, Saas-Fee Course on "Astronomy in the Era of Big Data" (2021, online)
(8) Keynote, Research Computing Summer School, Imperial College London (2019)
(9) ICIC Data Analysis Postgraduate School, Imperial College London (2018)
(10) Analytics, Inference, and Computation in Cosmology: Advanced methods, Cargèse, France (2018)
(11) Astronomical Data Analysis IX Summer School, Valencia, Spain (2018)
(12) Stats4Astro Astrostatistics School, Autrans, France (2017)
(13) ISAPP Summer School, Texel, The Netherlands (2017)
(14) First Italian Astrostatistics School, Milan, Italy (2017)
(15) European Space Astronomy Centre (ESAC) Statistics Workshop, Villanueva de la Cañada, Spain (2016)
(16) ADA8 Summer School on Astronomical Data Analysis, Chania, Greece (2016)
(17) XII School of Cosmology, Cargèse, France (2014)
(18) Niels Bohr Institute PhD school 'Statistical methods', Copenhagen (2014)
(19) XXVI Winter School 'Bayesian inference in Astronomy and Astrophysics', Canary Islands (2014)
(20) Imperial Centre for Inference and Cosmology STFC Data Analysis School, London (2014)
(21) 44th Saas Fee Advanced Course on Astronomy and Astrophysics, 'Cosmology with wide-field surveys', Switzerland (2014)
(22) School on Bayesian Analysis in Physics and Astronomy, Stellenbosch, South Africa (2013)
(23) ICIC Data Analysis Postgraduate School, London (2013)
(24) 'Statistical inference', African Institute for Mathematical Sciences postgraduate course, Cape Town, South Africa (2012)

(25) 'Advanced statistical methods for cosmology and astroparticle physics', Niels Bohr Institute, Copenhagen (2011)
(26) Cosmology postgraduate lectures, Imperial (2010)
(27) 'Advanced statistical methods' lectures, Imperial (2010)
(28) 'Statistical methods for cosmology',1st Jayme Tiomno School of Cosmology, Rio de Janeiro (2010)
(29) 'Advanced statistical tools for cosmology', Valencia University (2009)
(30) 'Probability theory, statistics and data analysis' postgraduate lectures, Imperial/UCL (2009)
(31) 'The CMB and its statistical interpretation', Würzburg University postgraduate lecture series (2009)
(32) 'Modern cosmology' postgraduate lectures, Imperial/UCL (2009)
(33) 'Advanced statistical tools for cosmology' postgraduate lectures, U. Autonoma Madrid (2009)

SUPERVISION

- Postdocs: K. Mandel (2014), A. Geringer-Sameth (2017-20), Eliel Camargo Molina (2018-20), I. Wolfson (2020-22), V. Bonjean (2020-21), G. Contardo (2022-), A. Scaffidi (2022-), M. Breschi (2023), Chiara Moretti (2023-), Rahul Srinivasan (2023-).
- Current PhD students: K. Karchev (SISSA, 2020-), M. Geng (SISSA, 2021-), M. Rigo (2023-), S. Mishra (2023-).
- Past PhD students and their thesis title (distinctions and first destination in parenthesis):
  (1) M. Autenrieth (Imperial College statistics section, in co-supervision), *Principled Bayesian Modeling and Statistical Learning with Non-Representative Data in Astrophysics* (2020-2023; student paper finalist at the Astrostatistics Association competition 2024; postdoc at Imperial)
  (2) W. Rahman, *Constraining the anisotropic expansion of the universe with type ia supernovae and improving the treatment of selection effects within bayesian hierarchical models* (2017-22; data scientist at facebook/meta)
  (3) S. Hoof, *Global fits of axions and WIMPs in astrophysics, cosmology, and particle physics* (2015-19, Imperial President Scholarship holder; postdoc at Göttingen U.)
  (4) J. McKay, *Constraining dark matter with renormalisation and global fits* (2014-18, Imperial President Scholarship holder; software developer at Verizon Connect)
  (5) H. Shariff, *Application of Bayesian statistics in Supernovae Ia cosmology* (2013-17; Investment consultant at Mercer)
  (6) C. Strege, *Characterization of particle dark matter via multiple probes* (2011-14; Winton Capital best PhD thesis in physics prize; quant at CityBank)
  (7) M. March, *Advanced statistical methods for astrophysical probes of cosmology* (2008-11; Springer Thesis prize, Winton Capital best PhD thesis in physics prize; postdoc at Penn State)
- MSc/MSci students:
  (1) R. Serra (U. Trieste/SISSA, 2023)
  (2) S. di Gioia (U. Trieste/SISSA, 2022)
  (3) R. Corti (U. Trieste, 2021)
  (4) M. von Wietersheim-Kramsta (Imperial, 2019)
  (5) H. Bouvier (Imperial, 2017)
  (6) S. Kobayashi (Imperial, 2017)
  (7) E. Revsbech (co-supervisor, Imperial Statistics Dept, Winton Capital Prize Best Project, 2016)
  (8) I. Siska (Imperial, 2016)
  (9) A. Monge Imedio (Imperial, 2016)
  (10) S. Pak (Imperial, 2015)
  (11) K. Blanchette (Imperial, 2015)
  (12) G. Pisani (co-supervisor, Rome La Sapienza, 2011)
  (13) T. Kealy (Imperial, 2009)
  (14) A. Adam (Imperial, 2009)
- 33 BSc projects supervised (Imperial, 2011-2020)
- 15 Summer interns/UROP/IROP/ICTP students supervised.

EXAMINING AT POSTGRADUATE LEVEL

- External examiner at Master and PhD level:
  (1) Z. Rokavec (MSc, University of Nova Gorica, 2024)
  (2) A. Prajapati (PhD, Gran Sasso Science Institute, 2024; external assessor)

(3) D. Prelogović (PhD, Scuola Normale Superiore, 2024; committee member)
(4) S. Rinaldi (PhD, University of Pisa, 2024; external assessor)
(5) D. Lanzieri (PhD, CEA Paris-Saclay, 2023)
(6) J. Thorp (PhD, Cambridge, 2022)
(7) F. Agocs (PhD, Cambridge, 2022)
(8) R. Hardwick (PhD, U. of Portsmouth, 2019)
(9) J. Faulkner (PhD, U. of Edinburgh, 2018)
(10) S. Hee (PhD, U. of Cambridge, 2017)
(11) H. Mootoovaloo (MSc, U. of Cape Town, 2017)
(12) T. Walwyn (MSc, U of Cape Town, 2016)
(13) F. Vansyngel (PhD, Institut d'Astrophysique de Paris, 2014)
(14) H. Silverwood (MSc, U. of Canterbury, NZ, 2013)
(15) Y. Akrami (PhD, Stockholm University, 2011)
(16) J. Newling (MSc, U. of Cape Town, 2011)

- Internal examiner at Imperial College London:
(1) E. Hauke (PhD, Centre for Higher Education Research and Scholarship, 2022)
(2) Shijing Si (PhD, Statistics Section, 2017)
(3) J. Alsing (PhD, Astrophysics group, 2016)
(4) H. Shariff (MSc, Astrophysics group, 2013)

INVITED SCIENTIFIC TALKS

(1) Celebrating 60 Years of the Associates Programme, Colloquium Talk, ICTP (Trieste, 2024)
(2) Artificial Intelligence panel moderator, ICTP Symposium 'The Future of Scientific Computing', ICTP (Trieste, 2024)
(3) Scientific Afternoons of the University of Nova Gorica (Nova Gorica, 2024)
(4) CMSP News and Views Colloquium, ICTP (Trieste, 2024)
(5) Erwin Schrödinger Colloquium, University of Zürich (Zürich, 2024)
(6) Keynote, Research in Dialogue, University of Bern (Bern, 2024)
(7) Heidelberg Joint Astronomical Colloquium (Heidelberg, 2024)
(8) Astrophysics Colloquium (Ludwig Maximilian University, Munich, 2023)
(9) Colloquium Series in Theoretical and Computational Physics (CSTCP, 2023)
(10) StratLearn: A general-purpose statistical method for improved learning under Covariate Shift (International Astrostatistics Association/IAU Astroinformatics and Astrostatistics seminars, online, 2022)
(11) The impact of machine learning in cosmology (online, 2021)
(12) Plenary, Picturing the Invisible conference, UAL, London (2019)
(13) Keynote, "Artificial Intelligence: Art or Science?" meeting, SISSA, Trieste (2019)
(14) Keynote, ICTP Trieste (2019)
(15) AHRC Network meeting (2019)
(16) Colloquium, University of Bern (2017)
(17) Colloquium, Indian Institute of Technology Madras (2017)
(18) Keynote talk, Global Challenges Showcase event, Imperial College London (2016)
(19) Keynote talk, COSMO21 Conference, Chania, Greece (2016)
(20) Southampton Physics Colloquium (2015)
(21) BASP Frontiers 2015, Villars, Switzerland (2015)
(22) Director's Blackboard Talk, Kavli Institute, Santa Barbara (2013)
(23) Invited plenary, Statistical Issues in Searches, SLAC, Stanford (2012)
(24) Invited plenary, Astronomical Data Analysis 7, Cargèse (2012)
(25) Invited plenary, MaxEnt 2012, Garching (2012)
(26) Invited plenary, 58th International Statistics Institute world congress, Dublin (2011)
(27) Invited plenary, Statistical Challenges in Modern Astronomy V, Penn State (2011)
(28) Invited talk, IOP dark matter meeting, London (2011)
(29) Invited plenary, Aspen winter conference "Indirect and direct detection of dark matter", Aspen (2011)
(30) Colloquium, AIMS, Cape Town (2011)
(31) Colloquium, EPFL, (2010)
(32) Invited plenary, PROSPECT workshop, Stockholm (2010)
(33) Summary talk, Statistical issues relevant to significance of discovery claims workshop, Banff (2010)
(34) Invited plenary, TeV Particle Astrophysics, Paris (2010)

(35) Review talk, Ilias/Entapp meeting, CERN, Geneva (2009)
(36) Invited talk, National Astronomy Meeting, Hatfield (2009)
(37) Michelson Prize lecture, Case Western Reserve University, USA (2008)
(38) Invited plenary, ESF exploratory workshop, Oporto (2008)
(39) Invited talk, Tools08, Munich (2008)
(40) Review talk, XXVI workshop on recent developments in high energy physics and cosmology, Ancient Olympia (2008)
(41) Lord Kelvin Award lecture (2007)
(42) Invited talk, TeV Particle Astrophysics 2007, Venice (2007)
(43) Invited talk, 11th Marcel Grossmann meeting, Berlin (2006)
(44) Invited plenary, RAS general meeting, London (2006)
(45) Review talk, Recent advances in particle physics and cosmology, Thessaloniki (2005)

CONTRIBUTED CONFERENCE TALKS

(1) Debating the potential of machine learning in astronomical surveys (online, 2021)
(2) CosmoAI, Ascona, Switzerland (2019)
(3) Cosmo21, Valencia (2018)
(4) The Road to the Stars, Santiago de Compostela (2017)
(5) XENON100 Collaboration Meeting, Mainz, Germany (2016)
(6) ISI World Statistics Meeting, Hong Kong (2013)
(7) ISBA World meeting, Kyoto (2012)
(8) ERC Kickoff meeting, Amsterdam (2011)
(9) IOP Dark Matter Meeting at King's College (2011)
(10) 58th ISI World Congress (2011)
(11) PHYSTAT2011, CERN, Geneva (2011)
(12) Corfu Summer Institute, Greece (2009)
(13) cosmostats09, Ascona, Switzerland (2009)
(14) Galileo Galilei Institute dark energy conference, Florence, Italy (2009)
(15) Nested Sampling workshop, Cambridge (2008)
(16) Bayesian evidence workshop, University of Sussex (2008)
(17) CosmoTools08, Marseille, France (2008)
(18) Initial Conditions in Cosmology workshop, Würzburg, Germany (2007)
(19) CERN dark matter workshop, Geneva (2007)
(20) RAS Young Astronomers Meeting, London (2006)
(21) St Anne's College, Oxford (2006)
(22) Identification of Dark Matter Conference 2006, Rhodes, Greece (2006)
(23) Galileo Galilei Institute Cosmology Workshop, Florence, Italy (2006)
(24) The Dark Side of the Universe Workshop, Madrid (2006)
(25) CosmoUK Meeting, Oxford (2006)
(26) Francesco Melchiorri Memorial Conference, Rome (2006)
(27) TeV Particle Astrophysics II, Madison, Wisconsin, USA (2006)
(28) Astroparticle UK Meeting 2006, Sheffield (2006)
(29) National Astronomy Meeting, Leicester (2006)
(30) SKA conference, Oxford (2006)
(31) European Dark Energy Network Meeting, Paris (2005)
(32) Subaru/Gemini dark energy meeting, Waikoloa, Hawaii (2005)
(33) PHYSTAT05, Oxford (2005)
(34) Sils Maria Cosmology Workshop, Engadin, Switzerland (2005)
(35) ENTApP meeting, CERN, Geneva (2005)
(36) 7th Journée des Lacs Alpins de Cosmologie, EPFL Lausanne (2004)
(37) 6th Journée de Cosmologie des Lacs Alpins, University of Geneva (2004)
(38) Second Aegean Summer School on the Early Universe, Syros, Greece (2003)
(39) Sils Maria Cosmology Workshop, Engadin, Switzerland (2003)
(40) ATLAS Collaboration Physics Tutorial, CERN, Geneva (2003)
(41) X Marcel Grossmann Meeting, Rio de Janeiro, Brasil (2003)
(42) CMBNet Workshop on Science and Parameter Extraction, Oxford (2003)
(43) 5th Journée de Cosmologie des Lacs Alpins, Annecy (2002)

(44) CMBNet Workshop, Geneva (2002)
(45) Santa Fe Cosmology Workshop, Santa Fe, New Mexico (2002)
(46) CMBNet General Meeting, Frascati, Italy (2001)
(47) UK Cosmology Meeting, Ambleside (2001)

COMPETITIVE GRANTS AWARDED

Grants above 100k are highlighted in bold. Total value of grants as PI or co-I exceeding 29M €.

(1) *Visiting Scientist Travel Grant, PI (2024).* €10k
Awarding body: SISSA.
(2) *Prin 'Optimal inference from radio images of the epoch of reionization', Co-I (2022).* **€192k**
Awarding body: Ministero dell'Università e della Ricerca.
(3) *Centro Nazionale AI, Spoke Exascale computation, Co-I (2022).* **€500k**
Awarding body: PNRR, Italian Government.
(4) *Centro Nazionale HPC, Spoke COSMOS, Co-I (2022).* **€2M**
Awarding body: PNRR, Italian Government.
(5) *MAchine learning for Sciences and Humanities (SMASH), Co-I (2022).* **€10M**
Awarding body: Horizon-MSCA-Cofund European Commission.
(6) *Data Science methods for Multi-Messenger Astrophysics & Multi-Survey Cosmology, PI (2022).* **€140k**
Awarding body: PRO3 Programma congiunto.
(7) *SISSA Summer Festival present: Stelle Scadenti, PI (2021).* ..... €25 k
Awarding body: Regione Autonoma Friuli Venezia Giulia.
(8) *The Edge of the Sky storytelling project, co-I* (2020). £12k
Awarding body: Creative Scotland.
(9) *M-Theory, Cosmology and Quantum Field Theory, co-I*[†] (2019). **£6.4M**
Awarding body: STFC.
(10) *Pedagogy Transformation Grant, co-I* (2018). **£451k**
Awarding body: Education Office, Imperial College London.
(11) *M-Theory, Cosmology and Quantum Field Theory, co-I*[†] (2016). **£6.2M**
Awarding body: STFC.
(12) *PhD studentship, PI* (2017). £70k
Awarding body: STFC.
(13) *Astrophysics Consolidated Grant, co-I*[†] (2016). **£2.4M**
Awarding body: STFC.
(14) *Travel and Exchange Grant, PI* (2016). £12k
Awarding body: Royal Society.
(15) *SPRINT Collaboration Grant, PI* (2016). £10k
Awarding body: FAPESP-Imperial.
(16) *Public Engagement Grant, PI* (2016). £1.5k
Awarding body: Royal Astronomical Society.
(17) *Public Engagement Grant, PI* (2016). £2k
Awarding body: Institute of Physics.
(18) *Development of Novel Statistical Tools for the Analysis of Astronomical Data, Marie Skodowska-Curie Research and Innovation Staff Exchange, co-I* (2016). **£107k**
Awarding body: European Commission.
(19) *Impact Acceleration Grant, PI* (2016). £46k
Awarding body: EPSRC.
(20) *Conference Organization Grant, PI* (2015). £35k
Awarding body: IFT, Madrid.
(21) *Data Analysis Summer School funding, Co-I* (2014). £23k
Awarding body: STFC.
(22) *Impact Acceleration Award, PI* (2014). £15k
Awarding body: STFC.
(23) *Search for Dark Matter particles with the XENON experiment collaboration exchange, PI* (2013). £6k
Awarding body: Imperial College Trust.

[†]For this kind of group-wide grants, the PI is by default the Head of Group, even though all co-I's contribute equally to the scientific proposal.

(24) *Pathways to Impact funding, PI* (2013). £14k
Awarding body: EPSRC.
(25) *PhD studentship, PI* (2013). £70k
Awarding body: STFC.
(26) *Public Engagement Fellowship, PI* (2013). ..... £**106k**
Awarding body: STFC.
(27) *Programme Organization Grant, PI* (2013). £65k
Awarding body: KITP, Santa Barbara.
(28) *Travel and Exchange Grant, PI* (2012). £12k
Awarding body: Royal Society.
(29) *CosmoClassic Cross-Disciplinary Collaboration, Co-I* (2012). £16k
Awarding body: Faculty Strategic Research Fund, Imperial College London.
(30) *Conference Organization Grant, Co-I* (2012). £25k
Awarding body: Centre Stefano Franscini, ETZ.
(31) *Astrophysics Consolidated Grant, Co-I*† (2012). ..... £**463k**
Awarding body: STFC.
(32) *Travel Grant, PI* (2011). £1.5k
Awarding body: Deutsche Studentstiftung.
(33) *PhD studentship, PI* (2011). £36k
Awarding body: Deutsche Studentstiftung.
(34) *Summer Student Project Bursaries, PI* (2011). £3k
Awarding body: UROP.
(35) *PhD Studentship Extension Funding, PI* (2011). £3k
Awarding body: Royal Astronomical Society.
(36) *Public Engagement Grant, PI* (2011). £8.5k
Awarding body: STFC.
(37) *Travel Grant, PI* (2010). £2k
Awarding body: Royal Astronomical Society.
(38) *Extragalactic Astronomy and Cosmology Rolling Grant, co-I*† (2009). ..... £**1M**
Awarding body: STFC.
(39) *PhD studentship, PI* (2008). £70k
Awarding body: STFC.
(40) *Sir Norman Lockyer Fellowship, PI* (2005). ..... £**150k**
Awarding body: Royal Astronomical Society.
(41) *Postdoctoral Fellowship, PI (declined)* (2005). ..... £ 90k
Awarding body: European Space Agency.

Scientific Publications

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94 published papers in peer-reviewed physics journals or machine learning conferences (12 of which as first author, including a single-author review article and 3 in *Phys. Rev. Lett.*), 17 conference proceedings, 2 white papers and 5 chapters in academic books.

Citation count: 11,800+, h-index: 50 (from iNSPIRE, August 6, 2024).

Co-authors who at the time of publication were my PhD or Master students are underlined.

100+ indicates a paper with more than 100 citations (11).

250+ indicates a paper with more than 250 citations (4).

500+ indicates a paper with more than 500 citations (4).

1000+ indicates a paper with more than 1000 citations (1).

Refereed Physics Journals

(1) M. Benito, K. Karchev, R.K. Leane, S. Poder, J. Smirnov & **R. Trotta** (2024), 'Dark Matter Halo Parameters from Overheated Exoplanets via Bayesian Hierarchical Inference', *JCAP* 07(2024)038, arxiv:2405.09578

(2) K. Karchev, M. Grayling, B. Boyd, K. Mandel, **R. Trotta** & C. Weniger (2024), 'SIDE-real: Truncated marginal neural ratio estimation for Supernova Ia Dust Extinction with real data', *Mon. Not. R. Astron. Soc.* , 530, 4, 3881–3896 (2024), arxiv:2403.07871

(3) M. Adrover et al (DARWIN Collaboration) (2024), 'Cosmogenic background simulations for the DARWIN observatory at different underground locations', *Eur. Phys. J. C* 84, 88 (2024), arxiv:2306.16340. (Role: contributing author)

(4) R. Srinivasan, M. Crisostomi, **R. Trotta**, E. Barausse & M. Breschi (2024), 'floZ: Evidence estimation from posterior samples with normalizing flows', submitted to PRD, arxiv:2404.12294

(5) S. Maitra, S. Cristiani, M. Viel, **R. Trotta** & G. Cupani (2024), 'Parameter estimation from Lyα forest in Fourier space using Information Maximising Neural Network', *A&A* in print, arxiv:2404.04327

(6) M. Autenrieth, A. H. Wright, **R. Trotta**, D.A. van Dyk, D.C. Stenning & B. Joachimi (2024), 'Improved Weak Lensing Photometric Redshift Calibration via StratLearn and Hierarchical Modeling', submitted to *Mon. Not. R. Astron. Soc.* , arxiv:2401.04687

(7) D. Breitman, A. Mesinger, S. Murray, D. Prelogovic, Y. Qin & **R. Trotta** (2024), '21cmEMU: an emulator of 21cmFAST summary observables', *Mon. Not. R. Astron. Soc.* , 527, 4, 9833-9852, arxiv:2309.05697

(8) M. Autenrieth, D. van Dyk, **R. Trotta** & D. Stenning (2023), 'Stratified Learning: A General-Purpose Statistical Method for Improved Learning under Covariate Shift', *Anal. Data Min.: ASA Data Sci. J.* 1-16, arxiv:2106.11211

(9) M. Crisostomi, K. Dey, E. Barausse & **R. Trotta** (2023), 'Neural Posterior Estimation with guaranteed exact coverage: the ringdown of GW150914', *Phys. Rev. D* , 108, 044029 (2023), arxiv:2305.18528

(10) A. Heavens, A. Mootoovaloo, **R. Trotta** & E. Sellentin (2023), 'Extreme data compression for Bayesian model comparison', *JCAP* 11(2023)048, arxiv:2306.15998

(11) K. Karchev, **R. Trotta** & C. Weniger (2023), 'SICRET: Supernova Ia Cosmology with truncated marginal neural Ratio EsTimation', *Mon. Not. R. Astron. Soc.* , 520 (2023) 1056-1072, arxiv:2209.06733

(12) J Aalbers, S S AbdusSalam, K Abe, V Aerne, F Agostini, S Ahmed Maouloud, D S Akerib, D Y Akimov, J Akshat, A K Al Musalhi, F Alder, S K Alsum, L Althueser, C S Amarasinghe, F D Amaro, A Ames, T J,erson, B,rieu, N Angelides, E Angelino, J Angevaare, V C Antochi, D Antón Martin, B Antunovic, E Aprile, H M Araújo, J E Armstrong, F Arneodo, M Arthurs, P Asadi, S Baek, X Bai, D Bajpai, A Baker, J Balajthy, S Balashov, M Balzer, A Bandyopadhyay, J Bang, E Barberio, J W Bargemann, L Baudis, D Bauer, D Baur, A Baxter, A L Baxter, M Bazyk, K Beattie, J Behrens, N F Bell, L Bellagamba, P Beltrame, M Benabderrahmane, E P Bernard, G F Bertone, P Bhattacharjee, A Bhatti, A Biekert, T P Biesiadzinski, A R Binau, R Biondi, Y Biondi, H J Birch, F Bishara, A Bismark, C Blanco, G M Blockinger, E Bodnia, C Boehm, A I Bolozdynya, P D Bolton, S Bottaro, C Bourgeois, B Boxer, P Brás, A Breskin, P A Breur, C A J Brew, J Brod, E Brookes, A Brown, E Brown, S Bruenner, G Bruno, R Budnik, T K Bui, S Burdin, S Buse, J K Busenitz, D Buttazzo, M Buuck, A Buzulutskov, R Cabrita, C Cai, D Cai, C Capelli, J M R Cardoso, M C Carmona-Benitez, M Cascella, R Catena, S Chakraborty, C Chan, S Chang, A Chauvin, A Chawla, H Chen, V Chepel, N I Chott, D Cichon, A Cimental Chavez, B Cimmino, M Clark, R T Co, A P Colijn, J Conrad, M V Converse, M Costa, A Cottle, G Cox, O Creaner, J J Cuenca Garcia, J P Cussonneau, J E Cutter, C E Dahl, V D'Andrea, A David, M P Decowski, J B Dent, F F Deppisch, L de Viveiros, P Di Gangi, A Di Giovanni, S Di Pede, J Dierle, S Diglio, J E Y Dobson, M Doerenkamp, D Douillet, G Drexlin, E Druszkiewicz, D Dunsky, K Eitel, A Elykov, T Emken, R Engel,

S R Eriksen, M Fairbairn, A Fan, J J Fan, S J Farrell, S Fayer, N M Fearon, A Ferella, C Ferrari, A Fieguth, A Fieguth, S Fiorucci, H Fischer, H Flaecher, M Flierman, T Florek, R Foot, P J Fox, R Franceschini, E D Fraser, C S Frenk, S Frohlich, T Fruth, W Fulgione, C Fuselli, P Gaemers, R Gaior, R J Gaitskell, M Galloway, F Gao, I Garcia Garcia, J Genovesi, C Ghag, S Ghosh, E Gibson, W Gil, D Giovagnoli, F Girard, R Glade-Beucke, F Glück, S Gokhale, A de Gouvêa, L Gráf, L Grandi, J Grigat, B Grinstein, M G D van der Grinten, R Grössle, H Guan, M Guida, R Gumbsheimer, C B Gwilliam, C R Hall, L J Hall, R Hammann, K Han, V Hannen, S Hansmann-Menzemer, R Harata, S P Hardin, E Hardy, C A Hardy, K Harigaya, R Harnik, S J Haselschwardt, M Hernandez, S A Hertel, A Higuera, C Hils, S Hochrein, L Hoetzsch, M Hoferichter, N Hood, D Hooper, M Horn, J Howlett, D Q Huang, Y Huang, D Hunt, M Iacovacci, G Iaquaniello, R Ide, C M Ignarra, G Iloglu, Y Itow, E Jacquet, O Jahangir, J Jakob, R S James, A Jansen, W Ji, X Ji, F Joerg, J Johnson, A Joy, A C Kaboth, L Kalhor, A C Kamaha, K Kanezaki, K Kar, M Kara, N Kato, P Kavrigin, S Kazama, A W Keaveney, J Kellerer, D Khaitan, A Khazov, G Khundzakishvili, I Khurana, B Kilminster, M Kleifges, P Ko, M Kobayashi, D Kodroff, G Koltmann, A Kopec, A Kopmann, J Kopp, L Korley, V N Kornoukhov, E V Korolkova, H Kraus, L M Krauss, S Kravitz, L Kreczko, V A Kudryavtsev, F Kuger, J Kumar, B López Paredes, L LaCascio, R Laha, Q Laine, H Landsman, R F Lang, E A Leason, J Lee, D S Leonard, K T Lesko, L Levinson, C Levy, I Li, S C Li, T Li, S Liang, C S Liebenthal, J Lin, Q Lin, S Lindemann, M Lindner, A Lindote, R Linehan, W H Lippincott, X Liu, K Liu, J Liu, J Loizeau, F Lombardi, J Long, M I Lopes, E Lopez Asamar, W Lorenzon, C Lu, S Luitz, Y Ma, P A N Machado, C Macolino, T Maeda, J Mahlstedt, P A Majewski, A Manalaysay, A Mancuso, L Manenti, A Manfredini, R L Mannino, N Marangou, J March-Russell, F Marignetti, T Marrodán Undagoitia, K Martens, R Martin, I Martinez-Soler, J Masbou, D Masson, E Masson, S Mastroianni, M Mastronardi, J A Matias-Lopes, M E McCarthy, N McFadden, E McGinness, D N McKinsey, J McLaughlin, K McMichael, P Meinhardt, J Menéndez, Y Meng, M Messina, R Midha, D Milisavljevic, E H Miller, B Milosevic, S Milutinovic, S A Mitra, K Miuchi, E Mizrachi, K Mizukoshi, A Molinario, A Monte, C M B Monteiro, M E Monzani, J S Moore, K Morå, J A Morad, J D Morales Mendoza, S Moriyama, E Morrison, E Morteau, Y Mosbacher, B J Mount, J Mueller, A St J Murphy, M Murra, D Naim, S Nakamura, E Nash, N Navaieelavasani, A Naylor, C Nedlik, H N Nelson, F Neves, J L Newstead, K Ni, J A Nikoleyczik, V Niro, U G Oberlack, M Obradovic, K Odgers, C A J O?Hare, P Oikonomou, I Olcina, K Oliver-Mallory, A Oranday, J Orpwood, I Ostrovskiy, K Ozaki, B Paetsch, S Pal, J Palacio, K J Palladino, J Palmer, P Panci, M Pandurovic, A Parlati, N Parveen, S J Patton, V P, Q Pellegrini, B Penning, G Pereira, R Peres, Y Perez-Gonzalez, E Perry, T Pershing, R Petrossian-Byrne, J Pienaar, A Piepke, G Pieramico, M Pierre, M Piotter, V Pizzella, G Plante, T Pollmann, D Porzio, J Qi, Y Qie, J Qin, F Quevedo, N Raj, M Rajado Silva, K Ramanathan, D Ramírez García, J Ravanis, L Redard-Jacot, D Redigolo, S Reichard, J Reichenbacher, C A Rhyne, A Richards, Q Riffard, G R C Rischbieter, A Rocchetti, S L Rosenfeld, R Rosero, N Rupp, T Rushton, S Saha, P Salucci, L Sanchez, P Sanchez-Lucas, D Santone, J M F dos Santos, I Sarnoff, G Sartorelli, A B M R Sazzad, M Scheibelhut, R W Schnee, M Schrank, J Schreiner, P Schulte, D Schulte, H Schulze Eissing, M Schumann, T Schwemberger, A Schwenk, T Schwetz, L Scotto Lavina, P R Scovell, H Sekiya, M Selvi, E Semenov, F Semeria, P Shagin, S Shaw, S Shi, E Shockley, T A Shutt, R Si-Ahmed, J J Silk, C Silva, M C Silva, H Simgen, F ¦imkovic, G Sinev, R Singh, W Skulski, J Smirnov, R Smith, M Solmaz, V N Solovov, P Sorensen, J Soria, T J Sparmann, I Stancu, M Steidl, A Stevens, K Stifter, L E Strigari, D Subotic, B Suerfu, A M Suliga, T J Sumner, P Szabo, M Szydagis, A Takeda, Y Takeuchi, P-L Tan, C Taricco, W C Taylor, D J Temples, A Terliuk, P A Terman, D Thers, K Thieme, T Thümmler, D R Tiedt, M Timalsina, W H To, F Toennies, Z Tong, F Toschi, D R Tovey, J Tranter, M Trask, G C Trinchero, M Tripathi, D R Tronstad, **R. 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(17) S. Ando, A. Geringer-Sameth, N. Hiroshima, S. Hoof, **R. Trotta** & M.G. Walker (2020), 'Structure Formation Models Weaken Limits on WIMP Dark Matter from Dwarf Spheroidal Galaxies', *Phys. Rev. D* **102**, 061302(R), `arxiv:2002.11956`

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WHITE PAPERS AND EDITORIAL WORK

(1) R. Alves Batista, M.A. Amin, G. Barenboim, N. Bartolo, D. Baumann, A. Bauswein, E. Bellini, D. Benisty, G. Bertone, P. Blasi, C.G. Böhmer, Z. Bosnjak, T. Bringmann, C. Burrage, M. Bustamante, J. Calderón Bustillo, C.T. Byrnes, F. Calore, R. Catena, D.G. Cerdeño, S.S. Cerri, M. Chianese, K. Clough, A. Cole, P. Coloma, A. Coogan, L. Covi, D. Cutting, A.C. Davis, C. de Rham, A. di Matteo, G. Domènech, M. Drewes, T. Dietrich, T.D.P. Edwards, I. Esteban, R. Erdem, C. Evoli, M. Fasiello, S.M. Feeney, R.Z. Ferreira, A. Fialkov, N. Fornengo, S. Gabici, T. Galatyuk, D. Gaggero, D. Grasso, C. Guépin, J. Harz, M. Herrero-Valea, T. Hinderer, N.B. Hogg, D.C. Hooper, F. Iocco, J. Isern, K. Karchev, B.J. Kavanagh, M. Korsmeier, K. Kotera, K. Koyama, B. Krishnan, J. Lesgourgues, J. Levi Said, L. Lombriser, C.S. Lorenz, S. Manconi, M. Mapelli, A. Marcowith, S.B. Markoff, D.J.E. Marsh, M. Martinelli, C.J.A.P. Martins, J.H. Matthews, A. Meli, O. Mena, J. Mifsud, M.M. Miller Bertolami, P. Millington, P. Moesta, K. Nippel, V. Niro, E. O'Connor, F. Oikonomou, C.F. Paganini, G. Pagliaroli, P. Pani, C. Pfrommer, S. Pascoli, L. Pinol, L. Pizzuti, R.A. Porto, A. Pound, F. Quevedo, G.G. Raffelt, A. Raccanelli, E. Ramirez-Ruiz, M. Raveri, S. Renaux-Petel, A. Ricciardone, A. Rida Khalifeh, A. Riotto, R. Roiban, J. Rubio, M. Sahlén, N. Sabti, L. Sagunski, N. Sarievic, K. Schmitz, P. Schwaller, T. Schwetz, A. Sedrakian, E. Sellentin, A. Serenelli, P.D. Serpico, E.I. Sfakianakis, S. Shalgar, A. Silvestri, I. Tamborra, K. Tanidis, D. Teresi, A.A. Tokareva, L. Tolos, S. Trojanowski, **R. Trotta**, C. Uhlemann, F.R. Urban, F. Vernizzi, A. van Vliet, F.L. Villante, A. Vincent, J. Vink, E. Vitagliano, C. Weniger, A. Wickenbrock, W. Winter, S. Zell, M. Zeng (2021), 'EuCAPT White Paper: Opportunities and Challenges for Theoretical Astroparticle Physics in the Next Decade', `arxiv:2110.10074` (Role: co-lead of the Astrostatistics section)

(2) A. Gandy & **R. Trotta** (Eds) (2013), 'Special Issue on Astrostatistics', *Statistical Analysis and Data Mining*, 6, 1:2 (2013)

1000+ (3) Laureijs, R., Amiaux, J., Arduini, S., Augueres, J. -L., Brinchmann, J., Cole, R., Cropper, M., Dabin, C., Duvet, L., Ealet, A., Garilli, B., Gondoin, P., Guzzo, L., Hoar, J., Hoekstra, H., Holmes, R., Kitching, T., Maciaszek, T., Mellier, Y., Pasian, F., Percival, W., Rhodes, J., Saavedra Criado, G., Sauvage, M., Scaramella, R., Valenziano, L., Warren, S., Bender, R., Castander, F., Cimatti, A., Le Fèvre, O., Kurki-Suonio, H., Levi, M., Lilje, P., Meylan, G., Nichol, R., Pedersen, K., Popa, V., Rebolo Lopez, R., Rix, H. -W., Rottgering, H., Zeilinger, W., Grupp, F., Hudelot, P., Massey, R., Meneghetti, M., Miller, L., Paltani, S., Paulin-Henriksson, S., Pires, S., Saxton, C., Schrabback, T., Seidel, G., Walsh, J., Aghanim, N., Amendola, L., Bartlett, J., Baccigalupi, C., Beaulieu, J. -P., Benabed, K., Cuby, J. -G., Elbaz, D., Fosalba, P., Gavazzi, G., Helmi, A., Hook, I., Irwin, M., Kneib, J. -P., Kunz, M., Mannucci, F., Moscardini, L., Tao, C., Teyssier, R., Weller, J., Zamorani, G., Zapatero Osorio, M. R., Boulade, O., Foumond, J. J., Di Giorgio, A., Guttridge, P., James, A., Kemp, M., Martignac, J., Spencer, A., Walton, D., Blümchen, T., Bonoli, C., Bortoletto, F., Cerna, C., Corcione, L., Fabron, C., Jahnke, K., Ligori, S., Madrid, F., Martin, L., Morgante, G., Pamplona, T., Prieto, E., Riva, M., Toledo, R., Trifoglio, M., Zerbi, F., Abdalla, F., Douspis, M., Grenet, C., Borgani, S., Bouwens, R., Courbin, F., Delouis, J. -M., Dubath, P., Fontana, A., Frailis, M., Grazian, A., Koppenhöfer, J., Mansutti, O., Melchior, M., Mignoli, M., Mohr, J., Neissner, C., Noddle, K., Poncet, M., Scodeggio, M., Serrano, S., Shane, N., Starck, J. -L., Surace, C., Taylor, A., Verdoes-Kleijn, G., Vuerli, C., Williams, O. R., Zacchei, A., Altieri, B., Escudero Sanz, I., Kohley, R., Oosterbroek, T., Astier, P., Bacon, D., Bardelli, S., Baugh, C., Bellagamba, F., Benoist, C., Bianchi, D., Biviano, A., Branchini, E., Carbone, C., Cardone, V., Clements, D., Colombi, S., Conselice, C., Cresci, G., Deacon, N., Dunlop, J., Fedeli, C., Fontanot, F., Franzetti, P., Giocoli, C., Garcia-Bellido, J., Gow, J., Heavens, A., Hewett, P., Heymans, C., Holland, A., Huang, Z., Ilbert, O., Joachimi, B., Jennins, E., Kerins, E., Kiessling, A., Kirk, D., Kotak, R., Krause, O., Lahav, O., van Leeuwen, F., Lesgourgues, J.,

Lombardi, M., Magliocchetti, M., Maguire, K., Majerotto, E., Maoli, R., Marulli, F., Maurogordato, S., McCracken, H., McLure, R., Melchiorri, A., Merson, A., Moresco, M., Nonino, M., Norberg, P., Peacock, J., Pello, R., Penny, M., Pettorino, V., Di Porto, C., Pozzetti, L., Quercellini, C., Radovich, M., Rassat, A., Roche, N., Ronayette, S., Rossetti, E., Sartoris, B., Schneider, P., Semboloni, E., Serjeant, S., Simpson, F., Skordis, C., Smadja, G., Smartt, S., Spano, P., Spiro, S., Sullivan, M., Tilquin, A., **R. Trotta**, Verde, L., Wang, Y., Williger, G., Zhao, G., Zoubian, J., Zucca, E. (2011), 'Euclid Definition Study Report', ESA report number ESA/SRE(2011)12 `arxiv:1110.3193` (role: contributing author)

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: Jin Z., Liu M., Luo X. (eds), *New Developments in Statistical Modeling, Inference and Application.* 167-184, ICSA Book Series in Statistics. Springer, Cham
(3) G. Johannesson, R. Ruiz de Austri, A.C. Vincent, I.V. Moskalenko, E. Orlando, T.A. Porter, A.W. Strong & **R. Trotta** (2015), 'Bayesian Approach to Cosmic Ray Propagation', In: *Proceedings of the 34th International Cosmic Ray Conference, Aug 2015, The Hague, Netherlands*, Proceedings of Science (ICRC2015) 494.
(4) **R. Trotta**, F. Feroz, M.P. Hobson and R. Ruiz de Austri (2013), 'Recent advances in Bayesian inference in cosmology and astroparticle physics thanks to the MultiNest Algorithm', In: *Bulletin of the International Statistical Institute Proceedings of the 58th World Statistics Congress 2011*, 367-377, ISBN: 978-90-73592-33-9.
(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), ISBN: 978-1-4614-3520-4
(6) I. V. Moskalenko, S. Digel, G. Jóhannesson, E. Orlando, T. A. Porter, R. Ruiz de Austri, A. W. Strong, **R. Trotta**, A.E. Vladimirov (2011), 'GALPROP code for galactic cosmic ray propagation and associated photon emissions', in: *Proceedings of the 32nd International Cosmic Ray Conference, ICRC 2011*, 6, 279-282
(7) **R. Trotta** & K. Cranmer (2011), 'Statistical Challenges of Global SUSY Fits', In: *Proceedings of the PHYSTAT 2011 Workshop on Statistical Issues Related to Discovery Claims in Search Experiments and Unfolding, CERN, Geneva, Switzerland, 17-20 January 2011*, H.B. Prosper and L. Lyons (Eds), CERN-2011-006, 170-176, `arxiv:1105.5244`
(8) P.M Vaudrevange, G. Starkman & **R. Trotta** (2009), 'The Virtues of Frugality - Why Cosmological Observers should Release their Data Slowly', In: *Proceedings, International Workshop on Cosmic structure and evolution: Bielefeld, Germany, September 23-25, 2009*, PoS Cosmology2009 (2009) 006
(9) **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`
(10) 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
(11) **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*, Institute of Physics
(12) **R. Trotta**, R. Ruiz de Austri & L. Roszkowski (2007), '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
(13) **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`

(14) **R. Trotta** (2006), 'Cosmological Bayesian model selection', in L. Lyons and M. K. Ünel, Eds (2006). *Statistical Problems in Particle Physics, Astrophysics and Cosmology. Proceedings of PHYSTAT05, Oxford, UK, 12-15 September 2005*, 15-18, Singapore: World Scientific

(15) **R. Trotta** & R. Durrer (2006), 'Testing the paradigm of adiabaticity', in M. Novello, S. Perez Bergliaffa & R. Ruffini Eds (2006). *The Tenth Marcel Grossmann Meeting. On Recent Developments in Theoretical and Experimental General Relativity, Gravitation and Relativistic Field Theories*, 1739-1743, Singapore: World Scientific. `arxiv:astro-ph/0402032`

(16) 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`

(17) **R. Trotta** (2003), 'The cosmological constant and the paradigm of adiabaticity', *New Astron. Rev.*, 47, 769–774, `arxiv:astro-ph/0304525`

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

KNOWLEDGE TRANSFER

Present	**Scientific Advisory Board**, RACHAEL S.r.l. (2024-), `rachael.swg.it`
	Consultant, Imperial Consultants (2010-)
Past	Chairman, Scientific Advisory Board, RACHAEL S.r.l. (2021-2024), `rachael.swg.it`
	Director and co-founder, Data Fusion Consultants Ltd (spin-off company, 2012-2020)
	Non-executive Director, Imperial Consultants (2018-2020), `imperial-consultants.co.uk`
Expertise	Statistical inference and model selection. Data science and machine learning. Numerical data analysis and data mining. Environmental assessment of risk. Astrophysical phenomena, theoretical physics, space travel and cosmology.
Services	Data analysis and interpretation. Probabilistic modeling. Inference, prediction and optimization. Training and workshops: probability theory, inference, numerical methods, computational solutions, data science, machine learning. Expert witness. Scientific consulting for museums and creative arts industry.
Clients	**Scientific consultancy:**

- Savio Macchine Tessili, Pordenone (2024)
- Museo e Parco del Castello di Miramare, exhibit *Kosmos: Il Veliero della Conoscenza*, Trieste (2023)
- Oxford University Press (2023, credited)
- Red Planet Pictures (2022) for *Death in Paradise* episode (credited).
- Altin Homes (2021)
- Regione Autonoma Friuli Venezia Giulia, Agenzia Lavoro SviluppoImpresa (2021)
- Nature Publishing Group (2020).
- Fantastic Productions, for Netflix feature film (2019).
- Enchanted Lions Books (2016, 2018, 2019, credited).
- The Polish Cultural Institute, London (2018).
- Left Bank Pictures (2018) *Origin* series (credited).
- Ore Design Jewellery (2015).
- BBC *Sky at Night* (2015).
- UP Projects *The Floating Cinema* (2015).
- The Times Cheltenham Science Festival (2015).
- Institute of Physics (2017).
- Objective Productions *Breaking Magic 1 & 2* (2014).
- Cinema.ai (2014).
- Floating Cinema (2014).
- Magnum Media *Man vs Expert* (2014).
- INFRA (2013).
- Catsnake Productions *The Theory of Everything* (2012), Audience Award winner, 29th International Short Film Festival Berlin (2013).
- London Science Museum (2008)
- Deutsches Museum Munich (2006)

Lectures and Training:

(1) Online seminar, Intesa San Paolo (2024)
(2) Lecturer, CINECA Academy, up-skilling programme for businesses, Trieste (2022)
(3) Programme committee member and lecturer, Generali Business Translators training course, online (2022)
(4) Knowledge transfer webinar: the case of *RACHAEL*, a big data startup (online, 2021)
(5) Imperial College Business School Executive Education programme lecturer:
    - Sberbank Digital Technology Programme, London (2020, 2021)
    - Naspers Executives Programme, London (2019)
(6) Imperial Space Lab STFC Showcase Industry Event (2018)
(7) Keynote speaker, Data Analysts User Group conference, London (2017)
(8) Keynote speaker, iHub opening ceremony, Imperial College London (2016)

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

PUBLIC ENGAGEMENT AND SCIENCE COMMUNICATION

PUBLIC LECTURES, FESTIVALS, EDUCATIONAL ACTIVITIES AND TALKS IN SCHOOLS

▷ indicates a video of the event available online).

(1) Star walk, ALSO 2024 Festival (2024)
(2) 'Starborn', ALSO 2024 Festival (2024)
(3) 'AI for Science' public debate moderator, University of Amsterdam (2024)
(4) Festival della Scienza dei Dati e dell'Intelligenza Artificiale (Monfalcone, 2024)
(5) Festival della Scienza e Filosofia (Foligno, 2024)
(6) Scuola Media Galilei, Sant'Eraclio (2024)
(7) Grand Incontri, Miramare Castle (Trieste, 2024)
(8) AI from the Sky, United World College (Duino, 2024)
(9) Q&A with Louise Allcock and Robin Ince, RATIO Forum (Sofia, 2023)
(10) Starborn – How the Stars Made Us, RATIO Forum (Sofia, 2023)
(11) Starborn – book launch, in conversation with Claudia de Rham, Imperial College London (London, 2023)
(12) Starborn – book launch, in conversation with Roger Davies, St Anne's College (Oxford, 2023)
(13) Starborn – book launch, in conversation with Carissa Vêliz, Hertford College (Oxford, 2023)
(14) From Babbage to Musk: Promethean Visions of AI, keynote, MIB Trieste School of Management alumni reunion (Trieste, 2023)
(15) Dal Big Bang all'Intelligenza Artificiale, QuarantaScienza, Accademia dei XL (online, 2023)
(16) ChatGPT, do you love me? Panel chair at TriesteNext (2023)
(17) I promemoria di Italo Calvino per affrontare il terzo millennio, discussion panel, Scienza e Virgola festival (Trieste, 2023)
(18) Dal Big Bang all'Intelligenza Artificiale, AITalks series (Trieste, 2023)
(19) Dal Big Bang all'intelligenza artificiale, I venerdì dell'universo (Ferrara, 2023)
(20) Il sistema solare, Scuola Europea "Il Castelletto" (Trieste, 2023)
(21) Communicating AI, and communicating with AI: challenges and opportunities, Future visions on science communication (Trieste, 2022)
(22) La tua vita in dati, i dati della tua vita, SISSA4Schools (Trieste, 2022)
(23) Dal Big Bang all'Intelligenza Artificiale, Biennale di Tecnologia (Torino, 2022)
(24) Scelte intelligenti? Come l'intelligenza artificiale entra nella nostra vita, CICAP Fest (Padova, 2022).
(25) G-astronomy: A culinary and multi-sensorial exploration of the Universe (online, 2022).
(26) Il cielo di domani, fra satelliti e stelle, workshop al Convegno Nazionale di Comunicazione della Scienza (Trieste, 2021)
(27) "Stelle Scadenti", Scienza e Virgola science festival, Trieste (2021)
(28) Understanding the Universe with AI, Loughton Astronomical Society (online, 2021)
(29) Cosmo e dati, panel discussion for SISSA Schools open day (online, 2021)
(30) Understanding the Universe with AI, St John's College Oxford (online, 2021)
▷ (31) From the Big Bang to AI, Imperial Science Breaks, online (2020)
▷ (32) Big Bang Data, ESOF 2020, Trieste (2020)
(33) SISSA Summer Science Festival, Miramare Castle, Trieste (2020)
▷ (34) Language of the stars, super/collider (online, 2020)
(35) The Solar System for Kids, Building Blocks Nursery, Wimbledon, London (2020)
(36) G-Astronomy Cosmic Dinner, Uig Sands restaurants, Uig bay (2020)
(37) G-Astronomy Cosmic Cocktails and Canapés, An Lanntair restaurant, Stornoway (2020)
▷ (38) From the Big Bang to AI, Professorial Inaugural Lecture, Imperial College London (2020)
▷ (39) Keynote, Web Summit DeepTech Stage, Lisbon (2019)
(40) Liceo Cantonale di Locarno, Talk for the general public, Switzerland (2019)
(41) Liceo Cantonale di Locarno, Talk to high school students, Switzerland (2019)
(42) Herstmonceaux Science Festival (2019)
(43) Spotlight talk, Great Exhibition Road Festival, London (2019)
▷ (44) Multi-Sensorial Dark Matter Experience, Great Exhibition Road Festival, London (2019)
(45) Poplar Primary School Space Day (main organizer), Merton Park, London (2019)
▷ (46) Multi-sensorial Dark Matter Experience, Science Museum Lates, London (2019)
(47) New Scientist Live, London (2018)

(48) Dining with Copernicus, immersive dining experience, Ognisko Restaurant/Polish Cultural Institute, London (2018)
(49) STEM workshop for high ability students with high-functioning autism/Asperger's, Imperial College London (2018)
(50) Public Engagement Day Pecha Kucha, Imperial College London (2018)
(51) The Science of Star Trek, Royal Albert Hall (2018)
(52) Stephen Hawking's Universe explained in 1,000 simple words, El Debats del Magnànim, Valencia (2018)
(53) Craters on the Moon, Early Years Education Centre, Imperial College London (2018)
(54) The Alternative Guide to STEM, Queen's Park Community School, London, winner of audience vote (2018)
(55) The Map of the Universe, Data Science Institute, Imperial Festival (2018)
▷ (56) The Science of Star Trek, Imperial Festival (2018)
(57) EdFoo Camp, Google HQ, Mountain View (2017)
▷ (58) Il Tempo nell'Universo, Università della Svizzera Italiana, Lugano, Switzerland (2017)
▷ (59) g-ASTRONOMY for people with visual impairment, London (2017)
(60) JV Parekh International School, Mumbai, India (2017)
(61) Science City Auditorium, Ahmedabad, India (2017)
(62) IUCAA, Pune, India (2017)
(63) Birla Planetarium, Chennai, India (2017)
(64) Second Home cultural programme, London (2017)
(65) CLCC Research Seminar, Imperial College London (2017)
(66) Being Human Festival, London (2017)
(67) g-ASTRONOMY, Cheltenham Science Festival (2016)
▷ (68) Panel: To Infinity and Beyond, Imperial Festival, Imperial College London (2016)
▷ (69) g-ASTRONOMY, Imperial Festival, Imperial College London (2016)
(70) Early Years Education Centre, Imperial College London (2016)
(71) Jersey School for Girls, Jersey (2016)
(72) St Mary's Primary School, Jersey (2016)
(73) Jersey Astronomy Club, Jersey (2016)
▷ (74) Why Society Needs Astronomy and Cosmology, Guest Gresham College Lecture, Museum of London (2016)
(75) A Matter of Gravity, Royal Astronomical Society public lecture (2016)
(76) Big Bang! Daresbury Laboratory (2016)
▷ (77) g-ASTRONOMY: the cosmos at the tip of your tongue, Science Museum Lates, London (2015)
(78) Invited talk, Guadalajara International Book Fair, Mexico (2015)
(79) Panel: Science in the UK, Guadalajara International Book Fair, Mexico (2015)
(80) Panel: The Language of Science, Guadalajara International Book Fair, Mexico (2015)
(81) Exploring the Universe, Guadalajara International Book Fair, Mexico (2015)
(82) Panel: What scientists can gain from literature, Guadalajara International Book Fair, Mexico (2015)
(83) International Astronomy Colloquium Round table, Guadalajara International Book Fair, Mexico (2015)
(84) Creative Quarter invited talk, London (2015)
(85) The Physics of Star Trek, Royal Albert Hall, London (2015)
(86) The Blackett Colloquium, Imperial College London (2015)
(87) Imperial Horizons guest lecture, Imperial College London (2015)
(88) Across RCA workshop, Imperial College London (2015)
(89) Interactive cosmology workshop, Technopop Brixton (2015)
(90) Invited talk, Science For Fiction 2015, Imperial College London (2015)
(91) Imperial College London Open Day talk (2015)
(92) Invited lecture, Graveney School Physics Society (2015)
(93) Lightning talk, Google SciFoo Camp, Mountain View (2015)
(94) Keynote speech, Graduate School Symposium, Imperial College London (2015)
(95) Imperial Open Day talk, Imperial College London (2015)
(96) A-level school visit, Imperial College London (2015)
(97) Book tour talk, Zurich Dalkey Book Festival, Dublin (2015)
(98) The Great Cosmic Cookery Show, The Time Cheltenham Science Festival (2015)
(99) Performance at art show opening, Institute for Contemporary Art, London (2015)
(100) Book tour event, Imperial Festival (2015)

(101) Big Bang Bash event, Edinburgh International Science Festival (2015)
(102) Book tour talk, Edinburgh International Science Festival (2015)
(103) Soapbox talk, Edinburgh International Science Festival (2015)
(104) Invited lecture, Airware, San Francisco (2015)
(105) Invited talk, Royal Institution (2015)
(106) Book tour talk, Imperial Fringe Festival (2015)
(107) Invited talks, Winchester planetarium (2015)
▷ (108) Book tour talk, Commonwealth Club of California, San Francisco (2014)
▷ (109) The Edge of the Sky, Authors at Google, Mountain View (2014)
(110) Book tour talk, Town Hall Seattle, Seattle (2014)
(111) Book tour talk, Powell's Bookstore, Portland, OR (2014)
(112) Public lecture, Technopop, Stratford London (2014)
(113) Invited lecture, Manchester Science Festival, Manchester (2014)
(114) Invited lecture, World Teach In weekend, London (2014)
▷ (115) Invited lecture, English Language Council lecture, London (2014)
(116) Multiple public lectures, Imperial Fringe Festival, London (2014)
(117) Exhibitor, World Science Fiction Convention 2014, London (2014)
(118) IOP public lecture, Salisbury (2014)
(119) Public lecture, Imperial College London (2014)
(120) Great Cosmic Cookery Show, Imperial Festival (2014)
(121) Invited talk, The Observatory, Hertsmonceaux astronomy festival (2014)
(122) Invited talk, Science for Fiction workshop, London (2014)
(123) Science workshop for families, Cosmic Fun Club, Glasgow Science Centre (2014)
(124) Public talk, The Great Cosmic Cookery Show, Imperial Festival, London (2014)
▷ (125) Science workshop for young children, MoonBerry Muffins!, Winchmore Hill (2014)
▷ (126) Our place in the multiverse, TEDxHackney 'Radical Beauty' (2014)
(127) Invited lecture, Alleyn's School, London (2014)
(128) Invited lecture, St Paul's Way Trust School, Tower Hamlet (2014)
(129) Multiple invited classroom activities, Norland Place School, London (2014)
(130) Classroom activity, St. Joseph's Primary School, London (2014)
(131) Invited talk, Bishop Challoner Catholic Collegiate School, London (2014)
(132) Invited lecture, The London Oratory School, London (2013)
(133) Invited talk, Wimbledon High School, Wimbledon (2013)
(134) Invited talks, MENSA Society, Birmingham (2013)
(135) Public talk, SPACE at the White Building, London (2013)
(136) Invited talk, AstroSoc, Imperial College London (2012)
(137) Public talk, Università della Svizzera Italiana, Lugano, Switzerland (2012)
(138) Invited talk, Friends of the RAS, London (2011)
(139) Public talk, Crayford Manor astronomical society (2011)
(140) Invited talk, Westminster School, London (2010)
(141) Invited talk, Marlborough College (2009)
(142) Public talk, HGS Astronomical Society (2009)
(143) Public talk, Newbury Astronomical Society, Newbury (2009)
(144) Multiple invited lectures, Festival de Fleurance, France (2009)
(145) Public talk, Centro Stefano Franscini, Ascona, Switzerland (2009)
(146) Public talk, INTECH Planetarium, Winchester (2009)
(147) Public talk, Daresbury Laboratory, Warrington (2009)
(148) Multiple invited lectures, Kassel High School, Kassel, Germany (2009)
(149) Exhibitor, Royal Society Summer Science Exhibit (2009)
▷ (150) Invited lecture, AA School of Architecture, London (2009)
(151) Invited talk, Association for Astronomy Education's Annual General Meeting, London (2008)
(152) Public talk and panel discussion, EuroScience Open Forum, Barcelona (2008)
(153) Family event, Meet the Scientist! Museum of Science and Industry, Manchester (2008)
(154) Invited talk, Tudor Hall School, Banbury (2008)
(155) Public lecture, Winchester Planetarium (2008)
(156) Public talk, CornerClub, Oxford (2008)
(157) Invited talk, Green College, Oxford (2008)
(158) Invited lecture, National Particle Physics Masterclass at Oxford University (2008)

(159) Multiple lectures, Queen Mary 2 Caribbean Adventure voyage (2008)
(160) Public lecture, Oxford University Astrophysics Department (2008)
(161) Invited lecture, Oxford University Space and Astronomy Society, Oxford (2007)
(162) Invited talk, Bedford school, Bedford (2007)
(163) The BA Award Lectures: Lord Kelvin Lecture 2007, York (2007)
(164) Public lecture, Royal Astronomical Society, London (2007)
(165) Invited lecture, Marlborough College Summer School (2007)
(166) Lead exhibitor, Royal Society Summer Science Exhibit, London (2006)
(167) Invited activity, Gonville Primary School (2006)
(168) Invited lecture, Mansfield College, Oxford (2006)
(169) Invited activity, Sonning Common primary school (2006)
(170) Invited talk, Bedford school (2005)
(171) Public lecture, CERN, Geneva (2005)
(172) Invited lecture, Astronomy club of Divonne, France (2005)
(173) Public talk, CERN, Geneva, (2004)

Science Communication Teaching and Training

(1) Lecturer, 'Comunicare la ricerca', Science Communication Masters programme, SISSA (2020)
(2) Workshop leader, 'The Sound of Space', Imperial College London and Royal Albert Hall (2018).
(3) Public Engagement Academy Panel member, Imperial College London (2018).
(4) Public Engagement for Research Fellows, Imperial College London (2018).
(5) Communicating Science guest lecture MSc programme, Imperial College London (2018).
(6) Science Communication Lecture, ISAPP Summer School (2017).
(7) Communicating Science guest lecture, Imperial College London (2017).

Courses for the General Public

(1) Gresham College Visiting Professor of Cosmology: "The frontiers of knowledge", online and in person (2021-22):
▷ • The Future of Life on Earth (2022)
▷ • The Broken Cosmic Distance Ladder (2022)
▷ • Einstein's blunder (2021)
(2) Gresham College Visiting Professor of Cosmology: "The unexpected Universe", online (2020-21):
▷ • Space sounds: the music of the cosmos (2021)
▷ • Neutrino: the particle that shouldn't exist (2021)
▷ • Understanding the Universe with AI (2020)
(3) Gresham College Visiting Professor of Cosmology: "The nature of reality", Museum of London (2019-20):
▷ • Mysteries of the dark cosmos, online (2020)
▷ • What has Einstein ever done for you? (2020)
▷ • Weighing the Universe (2019)
(4) Invited lecture, 36th Annual Astronomy Weekend, Oxford (2014)
(5) Day course (with Matthew Malek), Oxford University Continuing Education (2010)
(6) Day course (with Bob Lambourne), Oxford University Continuing Education (2009)
(7) Week-long cosmology course, Oxford University Summer School for Adults (2009)
(8) Multiple lectures, Oxford University Summer School (2009)
(9) Weekend course, multiple lectures, 30th Annual Astronomy Weekend (2008)
(10) 20-lectures series on cosmology, Oxford University Continuing Education department (2008)
(11) Day course (with Bob Lambourne), Oxford University Continuing Education department (2008)
(12) Day course (with Bernard Carr), Oxford University Continuing Education department (2007)
(13) 20-lectures series on cosmology, Oxford University Continuing Education department (2006)

Art and Science Projects

(1) *Five centuries in five minutes*, in collaboration with Gigi Funcis, an AI-generated video for the exhibit *Kosmos*, Miramare Castle, Trieste (2023)

(2) *Parl-IA-moci*, an original theatre play by and with Diana Höbel, featuring an impossible dialogue between Alma Mahler (played by Diana) and Gustav Mahler (played by ChatGPT). AI consultant. Premiered at the Modena Festival di Filosofia 2023 (Sept 2023); Soroptimist Club, Trieste (May 2024); Scienza & Virgola Festival, Trieste (May 2024); Invisible Cities, Gorizia (Aug 2024); Teatro Rossetti, Trieste (Apr 2025).
(3) *The Edge of the Sky | Oir Nan Speur: A theatre show in Gaelic and English*, by production company sruth-mara. Author and creative advisor. Premiere in 2022 at the Dark Sky Festival, Stornoway, Scotland.
(4) Featured in *Ophelia in Exile* by Dr Tereza Stehlikova, multimedia art installation, Czech Centre London (2021-22)
(5) *LIBRA*, an original multimedia theatre play (with director and video-artist Gigi Funcis), commissioned by SISSA Summer Festival (2021). Artistic director, concept and script. Nationwide media coverage, including *Il Messaggero, Il Corriere della Sera, Radio Rai 1 FVG, Sky TG24, Il Sole 24 ore, Il Piccolo, RAI Radio 3, Rete4 local TV, etc.* Performed at Miramare Castle,Trieste (Sept 2021; Sept 2022), Gradisca (Oct 2021), Reggio Calabria (opening of Cosmos Festival, Oct 2022).
(6) Featured in *SISSA hosting*, an immersive audio installation part of the *Invisible Cities Festival 2021*.
(7) *Dinner with Copernicus*, immersive dining experience (with Lab Collective, The Polish Cultural Institute and Ognisko Restaurant), London (2018).
(8) *All There Was* (with artists O. Hagen and D. Cheeseman), art show at the Institute for Contemporary Art, part of *fig-2* (2015).
(9) *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`
(10) *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`
(11) *The Theory of Everything* short film (scientific advisor), winner of the audience award, Viral Video Awards at the 29th International Short Film Festival Berlin (2013), `youtube.com/theoryofeverything`
(12) *The All-There-Is*, short documentary by filmmaker L. Melesio Friedman, winner of "Best Portrait of the Life of a Physicist" award of the FQXi Video Competition (2014), `tinyurl.com/o6edrms`
(13) *The Post-Newtonian Orrery* (with artists O. Hagen and D. Cheesman), 100 best Artangel proposals in 2013.

Broadcast Media Appearances

(1) Aula di Scienze: Turing e l'AI nella ricerca scientifica, May 30th 2024.
(2) Solar Eclipse Magic, in: *Living on Earth*, March 15th 2024
(3) Buongiorno Regione, RAI FVG, Feb 20th 2024.
(4) Start of the Week, BBC Radio 4, Nov 2023.
(5) Economy.bg, Nov 2023
(6) KPCW-Cool Science Radio, Nov 2023
(7) Nova TV (Bulgaria), Nov 2023
(8) Bulgaria National TV, Nov 2023.
(9) ReggioTV, Telegiornale, Oct 7th 2023.
(10) *Millevoci*, Swiss National Radio, Rete 1 Sept 26th 2023
(11) TGR Friuli Venezia-Giulia, Sept 23rd 2023.
(12) Sei di sera, RSI Rete 1, Aug 23rd 2023.
(13) Radio 3 Scienza, Italian National radio, May 2023.
(14) In conversation with with Melanie Mitchell, Premio Cosmos Studenti, Apr 2023 (online)
(15) *Telegiornale delle 12.30*, RSI Swiss National TV, Oct 12th 2022.
(16) Sei di sera, RSI Rete 1, July 12th 2022.
(17) In conversation with Jimena Canales, Premio Cosmos Studenti, Apr 2022 (online)
(18) Hebridean Dark Skies Festival podcast, Jan 21st 2022.
(19) *Sky TG24*, Sept 9th 2021
(20) Radio Capodistria, Sept 9th 2021
(21) *Radio3 Scienza*, Italian national radio, Sept 6th 2021
(22) Live interview, RTL 102.5 radio, Sept 5th 2021
(23) Live appearance, *Tele4* local TV, Aug 31st 2021

(24) *RAI FVG Giornale Radio*, May 28th 2021
(25) *Beyond the Fourth Floor*, Imperial College students podcast, online (2020)
(26) *Retequattro Estate*, Local TV interview, Trieste, Italy (2020)
(27) *Millevoci: Solo interview*, Swiss National Radio, Rete 1 (2019)
(28) *Millevoci: Buchi Neri*, Swiss National Radio, Rete 1 (2019)
(29) *Millevoci: Stephen Hawking*, Swiss National Radio, Rete 1 (2018)
(30) *Telegiornale Edizione delle 20*, RSI Swiss National TV (2018)
(31) *Millevoci: Hubble e le prime stelle*, Swiss National Radio, Rete 1 (2018)
(32) *Millevoci: Da dove nasce il tempo?*, Swiss National Radio, Rete 1 (2018)
(33) *Millevoci: Onde Gravitazionali*, Swiss National Radio (2017)
(34) *Telegiornale Edizione delle 20*, RSI Swiss National TV (2017)
(35) *Science Mixtape*, Soho Radio (2017)
(36) *Chiacchiere Cosmologiche*, Swiss National Radio, Rete 3 (2017)
(37) *Millevoci*, Swiss National Radio, Rete 1 (2017)
(38) *Mission Impossible*, ICradio show (2016)
(39) *Albachiara*, Radio Svizzera Rete 1 (2016)
(40) *Millevoci*, Swiss National Radio, Rete 1 (2016)
(41) *Einstein's Extraordinary Universe*, ABCcatalyst Australia (2015)
(42) *Neil Delamere's Sunday Best*, Today FM, Dublin (2015)
(43) *The Sky at Night*, BBC 4 (2015)
(44) *Sierra Club Radio* with Orli Cotel (2015)
(45) *Albachiara*, Radio Svizzera Rete 1 (2014)
(46) *Al Jazeera Arabic*, news report, Nov (2014)
(47) *Inquiry*, WICN public radio, with Mark Lynch (2014)
(48) *Between the Covers*, KBOO FM, with Leigh Anne Kranz (2014)
(49) *Living on Earth*, with Steve Curwood (2014)
(50) *Words on a Wire*, KETP radio, with Daniel Chacòn (2014)
(51) *The Jason Mohammad Show*, BBC Radio Wales (2014)
(52) *Talk Radio Europe*, with Hannah Murray (2014)
(53) *C-SPAN2 Book TV*, talk at the Commonwealth Club of California (2014).
(54) *KATU-TV am northwest*, with Helen Raptis and Dave Anderson (2014)
(55) *NPR's Weekend Edition Sunday*, with Wade Goodwyn (2014)
(56) *Baobab*, Swiss National Radio Rete 3 (2010)
(57) *Il Giardino di Albert*, Swiss National TV RSI (2009)
(58) *Millevoci*, Swiss National Radio, Rete 1 (2009)
(59) *Future Generation Thinkers*, BBC Radio 3 (2008)

COVERAGE IN PRINT AND ONLINE

(1) The Naked Scientist: Can AI help us understand dark energy better?, podcast, Sept 30th 2022.
(2) *LeScienze*, March 16th 2022.
(3) *Il Piccolo* newspaper, Apr 28th 2021.
(4) *Dalla Cosmologia al Razzismo*, con Ruggero Rollini, online video (2021)
(5) *Il Piccolo* newspaper, Oct 27th 2020.
(6) *CrowdScience, Why Does Dark Matter, Matter?*, BBC World Service, podcast (2018)
(7) *Countercurrent* podcast, with Roger Kneebone (2017)
(8) *Scientists, not the Science* podcast, with Stuart Higgins (2017)
(9) *Institute of Physics* podcast, with James Dacey (2016)
(10) *Jersey Evening Post* feature article, Apr 23rd (2016)
(11) *reporter* Imperial College London magazine interview (2016)
(12) *A New Language For Science*, Science Writing Resources for Learning blog (2016)
(13) *The Reading Survey*, Edinburgh Science Festival (2015)
(14) *Fascination* magazine interview, Summer 2015 (2015)
(15) fig. 2 "All There Was" podcast, with Jessica Temple (2015)
(16) *FQXi* podcast, with Sophie Hebden (2015)
(17) *Fiat Physica* online interview (2015)
(18) *Book Q&A*, with Deborah Kalb (2015)

(19) *The Guardian Astronomy Science Weekly* podcast, with Nicola Davies (2014)
(20) *Institute of Astrophysics of the Canary Islands* podcast (2014)
(21) *Authors at Google*, video of talk at Google HQ (2014)
(22) *Il Caffè*, Swiss Italian newspaper interview (2014)
(23) *popularscience.co.uk* blog post (2014)
(24) *Science for the People* podcast, with Desiree Schell (2014)
(25) *Speaking of Science* podcast, with Julie Gould (2014)
(26) *Can the universe be described in simple English?* British Council's VOICES blog (2014)
(27) *Living on Earth* podcast, with Steve Curwood (2014)
(28) *New Books in Physics* podcast, with Meg Rosenburg (2014)
(29) *In Residence* podcast, with Steve Scher (2014)
(30) *Imperial Podcast*, with Gail Wilson (2014)
(31) *Nature* podcast, with Elizabeth Gibney (2014)
(32) *SCOPE* magazine interview (2013)
(33) *Pod Academy* podcast (2012)
(34) *IOP 100-seconds physics* videos (2012)

Other Activities

- Jury member, Premio Cosmos, Reggio Calabria (2022-)
- 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 (2014-2016)
- Coordinator, Astrophysics Group outreach activities, Imperial College London (2008-2015)

Books for the General Public

(1) **R. Trotta** (2023), 'Starborn. How the Stars Made Us (And Who We Would Be Without Them)', Basic Books. Translations: Italian (Il Saggiatore, 2025); Korean (Mirae N Co., 2025); Spanish (Pasado & Presente, 2025). Awards and distinctions:
    - BBC Radio 4 'Book of the Week'
    - 'The 22 best non-fiction and popular science books of 2023' (New Scientist)
    - 'Ten Best Science Books of 2023' (The Smithsonian Magazine)
    - 'Ten Best Books of December 2023' (Christian Science Monitor)
    - 'Fall STEM Reads of 2023' (American Scientist)
(2) **R. Trotta** (2014), 'The Edge of the Sky: All You Need to Know about the All-There-Is', Basic Books. The book explains cosmology using only the most common 1,000 words in English. Translations: Korean (Kyobo Centre Books, 2015), German (C.H. Beck, 2015), Catalan (El Magnanim, 2020). 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

Book Chapters and Fiction

(1) **R. Trotta** (2022c), 'Wunderlich Park', *Tamarind Literary Magazine*, Issue 4, Dec 2022.
(2) **R. Trotta** (2022b), 'The Dictionary of Invisible Meanings', In *Picturing the Invisible*, R. Morgan and P. Coldwell (eds), UCL Press (2022)
(3) **R. Trotta** (2022a), 'The Invisible Universe', In *Picturing the Invisible*, R. Morgan and P. Coldwell (eds), UCL Press (2022)

(4) **R. Trotta** (2021), 'Masters and Servants: The Need for Humanities in an AI-dominated Future', in *The Love Makers*, A. Campbell (ed), Goldsmith Press/MIT Press

OTHER PUBLICATIONS FOR THE GENERAL PUBLIC

(1) A. Contessa, P. Del Negro, S. Fantoni, R. Rui & **R. Trotta** (2024), 'Un mare di dati/An ocean of data', in: *Kosmos – Il veliero della conoscenza/The sailing ship of knowledge*, exhibition catalogue, SilvanaEditoriale (2024), 141-149
(2) **R. Trotta** (2023), 'What We Lose When We Can't Stargaze', *TIME*, Dec 15th 2023
(3) **R. Trotta** (2022b), 'Verso un futuro dominato dall'intelligenza artificiale', *Italian Tech*, Nov 2022
(4) **R. Trotta** (2022a), 'Il peso del cielo', Meridiana 276, Mar-Apr 2022, 18-25.
(5) **R. Trotta** (2020c), 'Vintage 2020', Tangible Territory, Issue 1, Oct 2020.
(6) **R. Trotta** (2020b), 'Diary of an astrophysicist', in *The Covid Diaries: Views from Imperial College*, S. Webster (Ed), online e-zine.
(7) **R. Trotta** (2020a), 'From the Big Bang to AI', In *Uncertain Ruins*, Petrel, London, (2020)
(8) **R. Trotta** (2019b), 'The Smell of Dark Matter: Dane Mitchell's *Perfume Plumes*', Art in Print, Vol 9, 3, Sept-Oct (2019)
(9) **R. Trotta** (2019a), 'The Harmony of the Cosmos', Space Spectacular programme brochure Royal Albert Hall, June 2019
(10) **R. Trotta** (2018), 'The Harmony of the Cosmos', Space Spectacular programme brochure Royal Albert Hall, May 2018
(11) **R. Trotta** (2015f), 'The Physics of Star Trek', Star Trek: The Ultimate Voyage programme brochure Royal Albert Hall, Nov 1st 2015
(12) **R. Trotta** (2015e), 'In so many words: Minute world with big stories to tell', NewScientist online, July 30th 2015
(13) **R. Trotta** (2015d), 'In so many words: Don?t kill small-life before Red World trip', NewScientist online, July 24th 2015
(14) **R. Trotta** (2015c), 'Hoped-for dark matter flash might instead be the corpses of stars', NewScientist online, July 1st 2015
(15) **R. Trotta** (2015b), 'In so many words: How to ride the space-wind to the stars', NewScientist online, June 4th 2015
(16) **R. Trotta** (2015a), 'Simple is Hard', Army ALT, Jan-Mar 2015
(17) **R. Trotta** (2014d), 'Is the All-There-Is all there is?', Significance magazine, December 2014
(18) **R. Trotta** (2014c), 'The science of Interstellar: Astrophysics, but not as we know it', The Guardian, Nov 5th 2014
(19) **R. Trotta** (2014b), 'Can the universe be described in simple English?', British Council's VOICES invited blog post, Nov 12th 2014
(20) **R. Trotta** (2014a), 'Mangalyaan: The Power of Science and Simplicity', The Eastern Eye, Oct 3rd 2014
(21) **R. Trotta** (2013), 'Only one Universe to observe', SCOPE, May 2013
(22) **R. Trotta** (2012), 'Cosmic Dialogue', People and Science, March 2012 (featured article)
(23) **R. Trotta** (2007e), 'The trouble with strings. Interview with Lee Smolin', Newton, November 2007 (cover story)
(24) **R. Trotta** (2007d), 'Dark Matter: Probing the Arche-Fossil', COLLAPSE Vol II, March 2007
(25) **R. Trotta** (2007c), 'Before the Big Bang', Newton, September 2007 (cover story)
(26) **R. Trotta** (2007b), 'Mapping out the invisible Universe', Newton, April 2007 (cover story)
(27) **R. Trotta** (2007a), 'The anthropic principle: Interview with John Barrow', Newton, October 2006 (cover story)
(28) **R. Trotta** (2006g), 'Cosmologists scoop Nobel Prize for Physics 2006', LeScienze, Nov 2006
(29) **R. Trotta** (2006f), 'Giant telescopes of the future: the Square Kilometer Array', LeScienze, July 2006
(30) **R. Trotta** (2006e), 'Latest news from the baby Universe', LeScienze, June 2006
(31) **R. Trotta** (2006d), 'Interview with James Lovelock', LeScienze, April 2006
(32) **R. Trotta** (2006c), 'Listening to cosmic sound', LeScienze, January 2006.
(33) **R. Trotta** (2006b), 'Modified gravity', Newton, April 2006
(34) **R. Trotta** (2006a), 'Killer asteroids', Newton, January 2006
(35) **R. Trotta** (2005c), 'Looking at the Universe through neutrinos', LeScienze, December 2005
(36) **R. Trotta** (2005b), 'The mysterious past of our Universe', Newton, October 2005
(37) **R. Trotta** (2005a), 'Einstein's legacy', Newton, June 2005