

Jason D. McEwen

Curriculum Vitae

Postal Address: Mullard Space Science Laboratory (MSSL), University College London (UCL),
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Education

2007 Doctor of Philosophy (**PhD**), *Astrophysics*, **University of Cambridge**
Title: Analysis of cosmological observations on the celestial sphere
Advisor: Prof. Michael P. Hobson; Awarded: 21 July 2007

2002 Bachelor of Engineering (**BE**) with Honours, *Information Engineering*, 1st Class Honours, **University of Canterbury**, New Zealand (NZ)
Specialising in Information Engineering with additional Mathematics (GPA 8.9/9.0)
Final year courses: Signal Processing (A+), Communications (A+), Software Engineering (A+), Hardware Engineering (A+), Approximation Theory (A+), Fourier Transform and Distribution Theory (A+), Project (A+)

Professional History

Oct 2017 – present **University Reader** (Associate Professor), Mullard Space Science Laboratory (MSSL), Department of Space and Climate Physics, **University College London (UCL)**

Apr 2017 – present **Founder and CEO**, Kagenova Limited

Sep 2016 – present **Director of Research** (Astrophysics), Center for Doctoral Training (CDT) in Data Intensive Science (DIS), **UCL**

Jul 2013 – Sep 2017 **University Lecturer** (Assistant Professor), Mullard Space Science Laboratory (MSSL), Department of Space and Climate Physics, **UCL**

Jan 2012 – Jun 2013 **Royal Society Newton International Fellowship**, held at **UCL**

Sep 2011 – Jan 2012 **Leverhulme Early Career Fellowship**, held at **UCL**

Jul 2011 – Aug 2011 Visiting Researcher, Victoria University, New Zealand (awaiting UK visa)

Oct 2010 – Apr 2015 Consultant, Saxon Cambridge Algorithm Research, Cambridge

Jun 2010 – May 2011 Scientist, Ecole Polytechnique Fédérale de Lausanne (**EPFL**)

Oct 2008 – May 2010 Quantitative Analyst, Credit Suisse, London

Oct 2007 – Sep 2008 **Junior Research Fellowship**, Clare College, **University of Cambridge**

Oct 2006 – Sep 2007 Postdoctoral Research Associate, Cavendish Laboratory, **University of Cambridge**

Oct 2006 – Sep 2007 Postdoctoral Teaching Associate, King's College, **University of Cambridge**

Feb 2006 – Mar 2006 Consultant, Geomerics, Cambridge

Dec 2001 – Jul 2002 Industry Fellow, Applied Research Associates NZ

Other Appointments, Affiliations & Service

Science Collaborations

Jan 2012 – present Planck Satellite Mission Core Team Member, European Space Agency (ESA)

Sep 2013 – present LSST Informatics and Statistics Science Collaboration (ISSC) UK point of contact

Nov 2013 – present SKA Science Data Processor (SDP) working group

Mar 2014 – present Euclid satellite Science Consortium, European Space Agency (ESA)

Jun 2014 – present LSST:UK Board Member

Oct 2014 – present LSST Dark Energy Science Collaboration (DESC)

Feb 2017 – present LSST DESC Membership Committee

Professional Societies

Jun 2011 – present Fellow of the Royal Astronomical Society (RAS)

May 2012 – present Member of the Institute of Electrical and Electronic Engineers (IEEE)

Jan 2013 – present Member of the International Astrostatistics Association (IAA)

Nov 2015 – present Fellow of the Higher Education Academy (HEA)

Departmental Administration

Sep 2015 – Sep 2019 Chair of Departmental Extenuating Circumstances Committee
 Oct 2017 – present Departmental Computing Services Steering Committee
 Feb 2019 – present Departmental STFC PhD Extension Committee

Peer Reviewing

- Referee for journal and conference articles:
 - Monthly Notices of the Royal Astronomical Society
 - Astronomy & Astrophysics
 - Astrophysical Journal
 - Physical Review D
 - Physical Review E
 - Astronomy & Computing
 - Proceedings of the Royal Society A
 - Publications of the Astronomical Society of Japan
 - European Journal of Physics
 - IEEE Transactions on Signal Processing
 - IEEE Transactions on Image Processing
 - IEEE Signal Processing Letters
 - IEEE Journal of Selected Topics in Signal Processing
 - IEEE Transactions on Aerospace and Electronic Systems
 - Applied and Computational Harmonic Analysis
 - Annals of Statistics
 - Journal of Applied and Computational Mathematics
 - Journal of Mathematical Analysis and Applications
 - Electronic Journal of Statistics
 - Signal Image and Video Processing
 - Mathematics and Computers in Simulation
 - International Conference on Sampling Theory and Applications
 - European Signal Processing Conference
 - Measurement Science and Technology
 - IEEE International Conference on Data Mining
- Referee for grant proposals:
 - Referee for Royal Society University Research Fellowships (URFs)
 - Referee for STFC consolidated grant
 - Referee for STFC impact acceleration account (IAA)
 - Referee for South African National Research Foundation (NRF)
 - Referee for Netherlands eScience Center (NLeSC)
- Referee for book submissions:
 - Referee for Birkhäuser Springer-Verlag on *Applied and Numerical Harmonic Analysis*

External Funding Awarded

Total grant funding awarded: **7.8 million GBP fEC**.

Broken down as **1.5 million GBP fEC on grants as PI** and **6.2 million GBP fEC on grants as Co-I**. All costings are quoted as full Economic Costing (fEC).

Sep 2019 – present *Capacity building in Data Intensive Science (DIS) in the Middle East*,
Co-I, 375k GBP Science and Technology Facilities Council (PI: Lahav; Co-I: Tennyson, Konstantinidis, **McEwen**, Facini, Saintonge, Scanlon, Yates, Viti, Azzam)

May 2018 – Apr 2019 *Next-generation virtual reality with artificial intelligence*,
PI, 70k GBP Innovate UK (PI: **McEwen**; Co-I: None)

Jul 2018 *Summer school in Data Intensive Science and Technologies (DIST)*,
Co-I, 122k GBP Science and Technology Facilities Council (PI: Tennyson; Co-I: Hetherington, Konstantinidis, Lahav, **McEwen**, Scanlon, Yates, Viti)

- Jan 2018 – present *Fundamental physics from cosmological surveys*,
Co-I, 521k GBP Swedish Research Council (PI: Peiris; Co-I: **McEwen**, Mortlock)
- Oct 2017 – present *UCL Centre for Doctoral Training in Data Intensive Science and Technologies*,
Co-I, 2,114k GBP Science and Technology Facilities Council (PI: Konstantinidis; Co-I: Lahav, **McEwen**, Scanlon, Yates, Tennyson, Gryce, Viti)
- Aug 2017 – present *Illuminating the dark Universe with novel 3D spherical informatics methods*,
PI, 323k GBP Leverhulme Trust (PI: **McEwen**; Co-I: Kitching)
- Apr 2016 – Mar 2019 *UCL-MSSL Astrophysics Consolidated Grant*, Science and Technology Facilities
Co-I, 1,423k GBP Council (PI: Cropper; Co-I: Hepburn, Kawata, Kitching, **McEwen**, Page)
- Jan 2016 – Dec 2016 *DiRAC Resource Allocation*, Science and Technology Facilities Council (PI: Kawata;
Co-I, 1.47M hours Co-I: Branduardi-Raymont, Cropper, Ferreras, Kitching, **McEwen**, Wu, Zane)
- Sep 2015 – Sep 2016 *Signal Analysis on the Sphere*, Engineering and Physical Sciences Research Council
PI, 120k GBP (PI: **McEwen**; Co-I: None)
- Jun 2015 – Mar 2019 *Big-Data Compressive Sensing: Fast, Parallelised and Distributed Algorithms*,
PI, 928k GBP Engineering and Physical Sciences Research Council (PI: **McEwen**; Co-I: Hetherington, Jackson, Wiaux)
- Jun 2015 – Mar 2018 *UK Involvement in LSST: Phase A*, Science and Technology Facilities Council
Co-I, 186k GBP (PI: Peiris; Co-I: Kitching, **McEwen**)
- Apr 2015 – Feb 2018 *Compressive Imaging for Radio Interferometry*, Engineering and Physical Sciences
Co-I, 650k GBP Research Council (PI: Wiaux; Co-I: Davies, **McEwen**)
- Apr 2015 – Mar 2017 *Next-Generation Radio Interferometric Imaging*, Science and Technology Facilities
Co-I, 47k GBP Council (PI: **McEwen**; Co-I: None)
- Mar 2015 – Feb 2018 *Harnessing Spherical Geometry in Scientific and Engineering Data Processing*,
Co-I, 263k GBP Australian Research Council (PI: Kennedy; Co-I: Durrani, **McEwen**)
- Nov 2013 – Oct 2016 *Square Kilometre Array (SKA) Science Data Processor (SDP)*, Science and
Co-I, 593k GBP Technology Facilities Council (PI: Abdalla; Co-I: **McEwen**, Yates)
- Sep 2013 – Mar 2015 Research Software Development Grant, UCL Research IT Service (PI: **McEwen**;
PI, 18k GBP Co-I: None)
- Sep 2011 – Sep 2017 Various travel grants and conference support from the Royal Society,
PI, 24.5k GBP Royal Astronomical Society (RAS) and Winton Capital (PI: **McEwen**; Co-I: None, 8 grants)

Prizes & Awards

- 2019 **European Physical Society Giuseppe and Vanna Cocconi Prize** as part of the Planck Team
- 2018 **Gruber Cosmology Prize** as part of the Planck Team
- 2018 **RAS Group Achievement Award** as part of the Planck Team
- 2011 URSI General Assembly and Scientific Symposium **Young Researcher Award**
- 2006 Lundgren Research Award, University of Cambridge
- 2005 Cambridge Philosophical Society Research Studentship
- 2005 Cambridge Philosophical Society Travel Award
- 2002 – 2006 **Commonwealth Scholarship** to support PhD at University of Cambridge
- 2002 FRST Technology in Industry Fellowship (declined)
- 2002 Canterbury Doctoral Scholarship (declined)
- 2001 **Canterbury University Prize**
- 2000 Ian McMillan Prize for Engineering
- 1999 Bishop Julius Scholarship
- 1998 John P Good Memorial University Prize for Mathematics
- 1998 Bruce Dall University Prize for Physics

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| 1998 | Makower McBeath University Prize for Microeconomics |
| 1998 | School of Economics and Finance University Prize |
| 1998 – 2001 | Tower Scholarship to support undergraduate degree |
| 1997 | National Bank Scholarship for highest grade in NZ for final-year high school Economics |

Academic Supervision

PhD Students Graduated

- Dr Luke Pratley, *Primary PhD student supervisor* (2015 – 2019), funded by Graduate Research Scholarship (GRS) and William Georgetti Scholarship, received MSSSL Alan Johnstone Award 2019 for Outstanding Scientific Achievement by Research Student, now Dunlap Fellow at University of Toronto
- Dr Peter Taylor, *Secondary PhD student supervisor* (2016 – 2019), funded by STFC Studentship, received MSSSL Alan Johnstone Award 2018 for Outstanding Scientific Achievement by Research Student, now NASA Postdoctoral Fellow at JPL
- Dr William Jennings, *Secondary PhD student supervisor* (2014 – 2019), funded by STFC Studentship, now Data Scientist at Monolith AI
- Dr Zoe Vallis, *Secondary PhD student supervisor* (2015 – 2019), funded by STFC Studentship, applying for industry positions as Data Scientist
- Dr Ellis Owen, *Secondary PhD student supervisor* (2014 – 2019), funded by STFC Studentship
- Dr Laura Wolz, *Secondary PhD student supervisor* (2011 – 2014), funded by STFC Studentship, was Postdoctoral Researcher at University of Melbourne, now Presidential Fellow at University of Manchester

PhD Students Currently Supervising

- Catarina Alves, *Primary PhD student supervisor* (2018 – present), funded by STFC-funded CosmoParticle Initiative
- Patrick Roddy, *Primary PhD student supervisor* (2017 – present), funded by STFC-funded UCL CDT in DIS
- Tarek Allam, *Primary PhD student supervisor* (2017 – present), funded by STFC-funded UCL CDT in DIS
- Matthew Price, *Primary PhD student supervisor* (2017 – present), funded by STFC Studentship
- Jennifer Chan, *Primary PhD student supervisor* (2014 – present), funded by GRS
- Yu Tao, *Secondary PhD student supervisor* (2014 – present)

Masters & Internship Student Supervision

- Tarek Allam, *Primary masters student supervisor* (2016), now PhD student at UCL
- Antoine Plouviez, *Primary internship student supervisor* (2016), now Masters student at Ecole Normale Supérieure
- Nathan Zerbib, *Primary masters student supervisor* (2015 – 2016)
- Mathieu Issartel, *Secondary masters student supervisor* (2014 – 2015)
- Remy Joseph, *Secondary masters student supervisor* (2013 – 2014), was PhD student at Ecole Polytechnique Fédérale de Lausanne (EPFL), now Postdoctoral Researchers at Princeton University
- Isabella Soldner-Rembold, *Primary masters student supervisor* (2012 – 2013), was PhD student at Max Planck Institute for Extraterrestrial Physics, now Data Scientist at Carbon Tracker
- Vlad Margarint, *Primary internship student supervisor* (2012)
- Thibaut Josset, *Primary internship student supervisor* (2012), now PhD student at Aix-Marseille University
- Athamos Stradis, *Primary masters student supervisor* (2011 – 2012)
- Tom Heritage, *Primary masters student supervisor* (2007 – 2008)

Teaching & Admissions Activities

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| 2018 – present | Lecturer, Module Creator and Module Organiser for <i>SPCE0038: Machine Learning with Big-Data</i> of MSc in Scientific Computing |
| 2014 – 2017 | Lecturer and Module Organiser for <i>SPCEG007: Space-Based Communication Systems</i> of MSc in Space Science & Engineering |

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| 2014 – 2017 | Lecturer for <i>SPCEGC03: Space Data Systems and Processing</i> of MSc in Space Science & Engineering |
| 2013 – present | Interviewer for PhD and postdoctoral positions (UCL) |
| 2011 | Guest lecturer for Masters in Information Engineering (EPFL) |
| 2008 | Admissions interviewer in Physics (Clare College, University of Cambridge) |
| 2007 – 2008 | Covering supervisor for Part IA Physics (University of Cambridge) |
| 2005 – 2007 | Supervisor for Part IA Engineering Mathematics (University of Cambridge) |
| 2004 – 2007 | Supervisor for Part IB Engineering Mathematics (University of Cambridge) |
| 2003 – 2004 | Demonstrator for Part IA and IB Engineering Computer Programming (University of Cambridge) |
| 2002 | Primary School Student Mentor (Golden Key mentoring program) |
| 2002 | Supervisor for Circuits and Systems (University of Canterbury, NZ) |
| 1999 - 2000 | Supervisor for first year Mathematics (University of Canterbury, NZ) |

Organisation of Summer Schools, Scientific Meetings & Discussion Forums

Summer School Organisation

- STFC Summer School in Artificial Intelligence and Machine Learning, 2018, London, *Co-Chair* (<https://indico.cern.ch/event/702529/overview>). National summer school for cohort of 129 PhD students throughout the country on STFC CDT PhD programmes in Data Intensive Science.

Conference & Workshop Organisation

- Biomedical and Astrophysical Signal Processing (BASP) Frontiers 2019, Switzerland, *Co-Chair* (<http://www.basppfrontiers.org>). Multi-disciplinary conference bringing together the biomedical, astrophysics and signal processing/applied mathematics communities.
- UCL Centre for Doctoral Training (CDT) in Data Intensive Science (DIS) Research Festival, 2017, London, *Co-Chair*. Multi-disciplinary conference highlighting research projects of the CDT.
- Biomedical and Astrophysical Signal Processing (BASP) Frontiers 2017, Switzerland, *Co-Chair* (<http://www.basppfrontiers.org>). Multi-disciplinary conference bringing together the biomedical, astrophysics and signal processing/applied mathematics communities.
- Big Data in the Physical Sciences, Alan Turing Institute (ATI) Summit, 2016, Royal Society, UK, *Scientific Organising Committee* (<https://indico.cern.ch/event/449964/overview>). Scoping meeting to address the role of physical sciences in the ATI.
- Cosmostatistics Initiative (COIN) Residence Programme, 2015, UK, *Scientific Organising Committee* (<http://iaacoin.wix.com/crp2015>). Inter-disciplinary unconference focusing on statistics and cosmology.
- Next-Generation Radio Interferometric Imaging for the SKA, Royal Society South Africa-UK Scientific Seminar, 2015, South Africa, *Chair* (<https://sites.google.com/site/royalsocradioimg2015>). Multi-disciplinary unconference focusing on radio interferometry and advanced imaging techniques (*e.g.* compressed sensing, Bayesian inference).
- Biomedical and Astrophysical Signal Processing (BASP) Frontiers 2015, Switzerland, *Co-Chair* (<http://www.basppfrontiers.org>). Multi-disciplinary conference bringing together the biomedical, astrophysics and signal processing/applied mathematics communities.
- Science on the Sphere, Royal Society International Scientific Seminar, 2014, UK, *Co-Chair* (<http://lateuniverse.wordpress.com/2014/05/13/science-on-the-sphere>). Multi-disciplinary conference bringing together the physical sciences and signal processing/applied mathematics communities.
- Biomedical Imaging and Astronomy: Shared Algorithms and Analyses, UCL, 2014, UK, *Co-Organiser*. Multi-disciplinary conference bringing together the biomedical imaging and astronomy communities.
- IEEE International Conference on Data Mining (ICDM) Astroinformatics Workshop 2013, USA, *Scientific Organising Committee* (<http://www2.cs.uh.edu/~vilalta/workshops/astro-icdm2013/index.html>). Multi-disciplinary conference bringing together the statistics, machine learning and astrophysics communities.
- Biomedical and Astrophysical Signal Processing (BASP) Frontiers 2013, Switzerland, *Co-Chair* (<http://www.basppfrontiers.org>). Multi-disciplinary conference bringing together the biomedical, astrophysics and signal processing/applied mathematics communities.
- Biomedical and Astrophysical Signal Processing (BASP) Frontiers 2011, Switzerland, *Scientific Organising Committee* (<http://www.basppfrontiers.org>). Multi-disciplinary conference bringing together the

biomedical, astrophysics and signal processing/applied mathematics communities.

Discussion Forums

- Led discussion forum at Big Data in the Physical Sciences, Alan Turing Institute Summit on *Extracting meaning from big-data*.
- Led discussion forum at UK Dark Energy Strategy 2020 meeting on *Methodological and algorithmic synergies in astronomy and multi-disciplinary connections*.
- Led discussion forum at Crick Institute Biomedical Imaging and Astronomy: Shared Algorithms and Analyses meeting on *Methodologies for analysing big-data*.

Scientific Talks

Invited Talks

- Sparse image reconstruction for the SPIDER optical interferometric telescope
Jun 2019, Electrical and Computer Engineering Seminar, UC Davis, USA
- Wavelet localisation of isotropic random fields on the sphere and cosmological implications: searching for primordial gravitational waves
Mar 2019, Mathematical Models and Methods in Earth and Space Sciences, University of Rome Tor Vergata, Rome, Italy
- High-dimensional uncertainty quantification in astrophysics
Dec 2018, Astrophysics Seminar, Imperial College, London, UK
- AstroStatistics & AstroInformatics in the context of the SKA and LSST
Sep 2018, AI for CERN and SKA, Alan Turing Institute, UK
- High-dimensional uncertainty quantification for radio interferometric imaging
Apr 2018, Workshop on Uncertainty Quantification and Computational Imaging, International Centre for Mathematical Sciences (ICMS), Edinburgh, UK
- Euclid big data: data science for science
Apr 2018, UCL Space Week, University College London (UCL), UK
- High-dimensional uncertainty quantification with sparsity-promoting priors and application to radio interferometric imaging
Jan 2018, Centre for Inverse Problems (CIP) Seminar, University College London (UCL), UK
- High-dimensional uncertainty estimation with sparse priors for radio interferometric imaging
Jun 2017, Statistical Foundations of Uncertainty Quantification for Inverse Problems, University of Cambridge, UK
- LSST Informatics and Statistics Science Collaboration (ISSC)
May 2017, Specialist Discussion Session on LSST, Royal Astronomical Society (RAS), UK
- Next-generation radio interferometric imaging for the SKA era
Mar 2017, School of Physics and Astronomy, University of Manchester, UK
- Sampling and geometry
Jul 2017, 12th International Conference on Sampling Theory and Applications (SampTA), Tallinn, Estonia
- Topic: Computational harmonic analysis on manifolds and graphs with application to astrophysics and machine learning (declined)
Dec 2016, Neural Information Processing Systems (NIPS), Barcelona, Spain
- Statistical approaches for sparse radio interferometric imaging
Oct 2016, 3GC4 Workshop, Port Alfred, South Africa
- Statistical approaches for sparse radio interferometric imaging
Oct 2016, CALIM 2016, Socorro, USA
- LSST Informatics and Statistics Science Collaboration (ISSC)
June 2016, National Astronomy Meeting (NAM), University of Nottingham, Nottingham, UK
- Wavelet reconstruction of E- and B-modes for weak lensing mass mapping and CMB polarisation
June 2016, Mapping the Cosmic Web, Royal Astronomical Society (RAS), London, UK
- Radio interferometry in the big-data era of the Square Kilometre Array (SKA)
Apr 2016, Mathematical & Physical Sciences (MAPS) Faculty Research Festival, University College London, London, UK
- Big-data in astronomy and astrophysics: extracting meaning from big-data

- Feb 2016, Connecting the Dots, Institute of High Energy Physics, Vienna, Austria
- Astrostatistics and astroinformatics: big-data in astronomy and astrophysics
Jan 2016, UK Dark Energy Strategy 2020, Royal Astronomical Society, London, UK
- Sparsity in astrophysics: astrostatistics meets astroinformatics
Dec 2015, ERCIM International Conference on Computational and Methodological Statistics, London, UK
- Imaging data from next-generation radio interferometric telescopes with compressive sensing
Oct 2015, Department of Applied Mathematics & Theoretical Physics (DAMTP), University of Cambridge, UK
- Radio interferometric imaging with compressive sensing
Aug 2015, School of Information Science and Engineering, Australian National University (ANU), Australia
- Optimising radio interferometric imaging with compressive sensing
May 2015, Experimental Design and Big Data, Warwick Data Science Institute, University of Warwick, UK
- Sparsity in astrophysics: astrostatistics meets astroinformatics
Dec 2014, SuSTaIn EdgeCutter Workshop on Astrostatistics, Royal Statistical Society, London, UK
- Spin scale-discretised wavelets on the sphere for the analysis of CMB polarisation
Dec 2014, ERCIM International Conference on Computational and Methodological Statistics, Pisa, Italy
- Spin scale-discretised wavelets on the sphere for the analysis of CMB polarisation
Sep 2014, Sparsity and Cosmology, Nice, France
- Sparsity in astrophysics: astrostatistics meets astroinformatics
Sep 2014, Royal Statistical Society International Conference, Sheffield, UK
- Radio interferometric imaging with compressive sensing
Aug 2014, Inverse Problems - from Theory to Application (IPTA), Bristol, UK
- Spherical signal analysis
Jul 2014, Science on the Sphere, Royal Society International Scientific Seminar, Kavli Royal Society International Centre, Buckinghamshire, UK
- Imaging observations from next-generation radio interferometric telescopes
Jun 2014, Research IT Services Annual Forum, University College London (UCL), UK
- Astronomical imaging initiatives
Jun 2014, Biolmaging UK, London, UK
- Cosmolnformatics
Mar 2014, Mullard Space Science Laboratory (MSSL), University College London (UCL), UK
- Primordial gravitational waves detected by BICEP2?
Mar 2014, School of Chemical & Physical Sciences, Victoria University, NZ
- Cosmological signal and image processing
Mar 2014, School of Information Science and Engineering, Australian National University (ANU), Australia
- Revisiting the spread spectrum effect in radio interferometric imaging
Mar 2014, CALIM 2014, Kiama, Australia
- Cosmological image processing
Dec 2013, Auckland University of Technology (AUT) Seminar, Auckland, NZ
- Next-generation radio interferometric imaging with compressive sensing
Dec 2013, Auckland University of Technology (AUT) Seminar, Auckland, NZ
- Cosmological image processing
Nov 2013, Image and Vision Computing New Zealand 2013, Wellington, NZ
- Next-generation radio interferometric imaging with compressive sensing
Nov 2013, IEEE NZ Central Section AGM, Wellington, NZ
- Scale-discretised wavelets on the sphere
Aug 2013, Wavelets XV, SPIE Optics and Photoics, San Diego, USA
- Fourier-Laguerre transform, convolution and wavelets on the ball

- Jul 2013, 10th International Conference on Sampling Theory and Applications (SampTA), Bremen, Germany
- Signal processing on spherical manifolds
Jun 2013, Probabilistic And Statistical techniques for Cosmological AnaLysis (PASCAL) workshop, Rome, Italy
- Exploiting sparsity for CMB data analysis
Apr 2013, London Cosmology Discussion Meeting, Royal Astronomical Society, London, UK
- Sparsity: CosmoStats meets Cosmolnformatics
Mar 2013, CosmoStats 2013, Banff, Canada
- Signal processing on spherical manifolds
Mar 2013, School of Information Science and Engineering, Australian National University (ANU), Australia
- Towards realistic radio interferometric imaging with compressive sensing
Mar 2013, Astronomy and Astrophysics, Victoria University, NZ
- Radio interferometric imaging with compressive sensing
Jan 2013, London Cosmology Discussion Meeting, Royal Astronomical Society, London, UK
- Towards compressive sensing imaging of real radio interferometric observations
Dec 2012, CALIM 2012, Cape Town, South Africa
- Cosmological signal processing
Oct 2012, Institute of Cosmology and Gravitation, University of Portsmouth, UK
- Cosmological signal processing
Oct 2012, Department of Physics and Astronomy, University of Southampton, UK
- Implications of a new sampling theorem for sparse signal reconstruction on the sphere
May 2012, Astronomical Data Analysis (ADA), Cargese, Corsica
- Spherical signal processing for cosmology
Mar 2012, Signal Processing for the Physical Sciences, Kavli Royal Society International Centre, Buckinghamshire, UK
- Spherical signal processing and the Multiverse
Jan 2012, IFCA Seminar, University of Cantabria, Santander, Spain
- Sampling theorems and compressed sensing on the sphere
Jan 2012, BASP Seminar, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland
- Spherical signal processing for cosmology
Oct 2011, Astrophysics Seminar, University College London (UCL), London, UK
- Compressed sensing for radio interferometric imaging: review and future direction
Sep 2011, IEEE International Conference on Image Processing (ICIP), Brussels, Belgium
- A novel sampling theorem on the sphere with implications for compressive sensing
Sep 2011, Biomedical and Astrophysical Signal Processing (BASP) Frontiers, Villars, Switzerland
- Radio interferometric imaging with compressed sensing
Sep 2011, Biomedical and Astrophysical Signal Processing (BASP) Frontiers, Villars, Switzerland
- Signal processing on the sphere and applications
Aug 2011, CaSP Seminar, Victoria University, Wellington, New Zealand
- Wavelets on the sphere and cosmological applications
Nov 2010, Guest Lecture for Advanced Signal Processing, Master in Information Technology, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland
- Simulating full-sky interferometric observations with wavelets
Sep 2010, Astrophysics Seminar, Cavendish Laboratory, University of Cambridge, UK
- Compressed sensing for radio interferometric imaging on wide fields of view
Aug 2010, CALIM 2010, ASTRON, Dwingeloo, Netherlands
- Simulating full-sky interferometric observations
Apr 2008, CALIM 2008, Deep Surveys of the Radio Universe with SKA Pathfinders, Perth, Australia
- Detecting dark energy with wavelets on the sphere
Aug 2007, Wavelets XII, SPIE Optics and Photoics, San Diego, USA
- Wavelets on the sphere: new methodologies and cosmological applications

- Jun 2007, Cosmology lunch talk, Department of Applied Mathematics & Theoretical Physics (DAMTP), University of Cambridge, UK
- Bianchi VII_h signatures and WMAP
Nov 2006, School of Physics and Astronomy, University of Nottingham, UK
- Large-scale anomalies in WMAP data: Deviations from isotropy
Oct 2006, CMB workshop, Institute of Astronomy, University of Cambridge, UK
- Detection of the ISW effect and corresponding dark energy constraints
Jun 2006, Institute of Astronomy, University of Cambridge, UK
- Detection of the ISW effect and corresponding dark energy constraints
Dec 2005, Astrophysics Seminar, Cavendish Laboratory, University of Cambridge, UK
- Planck workshop on non-Gaussianity: Fast directional spherical wavelets
Sep 2005, Planck workshop on non-Gaussianity, Instituto de Fisica de Cantabria, Santander, Spain
- Fast directional spherical wavelets for cosmology (Abstract)
Feb 2005, Cosmology lunch talk, Department of Applied Mathematics & Theoretical Physics (DAMTP), University of Cambridge, UK

Contributed Talks

- Machine learning assisted Bayesian evidence computation
Sep 2019, IMA Conference on Inverse Problems from Theory to Application, University College London (UCL), UK
- Machine learning assisted Bayesian evidence computation
May 2018, Statistical Challenges in 21st Century Cosmology, Valencia, Spain
- LSST 3D Data Compression (3DDC) Taskforce
July 2016, LSST DESC collaboration meeting, University of Oxford, Oxford, UK
- Wavelet reconstruction of E- and B-modes for CMB polarisation and cosmic shear
May 2016, Statistical Challenges in 21st Century Cosmology, Chania, Crete
- Spin scale-discretised wavelets on the sphere for the analysis of CMB polarisation
May 2014, IAU Symposium on Statistical Challenges in 21st Century Cosmology, Lisbon, Portugal
- Sparsity, Euclid and the SKA
Sep 2013, Synergistic Science with Euclid and the Square Kilometre Array, Oxford, UK
- Background geometry and topology of the Universe: Bianchi VII_h cosmologies and Planck
Apr 2013, The Universe as seen by Planck, ESLAB Symposium, ESA/ESTEC, The Netherlands
- Spherical wavelet-Bayesian cosmic string tension estimation
Sep 2012, Big 3 (Big Bang, Big Data, Big Computing), Paris, France
- Detecting cosmic bubble collisions with optimal filters
Mar 2012, Recontres de Moriond, La Thuile, Italy
- Intrinsic advantages of the w component and spherical imaging for wide-field radio interferometry
Aug 2011, XXXth General Assembly and Scientific Symposium of the International Union of Radio Science, Istanbul, Turkey
- Wavelet-based data compression on the sphere
May 2008, ADA 5, Heraklion, Crete
- Detection of the ISW effect and corresponding dark energy constraints
Mar 2006, Recontres de Moriond, La Thuile, Italy
- Fast directional spherical wavelets for CMB analysis
Apr 2005, National Astronomy Meeting, University of Birmingham, UK
- A high sigma detection of non-Gaussianity in the WMAP 1-year data
Jul 2004, 20th IAP Colloquium – CMB Physics and Observations, Paris, France
- A fast directional continuous spherical wavelet transform for the analysis of cosmological data
Mar 2004, Recontres de Moriond, La Thuile, Italy

Publications

114 Journal Articles + 34 Conference Proceedings = 148 Articles

H-index: 33; Citations: 5,563 (Google Citations)

Google Citations profile (<http://scholar.google.co.uk/citations?user=V19kdRg7j1Y>)

arXiv profile (http://arxiv.org/a/mcewen_j_1)

Journal Articles

- [1] Munshi, Namikawa, Kitching, McEwen, Takahashi, Bouchet, Taruya, and Bose. The weak lensing bispectrum induced by gravity. *Mon. Not. Roy. Astron. Soc.*, *submitted*, 2019, [arXiv:1910.04627](https://arxiv.org/abs/1910.04627).
- [2] Pratley and McEwen. Load balancing for distributed interferometric image reconstruction. *Mon. Not. Roy. Astron. Soc.*, *submitted*, 2019, [arXiv:1903.07621](https://arxiv.org/abs/1903.07621).
- [3] Pratley, Johnston-Hollitt, and McEwen. w -stacking w -projection hybrid algorithm for wide-field interferometric imaging: implementation details and improvements. *Mon. Not. Roy. Astron. Soc.*, *submitted*, 2019, [arXiv:1903.06555](https://arxiv.org/abs/1903.06555).
- [4] Pratley and McEwen. Sparse image reconstruction for the spider optical interferometric telescope. *Astrophys. J. Supp.*, *submitted*, 2019, [arXiv:1903.05638](https://arxiv.org/abs/1903.05638).
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