

## Curriculum Vitæ — Jock McOrist

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### Education and Positions

2012 - present	Lecturer in Mathematics	Department of Mathematics, University of Surrey, UK
2009 - 2012	EPSRC* Postdoctoral Fellow	Department of Applied Mathematics and Theoretical Physics University of Cambridge, UK
2004 - 2009	Ph.D.	University of Chicago, USA Research into the heterotic string
2004 - 2006	M.S.	University of Chicago, USA by coursework
2004 - 2006	M.Sc.	University of Sydney, Australia Research into relativistic astrophysics
2000 - 2003	B.Sc. (Hons)	University of Sydney, Australia First class honours and University Medal Majors in mathematics and physics

\* Engineering and Physical Sciences Research Council

### Selected Awards and Research Fellowships

2014 - 18	PI STFC** Consolidated Grant	Univ. of Surrey	Grant (£271,118)
2014	Clay Mathematics Institute	Univ. of Oxford	Workshop grant (£30,000)
2009 - 12	EPSRC Postdoctoral Fellowship	Univ. of Cambridge	Fellowship (£193,526)
2005 - 09	Ledley Fellow	Univ. of Chicago	Fellowship ( $\simeq$ \$180,000)
2004 - 09	Australian Fulbright Fellow	Univ. of Chicago	Fellowship (\$45,000) Ranked first in NSW, Australia
2005 - 08	J.B. Watt Travelling Scholarship	Univ. of Sydney	Fellowship (\$46,500) Funding for study outside Australia
2009	Sugarman Research Award	Univ. of Chicago	Prize. Excellence in research (\$2000)
2004	1st class honours and University medal	Univ. of Sydney	2nd in Faculty of Science. Overall mark of 99/100
2004	A.E. and F.A.Q. Stephens Fellowship	Univ. of Sydney	Fellowship (\$25,000). Highest ranked applicant for postgraduate study
2003	Deas-Thompson Scholarship	Univ. of Sydney	Top ranked honours physics student
2000 - 03	Vacation Scholarship	Univ. of Sydney	Awarded each year to undertake research in physics and mathematics
2001 - 03	Cadbury-Julius Sumner Miller	Univ. of Sydney	Highest ranked physics student each year 2001,2002,2003
2000	Nobert Quirk Prize	Univ. of Sydney	Best mathematics essay by 1st year undergraduate

\*\* Science and Technology Funding Council

## Teaching Experience

2015 - present	Module Convenor MATM035*, <i>Representation Theory</i> University of Surrey
2012 - present	Module Convenor MAT1036*, <i>Classical Dynamics</i> , University of Surrey
2014 - 2015	Module Convenor MAT3017, <i>Mathematics Education</i> , University of Surrey
2012	Senior Examiner, Natural Science Tripos IA, Cambridge
2011 - 2012	Undergraduate supervisor, DAMTP, Cambridge
2010	Module Convenor, <i>Sigma Models and Mirror Symmetry*</i> , Cambridge
2010	Undergraduate supervisor, Trinity Hall, Cambridge
2004 - 2009	Teaching and Course Assistant. Supervised graduate and undergraduate courses Department of Physics, University of Chicago.
2003 - 2004	Undergraduate tutor in mathematics and physics, Wesley College, University of Sydney.
2002 & 2004	Undergraduate tutor in physics, School of Physics, University of Sydney.
2003	Tutor at National Mathematics Summer School, Australian National University, a mathematics summer school for elite high school students.

\* indicates developed and designed course including lecture notes, seminar problem sheets, assignments and examinable material.

## Keynote and Plenary Talks

1. *String theory, Geometry and String Model Building*, Mainz Institute for Theoretical Physics, 2018
2. *String theory and Geometry*, Indian Institute for Science, Bangalore 2017
3. *Fluids and Geometry*, Clay Mathematics Institute, Oxford, 2014.
4. *String–Math*, University of Bonn, 2012
5. *Mathematics and Applications of Branes in String theory*, Isaac Newton Institute, Cambridge, 2012,
6. *Generalised Geometries and String Theory*, Banff International Research Stations, 2012
7. *Topological Heterotic Strings and (0,2) Mirror Symmetry*, Erwin Shrodinger Institute, Vienna, 2011;
8. *(0,2) Mirror Symmetry and Heterotic Gromov-Witten Invariants*, Banff International Research Station, 2010;
9. *(0,2) Mirror Symmetry and Quantum Sheaf Cohomology*, AEI, Potsdam, 2009
10. *String Phenomenology*, University of Pennsylvania, 2008

Research seminars at the institutions including:

University of Oxford; University of Cambridge; University of Liverpool; VUB, Leuven; University of Rome; Kings College London; Durham University; University of Edinburgh; C.E.A. Saclay, Paris; U.V. Amsterdam; Galileo Galilee Institute, Florence; Scuola Normale Superiore, Pisa; Max Planck Institutes in Potsdam and Munich; Stony Brook University; University of Chicago; University of California, Santa Barbara; Rutgers University; University of Pennsylvania; University of Wisconsin.

## Administrative and Outreach Activities

2017 - present	Admissions co-tutor, University of Surrey
2012 - 2017	Schools Liaison Officer and Outreach Officer Department of Mathematics, University of Surrey
2014 - present	Pint of Science, outreach activity held annually
2016	Appearance in Left foot first science comedy podcast
2013 - 2015	Bright Club, science stand-up comedy in Edinburgh Fringe Festival and Guildford, UK
2014	Organising committee Clay Mathematics Institute conference 'Fluids and Geometry'
2013	Organising committee String-Math UK
2010 - 2011	Organiser HEP-GR DAMTP Colloquia
2007 - 2009	Secretary for Australian Fulbright Alumni Association US Midwest Chapter

## List of Publications

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1. *Universal Geometry of Heterotic Moduli*  
P. Candelas, X de la Ossa, J. McOrist, R. Sisca, (2018)
2. *On the Effective Field Theory of Heterotic Vacua*,  
J. McOrist, Lett. Math. Phys. **108** (2018) no.4, 1031-1081,  
DOI 10.1007/s11005-017-1025-0, arXiv:1606.05221
3. *A Metric for Heterotic Moduli*,  
P. Candelas, X de la Ossa, J. McOrist, Commun. Math. Phys. **356** (2017) no.2, 567-612  
DOI 10.1007/s00220-017-2978-7, arXiv:1605.05256 (51 p.p.)
4. *Global symmetries and  $\mathcal{N} = 2$  SUSY*  
Lett. Math. Phys. **107** (2017) no.8, 1545-1556  
DOI 10.1007/s11005-017-0952-0, arXiv:1312.3506
5. *New Examples of Flux Vacua*,  
T. Maxfield, J. McOrist, D. Robbins and S. Sethi, *JHEP* **1312** (2013) 032,  
DOI 10.1007/JHEP12(2013)032, arXiv:1309.2577
6. *M-theory and type IIA Flux Compactifications*,  
J. McOrist and S. Sethi, *JHEP* **1212** (2012) 122, arXiv:1208.0261
7. *Monopole-Instantons in M2-brane Theories*,  
J. McOrist and E. Martinec, *JHEP* **1306** (2013) 082, arXiv:1112.4073
8. *T-dualising the Deformed and Resolved Conifold*,  
J. McOrist and A. B. Royston, *Class. and Quant.Grav.* **29** (2012) 055014. arXiv:1107.5895
9. *Old Issues and Linear Sigma Models*,  
J. McOrist and I. Melnikov, *Adv. Theor. Math. Phys.* **16** (2012) 251288, arXiv:1103.1322
10. *Relating Conifold Geometries to NS5-branes*,  
J. McOrist and A. B. Royston, *Nucl. Phys.* **B849** (2011) 573-609
11. *The Revival of (0,2) Linear Sigma Models*,  
J. McOrist, *Int. J. Mod. Phys.* **A26** (2011), 1-41
12. *Geometries, Non-Geometries and Fluxes*,  
J. McOrist, D. R. Morrison and S. Sethi, *Adv. Theor. Math. Phys.*, **14**, (2010), 1515.
13. *(0,2) Deformations of Linear Sigma Models*,  
M. Kreuzer, J. McOrist, I. Melnikov, R. Plesser, *JHEP* **1107** (2011) 044, arXiv:1001.2104
14. *Summing the Instantons in Half-Twisted Linear Sigma Models*,  
J. McOrist and I. Melnikov, *JHEP* **0902**:026 (2009)
15. *Dynamical Vacuum Selection in String Theory*,  
D. Kutasov, O. Lunin, J. McOrist, A. B. Royston, *Nucl. Phys.* **B833**:64-95 (2010)
16. *D-term Supersymmetry Breaking*,  
D. Kutasov, A. Giveon, J. McOrist, A. B. Royston, *Nucl. Phys.* **B822**:106-126 (2009)
17. *Type IIB Flux Compactifications via the String Worldsheet*,  
W. D. Linch III, J. McOrist and B. C. Vallilo, *JHEP* **0809**:042 (2008)
18. *Half-Twisted Correlators from the Coulomb Branch*,  
J. McOrist and I. V. Melnikov, *JHEP* **0804**:071 (2008)
19. *Dispersion in a relativistic degenerate electron gas*,  
J. McOrist, D. B. Melrose, and J. I. Weise, *Journal of Plasma Physics* **73**:04 495-513 (2007).
20. *Relativistic quantum plasma dispersion functions*,  
D. B. Melrose, J. I. Weise, and J. McOrist, *Journal of Phys. A: Mathematical and General*, **39**:27, 8727-8740 (2006).
21. *Density of states functions for photonic crystals*,  
R.C. McPhedran, L.C. Botten, J. McOrist, A.A. Asatryan, C.M. de Sterke, and N.A. Nicorovici, *Phys. Rev. E*, **69**, 016609
22. *Hyperresolving phase-only filters with an optically-addressable liquid crystal spatial light modulator*,  
J. McOrist, M.D. Sharma, CJR Sheppard and K. Matsuda, *Micron* **34**, 327-334 (2003)