

CURRICULUM VITAE

- Name: Travis Schedler
- Address: Room 622, Huxley Building, Imperial College, London SW7 2AZ, UK
- Higher Education:
Harvard University, A.B. 2002 (*summa cum laude* in Mathematics)
École Normale Supérieure: Visiting student, 2002–3.
University of Chicago, M.S. 2004, Ph.D. 2008 (advisor: V. Ginzburg).
- Language proficiency: English (native), French (fluent), German (proficient).

PROFESSIONAL EXPERIENCE

2017–present: Reader, Imperial College London.

Spring 2019 (planned): advanced streamed course on symplectic resolutions and singularities, Taught Course Center (Bath, Bristol, Imperial, Oxford and Warwick).

Spring 2019 (planned): third-year course on group representation theory.

Spring 2018: Taught a third-year course on group representation theory.

In charge of Chapman Fellowship hiring in the Pure Mathematics Section (2017–present).

2015–2017: Senior Lecturer, Imperial College London.

Spring 2016 and Spring 2017: Taught an advanced course for undergraduates on representation theory of the symmetric group via the Okounkov–Vershik approach.

Fall 2016: Taught Algebra 3, a third-year course on rings, modules, factorisation, tensor products, and related subjects.

In charge of Chapman Fellowship hiring in the Pure Mathematics Section (2016–2017); on the interview panel 2015–16.

2012–17: Assistant Professor of Mathematics, U. Texas at Austin (on leave 2015–17).

Taught two abstract algebra courses, one linear algebra course, a graduate topics course on representation theory, and first-semester calculus via the “flipped classroom” model.

2008–2013: Five-year fellow of the American Institute of Mathematics.

2008–2012: C. L. E. Moore Instructor in Pure Mathematics, MIT.

Taught a graduate topics course on quivers (algebra), and two undergraduate linear algebra classes for math (and related) majors.

July 2008: Clay Liftoff Fellow

2003–2008. University of Chicago, Ph.D. student in mathematics

2005–6 and 2007–8: Lecturer, Department of Mathematics

Taught undergraduate calculus, as well as a multivariable calculus and linear algebra class for social science majors.

AWARDS AND GRANTS

Co-recipient of the 2016 André Lichnerowicz Prize in Poisson geometry.

2014–2018: NSF standard grant (Algebra and number theory), \$195,000.

2009–2012: NSF standard grant (Algebra, number theory, and combinatorics), \$142,791.

2008–2013: Five-year fellowship, American Institute of Mathematics, approximately \$285,230.

PUBLICATIONS (reverse chronological order)

Current manuscripts (details available upon request):

1. *Symplectic resolutions for multiplicative quiver varieties and character varieties for punctured surfaces*, in preparation (jointly with A. Tirelli).
2. *Algebra and geometry of Tate-Hochschild cohomology of hypersurfaces*, in preparation (jointly with Z. Wang).
3. *Uniqueness of minimal models of infinity-algebras and gauge self-equivalences*, in preparation (jointly with A. Lazarev).
4. *Spinorial representation of submanifolds of symmetric spaces*, in preparation (jointly with P. Bayard, M.-L. Lawn, and J. Roth).

Posted preprints:

5. *On symplectic resolutions and factoriality of Hamiltonian reductions*, arXiv:1809.04301 (jointly with G. Bellamy).
6. *The Hochschild cohomology ring of a global quotient orbifold*, arXiv:1809.08715 (jointly with C. Negron; contains appendices by P. Belmans and by P. Etingof with the authors).
7. *Symplectic resolutions of quiver varieties and character varieties*; arXiv:1602.00164 (jointly with G. Bellamy).

Accepted or published articles and books (significant ones starred):

8. *Hyperplane arrangements associated to symplectic quotient singularities* (jointly with G. Bellamy and U. Thiel); accepted to Proceedings of miniPAGES, arXiv:1702.04881.
9. **On \mathcal{D} -modules related to the b -function and Hamiltonian flow* (jointly with T. Bitoun); accepted to Compositio Math, arXiv:1606.07761.
10. *Holonomic Poisson manifolds and deformations of elliptic algebras* (jointly with B. Pym), *Geometry and Physics: A Festschrift in honour of Nigel Hitchin*, Oxford University Press (2018).
11. *Poisson traces, D -modules, and symplectic resolutions* (jointly with P. Etingof; survey article), Lett. Math. Phys. (2017).

12. *Filtrations on Springer fiber cohomology and Kostka polynomials*; Lett. Math. Phys. (2017). (jointly with G. Bellamy).
13. *On the (non)existence of symplectic resolutions for imprimitive symplectic reflection groups* (jointly with G. Bellamy), Math. Res. Lett. **23** (2016).
14. *Coinvariants of Lie algebras of vector fields on algebraic varieties*, Asian J. Math. (2016); doi: 10.4310/AJM.2016.v20.n5.a1 arXiv:1211.1883 (jointly with P. Etingof).
15. *Equivariant slices for symplectic cones*, Int. Math. Res. Not. (2016); doi: 10.1093/imrn/rnw124; arXiv:1501.03368.
16. *Poisson-de Rham homology of hypertoric varieties and nilpotent cones*, Selecta Math. 2016; doi: 10.1007/s00029-016-0232-3; arXiv:1405.0743 (jointly with N. Proudfoot).
17. **A new construction of cyclic homology*, Proc. Lon. Math. Soc **112** (2016), no. 3, 549–587; doi:10.1112/plms/pdw001; arXiv:1201.6635 (jointly with V. Ginzburg).
18. *Noncommutative algebraic geometry*, book in MSRI lecture series, Cambridge University Press (2016) (jointly with Bellamy, Rogalski, Stafford, and Wemyss).
19. **Zeroth Hochschild homology of preprojective algebras over the integers*, Adv. Math. **299** (2016), 451–542; arXiv:0704.3278.
20. **Geometrization of principal series representations of reductive groups*, Ann. Inst. Fourier **65** (2015), no. 5, 2273–2330; doi: 10.5802/aif.2988; arXiv:1011.4529 (jointly with M. Kamgarpour).
21. *Invariants of Hamiltonian flow on locally complete intersections*, Geom. Funct. Anal. **24** (2014), no. 6, 1885–1912; arXiv:1401.5042 (jointly with P. Etingof).
22. *Poisson traces for symmetric powers of symplectic varieties*, Int. Math. Res. Not. (2014), 3396–3438; doi:10.1093/imrn/rnt031; arXiv:1109.4712 (jointly with P. Etingof).
23. Appendix to the preceding paper, *Type D Weyl groups*.
24. *Ramified Satake Isomorphisms for strongly parabolic characters*, Documenta Math. **18** (2013), 1275–1300; arXiv:1210.1051 (jointly with M. Kamgarpour).
25. *A new linear quotient of \mathbf{C}^4 admitting a symplectic resolution*, Math. Z. **273** (2013), no. 3–4, 753–769; arXiv:1109.3015 (jointly with G. Bellamy).
26. *Normality and quadraticity for special ample line bundles on toric varieties arising from root systems*, Glasgow Math. J. **55** (2013), no. A; arXiv:1102.4083 (jointly with Q. Gashi).
27. *Computational approaches to Poisson traces associated to finite subgroups of $Sp(2n, \mathbf{C})$* , Exp. Math. **21** (2012), no. 2, 141–170; arXiv:1101.5171 (jointly with P. Etingof, S. Gong, A. Pacchiano, and Q. Ren).
28. **Curved infinity-algebras and their characteristic classes*, J. Topol. **5** (2012), no. 3, 503–528; arXiv:1009.6203 (jointly with A. Lazarev).
29. *On the asymptotic S_n -structure of invariant differential operators on symplectic manifolds*, J. Algebra **356** (2012), 39–89; arXiv:1006.0268 (jointly with Q. Ren).
30. *Looping of the numbers game and the alcoved hypercube*, J. Combin. Theory Ser. A **119** (2012), no. 3, 713–730 (jointly with Q. Gashi and D. Speyer).

31. **Free products, cyclic homology, and the Gauss-Manin connection*, Adv. Math. **231** (2012), no. 3–4, 2352–2389 (jointly with V. Ginzburg).
32. *Connes-Kreimer quantizations and PBW theorems for pre-Lie algebras*, Proceedings of Operads 2009, Séminaire et Congrès, Soc. Math. France (2012).
33. **Zeroth Poisson homology of symmetric powers of isolated quasihomogeneous surface singularities*, J. Reine Angew. Math. **667** (2012), 67–88 (jointly with P. Etingof).
34. *On dominance and minuscule Weyl group elements*, J. Algebraic Combin. **33** (2011), no. 3, 383–399 (jointly with Q. Gashi).
35. *Traces on finite \mathcal{W} -algebras*, Transform. Groups **15** (2010), no. 4, 843–850 (jointly with P. Etingof).
36. *Differential operators and BV structures in noncommutative geometry*, Selecta Math. (N.S.) **16** (2010), no. 4, 673–730 (jointly with V. Ginzburg).
37. **Poisson traces and D -modules on Poisson varieties*, Geom. Funct. Anal. **20** (2010), no. 4, 958–987 (jointly with P. Etingof; contains an appendix by I. Losev).
38. **Superpotentials and higher-order derivations*, J. Pure Appl. Algebra **214** (2010), no. 9, 1501–1522 (jointly with R. Bocklandt and M. Wemyss).
39. *Poisson algebras and Yang-Baxter equations*, Advances in quantum computation, 91–106, Contemp. Math. **482**, Amer. Math. Soc., Providence, RI, 2009.
40. *Calabi-Yau Frobenius Algebras*, J. Algebra **321** (2009), no. 3, 774–815 (jointly with C.-H. Eu).
41. *The necklace Lie coalgebra and renormalization algebras*, J. Noncommut. Geom. **2** (2008), no. 2, 195–214 (jointly with W. L. Gan).
42. *Moyal quantization and stable homology of necklace Lie algebras*, Mosc. Math. J. **6** (2006), no. 3, 431–459 (jointly with V. Ginzburg).
43. *A Hopf algebra quantizing a necklace Lie algebra canonically associated to a quiver*, Int. Math. Res. Not. (2005), 725–760; doi:10.1155/IMRN.2005.725.
44. *Trigonometric solutions of the associative Yang-Baxter equation*, Math. Res. Lett. **10** (2003), 301–321.
45. *Proof of the GGS conjecture*, Math. Res. Lett. **7** (2000), no. 5–6, 801–826.
46. **Explicit quantization of dynamical r -matrices for finite-dimensional semisimple Lie algebras*, J. Amer. Math. Soc. **13** (2000), no. 3, 595–609 (jointly with P. Etingof and O. Schiffmann).
47. **Set-theoretical solutions of the quantum Yang-Baxter equation*, Duke Math. J. **100** (1999), no. 2, 169–209 (jointly with P. Etingof and A. Soloviev).

TALKS AND ACTIVITIES

- International conference invited talks:
 - Invited: *GRT: Geometric Satake and beyond*, Tsinghua Sanya International Mathematics Forum, China, 2018.
 - *Geometric Representation Theory and Symplectic Varieties*, University of Notre Dame, USA, 2018.

- *Poisson geometry of moduli spaces, associators and quantum field theory*, Simons Center for Geometry and Physics, USA, 2018
 - *Geometry and Physics* (14th annual international conference), Pennsylvania State University, USA, 2017
 - *Geometric representation theory*, University of Glasgow, UK, 2017
 - *Kickoff Symposium: New development of algebraic geometry viewed from theoretical physics*, Kyoto, Japan, 2017
 - *Poisson 2016*, Zurich, Switzerland
 - *Hochschild cohomology in algebra, geometry, and topology*, Mathematisches Forschungsinstitut Oberwolfach (MFO), Oberwolfach, Germany, 2016
 - *Higher Structures in Geometry and Physics, opening conference*, Max Planck Institute of Mathematics, Bonn, 2016
 - *Symplectic representation theory*, University of Glasgow, 2015
 - *Geometric representation theory*, Institut d’Études Scientifiques de Cargèse, Corsica, 2014
 - *Interactions between algebraic geometry and noncommutative algebra*, Mathematisches Forschungsinstitut Oberwolfach (MFO), Oberwolfach, Germany, 2014
 - *Symplectic algebraic geometry and representation theory*, Centre International de Rencontres Mathématiques (CIRM), Marseille, France, 2012
 - *Noncommutative algebraic geometry and its applications to physics*, Lorentz Center, Leiden, Netherlands, 2012
 - *Mathematical aspects of quantization*, Notre Dame Center for Mathematics, Indiana, USA, 2011
 - *Poisson 2010*, Instituto Nacional de Matemática Pura e Aplicada (IMPA), Brazil, 2010
 - *Hochschild cohomology of algebras: Structure and applications*, Banff International Research Station (BIRS), Banff, Alberta, Canada, 2009
 - *Operads 2009*, Centre International de Rencontres Mathématiques (CIRM), Marseille, France, 2009
 - *Algebraic structures in geometry and physics*, University of Leicester, 2008.
- Colloquia given at Rice U., U. Texas–Austin, U. Toronto, U. Ulm.
 - Extended lecture series given at U. Paderborn.
 - Organizer and lecturer for MSRI’s summer graduate workshop on noncommutative algebraic geometry, June 18–29, 2012.
 - Lecturer at *Spring school on algebraic microlocal analysis*, Northwestern University, 2012.
 - Speaker at seminars at Boston U., École Polytechnique, Inst. Henri Poincaré, Max Planck Inst. Math. at Bonn, MIT, Newcastle U., Northeastern U., Texas A&M, U. Angers, U. Antwerp, U. Chicago, U. Illinois at Urbana-Champaign, U. Luxembourg, U. Manchester, U. Michigan, U. Notre Dame, U. Paris, U. Prishtina, U. Texas at Austin, U. Toronto, U. Wisconsin, Yale (among others).

- Conference organization:
 - Co-organizer of planned major international research meeting at the Centre International de Rencontres Mathématiques, Marseille, France, *Symplectic representation theory*, April 2019.
 - Advisory Committee, Poisson Geometry international biennial conference, 2017–present
 - Co-organizer of major international research conference, *Interactions between representation theory and algebraic geometry* at the University of Chicago, August 2017 (supported by the US National Science Foundation and the University of Chicago).
 - * Earned NSF grant (\$55,000).
 - * Co-editor, Birkhäuser proceedings volume.
 - Organizer of *Why be noncommutative?* at Imperial College London, February 2016 (supported by the London Mathematical Society and Imperial College London).
- Invited research visits:
 - Invited visiting professor, U. de Lorraine, Nancy, France, April 2019.
 - Visiting member of the Max Planck Institute for Mathematics at Bonn, July–August 2018 and April–September 2016
 - Research member, *Poisson geometry of moduli spaces, associators and quantum field theory*, Simons Center for Geometry and Physics, Spring 2018
 - Group leader, Hausdorff Institute of Mathematics (Bonn) Junior Trimester Program, *Symplectic Geometry and Representation Theory*, Fall 2017.
 - Research member at MSRI’s program on noncommutative algebraic geometry and representation theory, Spring 2013.
 - Co-organizer of Research in Pairs conference *Localization of Modules Over the Affine Kac-Moody Algebras*, Centre International de Rencontres Mathématiques, 2013, Marseille, France.
- Served as referee (long or quick opinion) for Acta Math., Adv. in Math., Algebra and Number Theory, Comm. Alg., Comptes rendus Math., Int. Math. Res. Not., Invent. Math., J. Algebra, J. Pure Appl. Algebra, J. European Combin., J. European Math. Soc., J. Homotopy and Rel. Structures, the Manin Festschrift, Math. Z., New York J. Math.

STUDENT SUPERVISION AND MENTORSHIP

- Finished Ph. D. student: Michael Wong (U. Texas, 2018). Currently a European Research Council (ERC) postdoctoral researcher at University College London (under E. Segal).
- Current Ph. D. students: Dan Kaplan (Imperial College London, finishing 2019; won Outstanding Student Achievement Award in 2018), Andrea Tirelli (Imperial College London, finishing 2018), and Haiping Yang (Imperial College London under an Industrial Strategy UK EPSRC grant, finishing 2022).
- MSc/MSci students at Imperial: Miles Crew and Emma McCracken (2018); Neophytos Charalambides, Auste Grigaite, Ishana Pradeep, Jose Francisco de Vasconcelos Teodosio Nunes Dos Reis, Wei Tan (2017)

- Undergraduate research (UROP) supervised at Imperial College London: Zain Kapadia, Max Lewis-Clarke, Ali Sever, Matteo Tabaro (2017)
- Erasmus (foreign exchange student) project supervision: Ségolène Mahé (2017).
- Imperial College London undergraduate tutees with entering year: D. Burgschweiger, L. Danet, S. de Vries, S. Gu, Y. Pan, Y. Qi, W. Tang (2015), N. Stoessel (2013), C. Burns, B. Liu, C.-A. Stanciu, Y. Leyu (2016), H. Liu, S. Parmar (2017), J. Gabrisch, J. Lazzaro, R. Li, Y. Luo, I.-F. Stanciu (2018).
- Undergraduate conference course student supervision at U. Texas: J. Lai and S. Raghavendran. Graduate students: P. Vucins, C. Gerlicz, and R. Antia.
- Supervised seven MIT undergraduates in research projects and programs (Q. Ren, J. Steinhart, P. Christiano, A. Pacchiano, Q. Yuan, B. Yang, and Y. Gao) and one Harvard undergraduate (S. Gong).
- Supervised a high school student, William Chen, who placed as a semifinalist in the Intel Science Talent Search with his project.
- Served as assistant director of MIT's Summer Program for Undergraduate Research
- Served as co-director of the University of Chicago's VIGRE Directed Reading Program, pairing undergraduates with graduate student mentors, and mentored through this and the university's VIGRE Research Experiences for Undergraduates
- Served for two years as director of the University of Chicago Community Service Center's Absolute Value Math Camp, an intensive quarterly two-week math program for disadvantaged area junior high schoolers;
 - Earned the University of Chicago President's Volunteer Service Award for the above.