

Curriculum Vita of George McNinch

Personal Data

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Higher Education

- Ph.D. (Mathematics) 1996. University of Oregon (Eugene, OR). Advisor: Gary M. Seitz
- B.S. (Mathematics, Physics) 1990. Samford University (Birmingham AL).

Academic Positions

- 2013–present. Professor Tufts University.
- 2006–2013. Associate Professor, Tufts University.
- 2004–2006. Assistant Professor, Tufts University.
- 1996–2004. Assistant Professor, University of Notre Dame.
- 1990–1996. Graduate Teaching Fellow, University of Oregon, .

Thesis students

- Ph.D. 2021 (expected) – Nariel Monteiro, Tufts University.
- Ph.D. 2017 – Seth Rothschild, Tufts University.

- AY2016-2017 – Christian Testa (BS), Senior Honors Thesis, Tufts University.
- Ph.D. 2015 – Alex Babinski, Tufts University.
- MS – Nathan Scheinmann, l'École Polytechnique Fédérale de Lausanne (EPFL), Switzerland.
- AY2012-2013 – Samir Chowdhury (BS), Senior Honors Thesis, Tufts University.
- Ph.D. 2011 – Ellen Goldstein, Tufts University.
- Ph.D. 2007 – Art Weiss, Tufts University.
- MS 2008 – Emily Harvey, Tufts University.
- MS 2007 – Erica Waite, Tufts University.
- MS 2007 – David Earls, Tufts University.

Grants and Awards

- 2011-2013. National Security Agency. Principal investigator: H9230-11-1-0164.
- 2008-2010. National Security Agency. Principal investigator: H98230-08-1-0110.
- 2004-2008. National Science Foundation. Principal investigator: DMS0437482.
- 1999-2002. National Science Foundation. Principal investigator: DMS9970301.

Service for the Tufts Mathematics Department

- AY2019-2020. Undergraduate Director.
- 2014-2019. Associate Department Chair
- AY2019-2020. Hiring Committee, NWAP Algebraic Geometry.
- AY2017-2018. Hiring Committee, NWAP Number Theory.
- AY2016-2017. Hiring Committee, Assistant Professor in Complex Geometry.
- AY2015-2016. Hiring Committee Chair, Full Time Lecturer.
- AY2014-2015. Hiring Committee Chair, Assistant Professor in Number Theory.
- AY2013-2014. Iterim Graduate Director
- AY2013-2014. Hiring Committee, NWAP algebraic geometry.
- AY2012-2013. Hiring Committee, NWAP.
- 2008-2010. Curriculum Committee Chair
- AY2006-2007. Hiring Committee, 3-year Assistant Professor in Algebraic Groups.
- 2004-2017. Graduate Committee

Service to the Profession

- 2020-03. Co-organizer (with E. Sommers): Special Session on Algebraic Groups, AMS sectional meeting Tufts University. **cancelled**.
- 2020, 2016, 2013. Panelist for the National Science Foundation.
- 2019-04. International member, Ph.D. committee, École Polytechnique Fédérale de Lausanne.
- 2014-11. Co-organizer (with S. Garibaldi): Special Session on Exceptional Groups in Physics, Algebra, and Geometry, AMS sectional meeting, UNC Greensboro.
- 2012-01. Co-organizer (with S. Garibaldi): Special Session on Linear algebraic groups: their arithmetic, geometry, and representations, Joint Mathematics Meeting, AMS Boston MA.
- 2006-09. International expert member, Ph.D. committee, Mathematics Department, Aarhus Universitet Denmark.
- 2006-04. Co-organizer (with E. Sommers): Special Session on Algebraic Groups, AMS sectional meeting, Univ New Hampshire Durham.
- 2000-04. Co-organizer: Special Session on Representations of Groups and Related Objects, AMS sectional meeting, Univ Notre Dame South Bend IN.
- since 1997. Referee and reviewer: Math Reviews, NSF, NSA, various mathematics journals.
- since 1996. Member American Mathematical Society.

Service to Tufts University

- AY2020-2021 – AS&E Executive Committee.
- AY2013-2014 – AY2018-2019. A&S Committee on Academic Standing and Honors. **Chair:** AY2014-2015 – AY2016-17.
- AY2014-2015 to AY2018-2019. AS&E Budget and Priorities Committee. **Chair:** AY2018-2019.
- AY2015-2016. AS&E Undergraduate Admissions and Financial Aid Committee.
- AY2015-2016. AS&E Residential Strategies Working Groups.
- AY2015-2016. A&S Workload Committee.
- AY2013-2014 and AY2014-2015. AS&E Faculty Research Support and Facilities Committee.
- AY2012-2013. AS&E Committee on Committees.
- AY2011-2012. Faculty Research Awards Committee.
- AY2005-2006 – AY2009-2010. AS&E Undergraduate Admissions and Financial Aid Committee. **Chair:** AY2009-2010

Workshops, Conferences and Lectures

- 2021-04 – Invited (virtual) participant, Oberwolfach workshop on Algebraic Groups.
- 2020-03 – Invited speaker, Conference on The combinatorics and geometry of Jordan type and commuting varieties, Northeastern University (Boston MA) – *virtual*.
- 2019-03 – Colloquium speaker, Northern Illinois University math department, DeKalb, IL.
- 2018-11 – Invited speaker, Workshop on Algebraic Groups, Lie Algebras, and their Representations, Max Planck Institute for Mathematics, Bonn, Germany.
- 2018-06 – Invited speaker, Southeastern Lie Theory conference, University of Georgia (Athens, GA).
- 2018-05 – Invited speaker, Algebraic Groups and Geometrization of the Langlands Program, Univ Lyon and École Normale Supérieure Lyon (Lyon, France).
- 2018-04 – Invited speaker, Combinatorial Aspects of Nilpotent Orbits, AMS sectional meeting, Northeastern University (Boston, MA).
- 2018-04 – Participant, workshop on Representations of Finite and Algebraic Groups Mathematical Sciences Research Institute (Berkeley, CA).
- 2017-09 – Invited speaker, workshop on Pseudo-reductive Groups Newcastle University (Newcastle, UK).
- 2017-09 – Invited speaker, Algebra seminar, University of York (York, UK).
- 2017-09 – Invited speaker, ARTIN (Algebra and Representation Theory in the North), University of Manchester (Manchester, UK). + 2016-10 – Invited speaker, special session on Combinatorial Aspects of Nilpotent Orbits, AMS sectional meeting at Bowdoin College (Brunswick, ME).
- 2016-07 – Visitor, workshop on Local Representation Theory and Simple Groups, Centre Intrafacultaire Bernoulli, l'École Polytechnique Fédérale de Lausanne (EPFL; Lausanne, Switzerland).
- 2016-05 – Invited speaker, workshop on Branching Problems for Reductive Groups, Institut Mittag-Leffler (Djursholm, Sweden).
- 2016-03 – Invited speaker, special session on Lie Theory, Representation Theory, and Geometry, AMS sectional meeting University of Georgia (Athens, GA).
- 2016-02 – Invited speaker, workshop on Complete Reducibility, Geometric Invariant Theory and Buildings, Ruhr-Universität Bochum (Bochum, Germany).
- 2015-10 – Participant, workshop on Springer Theory and Related Topics, University of Massachusetts (Amherst, MA).
- 2015-09 – Participant, workshop on The Use of Linear Algebraic Groups in Number Theory and Geometry, Banff International Research Station for Mathematical Innovation and Discovery (Alberta, Canada).
- 2015-07 – Participant, Simple groups, representations, and related topics,

Cambridge University (Cambridge, UK).

- 2015-07 – Participant, workshop on Finite Simple Groups and Related Topics, Warwick University (Warwick, UK).
- 2015-05 – Participant, workshop on The Representation Theory and Geometry of Symplectic Resolutions, Northeastern University (Boston, MA).
- 2014-09 – Invited speaker, workshop on Geometric Methods in Representation Theory, University of Lancaster (Lancaster, UK).
- 2013-10 – Invited speaker, Union College Mathematics Conference special session on Commutative Algebra and Algebraic Geometry, Union College (Schenectady, NY).
- 2013-06 – Seminar speaker, Algebra seminar at the University of Bochum (Bochum, Germany).
- 2013-06 – Invited speaker, Conference on Cohomology in Lie Theory, Oxford University (Oxford, UK).
- 2013-04 – Invited speaker, special session on Geometric Methods in the Representation Theory of Reductive Groups, AMS sectional meeting at the University of Colorado (Boulder, CO).
- 2012-10 – Seminar speaker, Group Theory seminar, l'École Polytechnique Fédérale de Lausanne (EPFL; Lausanne, Switzerland).
- 2012-07 – Participant, workshop on Cohomology and Support in Representation Theory and Related Topics, University of Washington (Seattle, WA).
- 2011-05 – Participant Ramification in Algebra and Geometry Emory University (Atlanta, GA).
- 2011-01 – Invited speaker, special session on Lie Algebras, Algebraic Groups, and Related Topics, AMS/MAA Joint National Meeting (New Orleans, LA).
- 2010-11 – Seminar speaker, Lie Groups seminar, Massachusetts Institute of Technology (Cambridge, MA).
- 2010-10 – Seminar speaker, Algebra seminar, University of Georgia (Athens, GA).
- 2010-10 – Seminar speaker, Algebra seminar, Emory University (Atlanta, GA).
- 2010-09 – Seminar speaker, Algebra seminar, Boston College (Boston, MA).
- 2010-09 – Seminar speaker, Group theory-Lie theory-Number theory seminar, University of Michigan (Ann Arbor, MI).
- 2009-09 – Visitor, Forschungsinstitut für Mathematik, ETH (Zurich, Switzerland).
- 2009-08 – Invited speaker, Algebraic Groups and Invariant Theory, Centro Stefano Franscini (Ascona, Switzerland).
- 2009-03 – Invited speaker, special session on Brauer groups, quadratic forms, algebraic groups, and Lie algebras, AMS Spring Southeastern Sectional Meeting at the North Carolina State University (Raleigh, NC).
- 2008-12 – Seminar speaker, Group theory-Lie theory-Number theory Seminar, University of Michigan (Ann Arbor, MI).

- 2008-10 – Invited speaker, special session on Computation in Modular Representation Theory, AMS Fall Central Section Meeting at Western Michigan University (Kalamazoo, MI).
- 2008-06 – Invited speaker, visitor Institut de Géométrie, Algèbre et Topologie (IGAT, l'École Polytechnique Fédérale de Lausanne (EPFL; Lausanne, Switzerland).
- 2007-08 – Seminar speaker, Algebra seminar, University of Southern California (Los Angeles, CA).
- 2007-05 – Participant workshop on Algebraic Groups Mathematisches Forschungsinstitut Oberwolfach (Oberwolfach Math Institute, Germany).
- 2007-05 – Invited speaker, workshop on Algebraic Lie theory, Banff International Research Station for Mathematical Innovation and Discovery (Alberta, Canada)..
- 2007-01 – Invited speaker, special session on Cohomology and Representation Theory, AMS-MAA Joint Mathematics Meeting (New Orleans, LA).
- 2006-09 – Seminar speaker, Everytopic mathematics seminar, Brandeis University (Waltham, MA).
- 2006-09 – Seminar speaker, Algebra Seminar, Aarhus Universitet (Aarhus, Denmark).
- 2006-06 – Seminar speaker, Geometry - Algebra - Singularities - Combinatorics Seminar, Northeastern University (Boston, MA).
- 2005-11 – Seminar speaker, Algebra Seminar, University of Massachusetts (Amherst, MA).
- 2005-06 – Invited speaker and visitor workshop at the Bernoulli Center, l'École Polytechnique Fédérale de Lausanne (EPFL; Lausanne, Switzerland).
- 2005-01 – Invited speaker, special session on Modular Representation Theory of Finite and Algebraic Groups, AMS-MAA Joint Mathematics Meeting (Atlanta, GA).
- 2004-07 – Invited speaker, AMS Summer Research Conference on Representations of Algebraic Groups, Quantum Groups, and Lie Algebras (Snowbird, Utah).
- 2004-04 – Seminar speaker, Automorphic Forms and Representation Theory Seminar, Purdue University (West Lafayette, IN).
- 2004-03 – Invited speaker, Seitz Birthday Conference on Groups and Representations, University of Oregon (Eugene, OR).
- 2004-01 – Seminar speaker, *Group theory-Lie theory-Number theory Seminar*, University of Michigan (Ann Arbor, MI).
- 2003-11 – Colloquium speaker, Math Department at Wayne State University (Detroit, MI).
- 2003-05 – Invited speaker, workshop on *Algebraic Groups, Lie Algebras and their Representations*, University of Birmingham (Birmingham, UK).
- 2003-03 – Invited speaker, special session on Geometric Representation and Invariant Theory, London Math Society Regional Meeting at University of Manchester (Manchester, UK).
- 2003-02 – Seminar speaker, *Lie Groups Seminar*, Massachusetts Institute

of Technology (Cambridge, MA).

- 2003-02 – Seminar speaker, *Lie Theory Seminar*, University of Wisconsin (Madison, WI).
- 2002-05 – Seminar speaker, *Algebra Seminar*, l'École Polytechnique Fédérale de Lausanne (EPFL; (Lausanne, Switzerland).
- 2002-03 – Seminar speaker, *Algebra Seminar* at the University of Massachusetts (Amherst, MA).
- 2001-06 – Invited speaker, workshop on *Algebraic Groups*, University of Bielefeld (Bielefeld, Germany).
- 2001-03 – Participant, workshop on *Algebraic Groups*, Mathematisches Forschungsinstitut Oberwolfach (Oberwolfach Math Institute; Germany).
- 2000-10 – Invited speaker, Algebra Seminar at Aarhus University (Aarhus, Denmark).
- 2000-03 – Seminar speaker, Algebra seminar at Wayne State University (Detroit, MI).
- 1999-10 – Invited speaker, Algebra Seminar at the University of Wisconsin (Madison, WI).
- 1999-06 – Invited speaker, Algebra seminar at the California Institute of Technology (Los Angeles, CA).
- 1999-05 – Invited speaker, special session on *Representation Theory and Geometry*, Canadian Math Society meeting (St. John's, Newfoundland).
- 1998-11 – Invited speaker, *Algebra Day* workshop Indiana University (Bloomington, IN).
- 1998-07 – Invited speaker, workshop on *Algebraic Representation Theory*, Aarhus University (Aarhus, Denmark).
- 1998-05 – Invited speaker, CBMS workshop Blocks of finite reductive groups, Deligne-Lusztig varieties, and complex reflection groups, University of North Texas (Denton, TX)..
- 1998-03 – Invited speaker, special session on Representations of Algebraic Groups, AMS Sectional Meeting at the Kansas State University (Manhattan, KS).
- 1997-06 – Invited speaker, NATO Advanced Study Institute on Representation Theory of Algebraic Groups and Related Finite Groups at the Isaac Newton Institute for Mathematical Sciences (Cambridge, UK).
- 1996-11 – Colloquium speaker Mathematics Department, University of North Texas (Denton, TX).

Manuscripts

1. Nilpotent elements and reductive subgroups over a local field. To appear in: Algebras and Representation Theory (expected date 2021). PDF, [DOI] and [Journal].
2. Reductive subgroup schemes of a parahoric group scheme. Transformation Groups 25 (2020), no. 1, pp. 217-249. PDF, [MR], [DOI] and [Journal].

3. Central subalgebras of the centralizer of a nilpotent element. *Proceedings of the American Mathematical Society* 144 (2016), no. 6, pp. 2383–2397. PDF, [MR] and [DOI].
4. Linearity for actions on vector groups. *Journal of Algebra* 397 (2014), pp. 666–688. PDF, [MR] and [DOI].
5. Levi factors of the special fiber of a parahoric group scheme and tame ramification. *Algebras and Representation Theory* 17 (2014), no. 2, pp. 469–479. PDF, [MR] and [DOI].
6. On the descent of Levi factors. *Archiv der Mathematik* 100 (2013), no. 1, pp. 7–24. PDF, [MR] and [DOI].
7. Some good-filtration subgroups of simple algebraic groups. *Journal of Pure and Applied Algebra* 217 (2013), no. 12, pp. 2400–2413. PDF, [MR], [arXiv] and [DOI].
8. Levi decompositions of a linear algebraic group. *Transformation Groups* 15 (2010), no. 4, pp. 937–964. PDF, [MR], [DOI] and [arXiv].
9. Nilpotent centralizers and Springer isomorphisms. *Journal of Pure and Applied Algebra* 213 (2009), no. 7, pp. 1346–1363. PDF, [MR], [DOI] and [arXiv].
10. Nilpotent subalgebras of semisimple Lie algebras. *Comptes Rendus Mathématique, Académie des Sciences, Paris* 347 (2009), no. 9-10, pp. 477–482. PDF, [MR] and [DOI].
11. The centralizer of a nilpotent section. *Nagoya Mathematical Journal* 190 (2008), pp. 129–181. PDF, [MR], [arXiv] and [Euclid].
12. Completely reducible Lie subalgebras. *Transformation Groups* 12 (2007), no. 1, pp. 127–135. PDF, [MR], [DOI] and [arXiv].
13. Completely reducible $SL(2)$ homomorphisms. *Transactions of the American Mathematical Society* 359 (2007), no. 9, pp. 4489–4510 (electronic). PDF, [DOI], [arXiv] and [MR].
14. On the centralizer of the sum of commuting nilpotent elements. *Journal of Pure and Applied Algebra* 206 (2006), no. 1-2, pp. 123–140. PDF, [DOI], [arXiv] and [MR].
15. Optimal $SL(2)$ homomorphisms. *Commentarii Mathematici Helvetici* 80 (2005), no. 2, pp. 391–426. PDF, [arXiv], [DOI] and [MR].
16. Nilpotent orbits over ground fields of good characteristic. *Mathematische Annalen* 329 (2004), no. 1, pp. 49–85. PDF, [DOI], [arXiv] and [MR].
17. Sub-principal homomorphisms in positive characteristic. *Mathematische Zeitschrift* 244 (2003), no. 2, pp. 433–455. PDF, [arXiv], [DOI] and [MR].

18. Faithful representations of $SL(2)$ over truncated Witt vectors. *Journal of Algebra* 265 (2003), no. 2, pp. 606–618. PDF, [MR], [arXiv] and [DOI].
19. Adjoint Jordan Blocks. Unpublished manuscript (2003). PDF and [arXiv].
20. Component groups of unipotent centralizers in good characteristic. *Journal of Algebra* 260 (2003), no. 1, pp. 323–337. PDF, [MR], [DOI] and [arXiv].
21. The second cohomology of small irreducible modules for simple algebraic groups. *Pacific Journal of Mathematics* 204 (2002), no. 2, pp. 459–472. PDF, [MR], [arXiv] and [DOI].
22. Abelian unipotent subgroups of reductive groups. *Journal of Pure and Applied Algebra* 167 (2002), no. 2-3, pp. 269–300. PDF, [DOI], [arXiv] and [MR].
23. Filtrations and positive characteristic Howe duality. *Mathematische Zeitschrift* 235 (2000), no. 4, pp. 651–685. PDF, [MR] and [DOI].
24. Semisimplicity of exterior powers of semisimple representations of groups. *Journal of Algebra* 225 (2000), no. 2, pp. 646–666. PDF, [MR] and [DOI].
25. Semisimple modules for finite groups of Lie type. *Journal of the London Mathematical Society* 60 (1999), no. 3, pp. 771–792. PDF, [MR] and [DOI].
26. Dimensional criteria for semisimplicity of representations. *Proceedings of the London Mathematical Society* 76 (1998), no. 1, pp. 95–149. PDF, [DOI] and [MR].
27. Semisimplicity in positive characteristic. *Algebraic groups and their representations NATO Adv. Sci. Inst. Ser. C Math. Phys. Sci.* 517 (1998), pp. 43–52. PDF and [MR].

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