

DONNA M. TESTERMAN
Curriculum Vitae

Personal:

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Born: January 1, 1960, Jefferson, NC, USA

Citizenship: Swiss

Three children : born 1990, 1992, 1996

Languages: fluent in English and French

Education:

Bachelor of Arts, magna cum laude, 1980, Randolph-Macon Woman's College

Master of Arts, 1981, University of Oregon

Doctor of Philosophy, 1985, University of Oregon

Long-term academic appointments:

Adjunct Professor, Ecole Polytechnique Fédérale de Lausanne, 2011 – 2025.

Research professor during the semester program Group Representation Theory and Applications, MSRI, February – May 2018.

Lecturer, EPFL, 2008 – 2011

Fonds National Suisse Professeur Boursier, EPFL, 2004 – 2008.

Maître d'enseignement et de recherche, Université de Lausanne, 2002 – 2004.

Professeur de mathématiques, la Haute Ecole de Gestion - Valais (Filière Informatique de Gestion) et l'Ecole Supérieure d'Informatique de Sierre, 1996 – 2001, non research position.

Senior Lecturer of Mathematics, Warwick University, Coventry, UK, 1996 – 1997.

Lecturer of Mathematics, Warwick University, Coventry, UK, 1994 – 1996.

Associate Professor of Mathematics, Wesleyan University, Middletown, Connecticut, 1993 – 1995.

Assistant Professor of Mathematics, Wesleyan University, Middletown, Connecticut, 1988 – 1992.

Visiting Member, The Institute for Advanced Study, Princeton, New Jersey, 1988 – 1989.

Instructor, Department of Mathematics, The Ohio State University, Columbus, 1985 – 1988.

Graduate Teaching Fellow, Department of Mathematics, University of Oregon, Eugene, 1980 – 1985.

Career break:

1996 – 2001 leave without pay and then resignation from position at Warwick to be in Switzerland with my husband and three children, where I taught full time in the HES Sierre. I carried out no research during those 5 years.

Areas of special interest, research domain:

Algebraic groups, finite groups of Lie type, representation theory

My research is concerned with the subgroup structure and representation theory of semisimple algebraic groups and the related finite groups of Lie type. In particular, I study maximal subgroups, overgroups of representatives of particular conjugacy classes of elements, the restriction of irreducible representations to certain families of reductive subgroups, and the relationship between the subgroup structure of the simple algebraic groups and their finite fixed point subgroups (the finite groups of Lie type).

Teaching activities:

- First year courses: linear algebra for engineers, advanced linear algebra for physicists and mathematicians, general mathematics for biologists and pharmacists.
- Second year courses: Group theory for mathematics students, Algebra for communication system students.
- Advanced bachelors and masters courses: Lie algebras, Representations of semisimple Lie algebras, Linear representations of finite groups, Galois theory, Topics in group theory, Chevalley groups, Classical groups.
- Doctoral courses: Linear algebraic groups.
- Creation of a MOOC for engineering students, EPFL.

Membership in panels:

2021 – present: member of the Commission cantonale de la maturité gymnasiale du Jura.

2019 – 2027: member of the Research Council of the Swiss National Science Foundation, vice-president of Division II 2022 – 2025.

2020 – 2027: member of the Specialised Committee - Careers of the Research Council of the Swiss National Science Foundation (chair of Prima panel, chair of SNSF Starting grants panel).

2015 – 2019: member EPFL Research commission.

2015, 2022, 2023, 2024: jury member for academic appointments at Amiens, Lyons, Marseille, Tours and Grenoble.

2015 – 2016 and 2024: jury member for a DFG Transregional project.

2014 – 2017: member of the EMS Women in Mathematics Commission.

2014 – 2017: member of the oversight committee for the EWM and EMS funded summer schools at the Mittag-Leffler Institute.

Institutional responsibilities:

2022 – 2023: member of hiring committee for Instructorships in mathematics, EPFL.

2017 – 2022: member of the EPFL Teacher's Council (CCE).

2016 – 2019: member of the Basic Science Faculty council.

2012 – 2017: EPFL mathematics institute student exchange coordinator.

Supervision of junior researchers :

Doctoral students:

Ana-Maria Retegan, EPFL, Dissertation title : *Eigenvalue multiplicities of group elements in irreducible representations of simple linear algebraic groups*, April 2022.

Jonathan Gruber, EPFL, Dissertation title: *Generic direct summands of tensor products for simple algebraic groups and quantum groups at roots of unity*, April 2022.

Nathan Scheinmann, EPFL, Dissertation title: *Maximal subgroups acting with two composition factors on irreducible representations of exceptional algebraic groups*, April 2019.

Mikko Korhonen, EPFL, Dissertation title: *Overgroups of certain classes of unipotent elements in simple algebraic groups*, January 2017.

Mikaël Cavallin, EPFL, Dissertation title: *Restricting representations of classical algebraic groups to maximal subgroups*, March 2015.

Iulian Simion, EPFL, Dissertation title: *Centers of centralizers of nilpotent elements in exceptional algebraic groups*, June 2013.

Soumaïa-Nadia Ghandour, EPFL, Dissertation title: *Irreducibility of disconnected subgroups of exceptional algebraic groups*, March 2008.

Richard Proud, Warwick University. Dissertation title: *Unipotent subgroups of reductive algebraic groups*, December 1997.

Rachel Pengelly, visiting doctoral and then post-doctoral researcher from University of Birmingham, 2022, 2023.

Postdoctoral fellows: Filippo Ambrosio, Harry Geranios, Paul Levy, Claude Marion, Aluna Rizzoli, Neil Saunders, Jay Taylor.

Host for SNSF Ambizione fellow Thomas Gerber.

Approved research grants:

Swiss national Science Foundation, research grant to partially support one post-doctoral fellow, 2022 – 2025, 177'080 CHF.

Swiss national Science Foundation, research grant for a scientific exchange, 2020, 12'500 CHF.

Swiss national Science Foundation, research grant to support two PhD students and one post-doctoral fellow, 2018 – 2022, 589'725 CHF.

Swiss national Science Foundation, research grant to support one PhD student 2015 – 2017, 115'000 CHF.

Swiss national Science Foundation, research grant to support one PhD student 2014 – 2018, 191'000 CHF.

Swiss national Science Foundation, research grant to support one post-doctoral fellow at 25%, 2014 – 2017, 85'000 CHF.

Swiss national Science Foundation, research grant to support two PhD students, 2011 – 2015, 241'000 CHF.

Swiss national Science Foundation, research grant to support one PhD student and one post-doctoral fellow, 2009 – 2011, 196'000 CHF.

Swiss national Science Foundation, funding for one PhD student and the PI salary, 2004 – 2008, 845'600 CHF.

Swiss national Science Foundation, Marie Heim-Voegtlin grant holder, 2001 – 2003, 171'440 CHF.

Swiss national Science Foundation, grant for advanced researcher, 1993 – 1994.

US National Science Foundation Research Grant, 1991 – 1993.

Awards:

2020: EPFL Credit Suisse teaching prize.
2020: EPFL mathematics department teaching prize.
2019: Craie d'or, EPFL physics department teaching prize.
2016: Agépolý prize for best teacher in the Faculty of Basic Sciences, EPFL.
1992 – 1995: Alfred P. Sloan Foundation Research Fellow.

Selected invited talks and conference participation (since 2002):

Nesin Mathematical Village Summer school, Siringe Turkey, August 2025, lecture course.
Women in Mathematics, EPFL, May 2025, plenary lecture.
Algebraic Groups on the Grand Canal, Venice, April 2025, invited speaker.
Group Theory in Florence, July 2024, invited speaker.
Fry Conference Series: New Perspectives in Pure Mathematics, Bristol, March 2023, invited talk.
Algebras, Geometries, and Groups, Brussels, December 2022, invited talk.
Algebra 2022 and beyond, Bloomington, Indiana, June 2022, invited talk.
Counting conjectures and beyond, Isaac Newton Institute for Mathematics, Cambridge, May 2022, invited talk.
Algebra and Geometry seminar, Rome, La Sapienza, *Overgroups of regular unipotent elements*, April 2021.
Mathematisches Forschungsinstitut Oberwolfach meeting on Algebraic Groups, April 2021, invited talk.
Groups and Representation Theory, a Conference in Memory of Kay Magaard, Warwick, September 2019, invited talk.
Simple groups: New perspectives and applications, Bristol, August 2018, invited talk.
Mathematical Sciences Research Institute, Berkeley, Final conference for the semester program Group Representation Theory and Applications, April 2018, invited talk.
University of Utah, colloquium, April 2018.
Mathematical Sciences Research Institute, Berkeley, Introductory workshop for the semester program Group Representation Theory and Applications, lecturer, February 2018.
Osaka Central Advanced Mathematical Institute, seminar talk, *Maximal subgroups, representation theory and branching problems*, June 2017.
Mathematisches Forschungsinstitut Oberwolfach meeting on Algebraic Groups, April 2017.
Summer School on Finite Groups and Related Geometrical Structures, Toblach, August 2017, lecturer.
Groups St. Andrews, August 2017, invited lecture.
Workshop on Permutation Groups: Methods and Applications, Bielefeld, January 2017, Sonia Kovalevskaya lecturer.
Représentation des groupes de Lie finis et p-adiques, November 2016, Luminy, invited speaker.
Representations of Algebraic groups, July 2016, York, invited lecture.
Representation Theory and Symplectic Singularities, ICMS Edinburgh, April 2016, invited lecture.
Complete reducibility, Geometric Invariant Theory and Buildings, February 2016 Bochum, invited lecture
LMS/EMS Joint Anniversary Mathematical Weekend, Birmingham, September 2015, invited lecture.
DIMA 2015, Minsk, September 2015, invited lecture.
Simple Groups, Representations, and Related Topics, Cambridge, July 2015, invited lecture.
Antalya Algebra days, May 2015, plenary lecture.
Perspectives in Lie theory intensive period, Pisa, January 2015, invited lecture.
International Congress of Women Mathematicians 2014, Seoul, August 2014, plenary lecture.

Structure of Algebraic Groups, Lyon, June 2014, invited lecture.

University of York Algebra Seminar, July 2013, *Irreducible maximal subgroups of classical algebraic groups*.

Cohomology in Lie Theory, Oxford, June 2013, invited talk.

Birmingham University Algebra seminar, April 2013, *Overgroups of regular elements in simple algebraic groups*.

London Algebra Colloquium, March 2013, *Irreducible maximal subgroups of classical algebraic groups*.

University of Arizona Algebra seminar, February 2013, *Overgroups of regular elements in simple algebraic groups*.

Séminaire Chevalley, January 2013, *Actions irréductibles des sous-groupes maximaux des groupes classiques*.

Groups of Lie types and their Geometries, Bangalore, December 2012, 3 hours of lectures on *Exceptional groups of Lie type: subgroup structure and unipotent elements*.

Symmetric spaces and their Generalisations, II, Trento, June 2012, invited talk.

AMS Sectional meeting Hawaii, special session on Linear and Permutation Representations, March 2012, invited talk.

Arizona State algebra seminar, February 2012, *Irreducible actions and maximal subgroups*.

Free University Berlin, Colloquium, August 2011.

Workshop on Classification problems in linear groups and group representations, Milan, July 2011, invited talk.

Arithmetic, Algebra and Applications, Conference in honor of Eva Bayer, Lausanne, June 2011, invited talk.

Birmingham algebra seminar, February 2011, *Irreducible geometric subgroups of classical algebraic groups*.

Fribourg University, Colloquium, March 2010.

Münster University, Colloquium, January 2010.

Banff International Research Station, participant in workshop on ‘Permutation groups’, July 2009.

Isaac Newton Institute for Mathematical Sciences, Cambridge, participant in semester program ‘Algebraic Lie Theory’, February 2009, invited talk.

Lecturer at *Summer School on Finite Groups and Related Geometrical Structures*, Venice, September 2007.

Mathematisches Forschungsinstitut Oberwolfach meeting on Permutation Groups, August 2007, invited talk.

Algebra Seminar, ETHZ, January 2006, *Completely reducible $SL(2)$ homomorphisms*.

Mathematisches Forschungsinstitut Oberwolfach meeting on Groups and Geometries, March 2005.

Mathematisches Forschungsinstitut Oberwolfach meeting on Algebraic Groups, March 2004.

Manchester University workshop on Geometric Representation and Invariant Theory, March 2003, invited talk.

Mathematisches Forschungsinstitut Oberwolfach meeting on Groups and Geometries, September 2002.

Conference organisation, since 2002:

Co-organizer of the conference *Groups and Representation Theory in Lausanne 2024*, EPFL, November 2024.

Co-organizer of *Young Group Theorists workshop*, SwissMap Research Station, September 2022.

Advisor for the *Young Algebraists Conference YAC 2021*, EPFL, September 2021.

Co-organizer of the workshop *Totally disconnected locally compact groups via group actions*, Banff, August 2021.

Co-organizer of the summer school *Modern theory of group actions and the special role of finite simple groups*, Mittag-Leffler Institute, June 2019.

Co-organizer of the conference *Permutation Groups*, Banff International Research Station, November 2016.

Co-organizer of the Bernoulli Center semester research Program, *Local Representation Theory and Simple groups*, including 5 workshops/conferences, July – December 2016.

Co-organizer of the workshop “Branching problems for reductive groups”, at the Mittag-Leffler Institute, May 2016.

Co-organizer of the summer school *Characters of Finite groups of Lie Type*, les Diablerets, August 2015.

Advisor for the *Young Algebraists’ Conference 2014*, EPFL, June 2014.

Co-organizer of the conference *Permutation Groups*, Banff International Research Station, July 2013.

Advisor for the *Young Algebraists Conference*, EPFL, June 2012.

Co-organizer of the conference *Geometry and Representations of Algebraic Groups*, EPFL, January 2011.

Co-organizer of the conference *Group Representation Theory and Related Topics*, EPFL, June 2010.

Co-organizer of the scientific conference *Algebraic Groups and Invariant Theory*, Centro Stefano Franscini, Ascona, August 2009.

Co-organizer of the Group Theory Seminar, EPFL, 2005 - 2015.

Co-organizer of the scientific conference *Algebraic Groups and Finite Reductive Groups*, held at the Bernoulli Center Lausanne, Switzerland, June 2005.

Co-organizer of the semestre program *Group Representation Theory* at the Bernoulli Center EPFL, January – June 2005.

Co-organizer of the scientific conference *Groups and Representations*, Eugene, Oregon, March 2004.

Co-organizer of *Workshop on Linear Algebraic Groups and Related Topics*, Lausanne, Switzerland, April 2002.

Editorial activities:

2024 – 2025: guest editor for a special volume of the Pacific Journal of Mathematics.

2021 – 2024: editor for the Journal of Algebra.

2020 – 2021: guest editor for a special volume of the Journal of Algebra.

2018 – 2019: guest editor for a special volume of the Journal of Algebra.

Referee for Journals of the American Mathematical Society, *Comptes Rendus*, *Journal für die Reine und Angewandte Mathematik*, *Journal of Algebra* and the journals of the London Mathematical Society.

Active membership in scientific societies:

Member of the American Mathematical Society, European Mathematical Society, French Mathematical Society and Swiss Mathematical Society.

Publications: journal articles

1. Irreducible subgroups of exceptional algebraic groups, *Memoirs Amer. Math. Soc.*, **390**, (1988), 1 – 190.
2. A construction of certain maximal subgroups of the algebraic groups E_6 and F_4 , *J. of Algebra*, **122** (2), (1989), 299 – 322.
3. A note on composition factors of Weyl modules, *Comm. in Algebra*, **17** (4), (1989), 1003 – 1016.
4. Extending morphisms from finite to algebraic groups, with Gary M. Seitz, *J. of Algebra*, **131** (2), (1990), 559 – 574.
5. The construction of the maximal A_1 ’s in the exceptional algebraic groups, *Proc. Amer. Math. Soc.* **116** (3), (1992), 635 – 644.

6. Overgroups of unipotent elements in semisimple algebraic groups, Groups, Combinatorics and Geometry, ed. M. Liebeck and J. Saxl, *London Math. Soc. Lecture Notes Series*, **165**, (1992), 333 – 339.
7. A_1 -type overgroups of elements of order p in semisimple algebraic groups and the associated finite groups, *J. of Algebra* **177** (1), (1995), 34 – 76.
8. Large rank subgroups of simple groups of Lie type, with J. Saxl and M. Liebeck, *Proceedings of the London Mathematical Society* **72** (3), (1996), 425 – 457.
9. Subgroups of type A_1 containing semiregular unipotent elements, with G. Seitz, *J. of Algebra*, **196** (2), (1997), 595 – 619.
10. A_1 subgroups of exceptional algebraic groups, with Ross Lawther, *Memoirs Amer. Math. Soc.*, **674**, (1999), 1 – 131.
11. Subgroups of type A_1 containing a fixed unipotent element in an algebraic group, with Richard Proud and J. Saxl, *J. of Algebra*, **231**, (2000), 53 – 66.
12. Irreducible subgroups of algebraic groups, with M. Liebeck, *Quarterly Journal of Mathematics*, **55**, (2004), 47 – 55.
13. Completely reducible $SL(2)$ -homomorphisms, with G.J. McNinch, *Transactions of the Amer. Math. Soc.*, **359** (9), (2007), 4489 – 4510 .
14. Nilpotent subalgebras of semisimple Lie algebras, with Paul Levy and G.J. McNinch, *Comptes Rendus Mathématique*, **347** (9–10), (2009), 477 – 482.
15. Nilpotent centralizers and Springer isomorphisms, with G.J. McNinch, *Journal of Pure and Applied Algebra*, **213** (7), (2009), 1346 – 1363.
16. Centres of centralizers of unipotent elements in simple algebraic groups, with Ross Lawther, *Mem. Amer. Math. Soc.*, **210**, no. 988, (2011), 1 – 188.
17. Irreducibility in algebraic groups and regular unipotent elements, with Alexandre Zalesski, *Proc. Amer. Math. Soc.*, **141** (2013), no.1, 13 – 28.
18. On the irreducibility of symmetrizations of cross-characteristic representations of finite classical groups, with Kay Magaard and Gerhard Röhrle, *J. Pure Appl. Algebra*, **217** (2013), no. 8, 1427 – 1446.
19. Unipotent overgroups in simple algebraic groups, with Iulian Simion, *Groups of Exceptional Type, Coxeter Groups and related Geometries: Indian Statistical Institute, Bangalore*, Springer proceedings in mathematics and Statistics, Volume 82, (2014), 147 – 158.
20. Irreducible almost simple subgroups of classical algebraic groups, with Timothy Burness, Soumaïa Ghandour and Claude Marion, *Mem. Amer. Math. Soc.*, **236**, (2015) 110 pp.
21. Subgroups of simple algebraic groups containing regular tori, and irreducible representations with multiplicity 1 non-zero weights, with Alex Zalesski, *Transform. Groups*, **20** (2015), no. 3, 831 – 861.
22. Distinguished unipotent elements and multiplicity-free subgroups of simple algebraic groups, with Martin Liebeck and Gary Seitz, *Pacific J. Math.*, **279** (2015), no. 1–2, 357 – 382.
23. Irreducible geometric subgroups of classical algebraic groups, with Timothy Burness and Soumaïa Ghandour, *Mem. Amer. Math. Soc.*, **239**, (2016), 88 pp.
24. Central subalgebras of the centralizer of a nilpotent element, with George McNinch, *Proc. Amer. Math. Soc.*, **144**, (2016), no. 6, 2383 – 2397.
25. On irreducible subgroups of simple algebraic groups, with Tim Burness and Claude Marion, *Math. Ann.*, **367** (2017), no. 3–4, 1259 – 1309.
26. Irreducible representations of simple algebraic groups in which a unipotent element is represented by a matrix with a single non-trivial Jordan block, with A.E. Zalesski, *Journal Of Group Theory*, **21**, (2018), no. 1, 1 – 20.
27. A_1 -type subgroups containing regular unipotent elements, with T.C. Burness, *Forum of Mathematics, Sigma*, **7** (2019), 61 pp.
28. Irreducible Subgroups of Simple Algebraic Groups – A Survey, with T.C. Burness, *Groups St Andrews 2017 in Birmingham*, ed. C.M. Campbell, C.W. Parker, M.R. Quick, E.F. Robertson, C.M. Roney-Dougal, LMS Lecture Note Series, **455**, Cambridge Cambridge University Press (2019), 230 – 260.

29. Minimal Polynomials Of Unipotent Elements Of Non-Prime Order In Irreducible Representations Of The Exceptional Algebraic Groups In Some Good Characteristics, with T.S. Busel and I.D. Suprunenko, *Doklady Natsionalnoi Akademii Nauk Belarusi*, **63** (5), (2019), 519 – 525.
30. A new family of irreducible subgroups of the orthogonal algebraic groups, with Mikaël Cavallin, *Transactions of the American Mathematical Society, Series B*, **6**, (2019), 45 – 79.
31. Overgroups of regular unipotent elements in simple algebraic groups, with Gunter Malle, *Transactions of the American Mathematical Society, Series B*, **8**, (2021), 788 – 822.
32. Overgroups of regular unipotent elements in simple algebraic groups, with Gunter Malle, *Mathematisches Forschungsinstitut Oberwolfach*, Report No. 20, (2021), 8 – 9.
33. Spectra of non-regular elements in irreducible representations of simple algebraic groups, with A.E. Zalesski, *North-Western European Journal of Mathematics*, **7**, (2021), 185 – 212.
34. Multiplicity-free representations of algebraic groups II, with Martin W. Liebeck and Gary M. Seitz, *J. Algebra*, **607**, (2022), 531 – 606.
35. Almost cyclic regular semisimple elements in irreducible representations of simple algebraic groups, with A.E. Zalesski, *Transformation Groups*, **28**, (2023), 1299 – 1324.
36. Multiplicity-free representations of algebraic groups, with Martin W. Liebeck and Gary M. Seitz, *Mem. Amer. Math. Soc.*, **294**, no. 1466, (2024), 1 – 268.
37. On minimal epimorphic subgroups in simple algebraic groups of rank 2, with Iulian Simion, *Journal of Pure and Applied Algebra*, **228**, (2024), 1 – 16.
38. Unicity of A_1 -subgroups associated to unipotent elements in simple algebraic groups, with Rachel Pengelly, *Proc. Amer. Math. Soc.*, to appear.
39. Multiplicity-free representations of the principal A_1 -subgroup in a simple algebraic group, with Aluna Rizzoli, *Pacific Journal of Mathematics*, to appear.
40. Roger Carter, with Meinolf Geck, *Bulletin of the London Mathematical Society*, to appear.

Publications: monographs

1. Group representation theory, edited by Meinolf Geck, Donna Testerman and Jacques Thévenaz. EPFL Press, Lausanne, (2007), x+454 pp.
2. Linear algebraic groups and finite groups of Lie type, with Gunter Malle, *Cambridge studies in advanced mathematics*, **133**, Cambridge University Press, (2011), xiv+309 pp.
3. Local Representation Theory and Simple Groups, edited by Radha Kessar, Gunter Malle and Donna Testerman, EMS Series of Lectures in Mathematics, European Mathematical Society, Zurich, (2018), viii+361 pp.