

## **Vita**

Jeffrey Bergen  
Department of Mathematics  
DePaul University  
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Chicago, Illinois 60614  
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### **Education:**

B.S. Brooklyn College 1976  
S.M. University of Chicago 1977  
Ph.D. University of Chicago 1981

### **Academic Employment:**

Assistant Professor, DePaul University, 1981-1986  
Associate Professor, DePaul University, 1986-1991  
Professor, DePaul University, 1991-present

### **Administrative Positions:**

Acting Chairman, Mathematics Department, Summer 1987  
Director, M.A. in Mathematics Education program, 1996-present  
Member, Maine Township - District 207 School Board, 1997-2009  
School Board President, 2001 - 2002  
Advisory Board – School Based Health Center at Maine East High School, 2003 - 2009

### **Awards:**

Excellence in Teaching Award, DePaul University, 2001  
Cortelyou-Lowery Award for Excellence, DePaul University, 2007  
Vincent dePaul Professor, 2012

### **Visiting Positions and Outside Grants:**

Visiting Assistant Professor, University of Southern California, 1983-84  
Honorary Fellow, University of Wisconsin-Madison, 1985  
English Speaking Union, grant for research at Leeds University, 1985  
Visiting Associate Professor, Ben-Gurion University, 1986  
Visiting Associate Professor, University of Wisconsin-Madison, 1988  
National Science Foundation Research Grant, 1988

National Science Foundation Grants for organizing N.S.F.-C.B.M.S. conferences, 1990, 92  
Central States Universities Grant, 1990  
National Security Agency Research Grant, 1991-93  
Visiting Professor, University of Warsaw-Bialystok Division, 1993, 95, 97  
Visiting Professor, University of Bialystok, 1999, 2001  
Visiting Professor, Bialystok Technical University, 2003, 2005, 2008

### **Publications – Books Authored:**

1. "A Concrete Approach to Abstract Algebra: from the Integers to the Insolvability of the Quintic", Elsevier, Boston, (2010).
2. Solutions manual to "A Concrete Approach to Abstract Algebra: from the Integers to the Insolvability of the Quintic", Elsevier (available online), Boston, (2010).

### **Publications – Books Edited:**

1. "Advances in Hopf Algebras", Lecture notes in pure and applied mathematics, Marcel Dekker, New York, **158** (1994), (with S. Montgomery).
2. "Hopf Algebras: Proceedings of the International Conference Held at DePaul University", Lecture notes in pure and applied mathematics, Marcel Dekker, New York, **237** (2004), (with S. Catoiu and W. Chin).
3. "Groups, Rings, Group Rings, and Hopf Algebras", Contemporary Math., American Mathematical Society, Providence, Rhode Island, to appear (with S. Catoiu and W. Chin).

### **Publications – Refereed Papers:**

1. "Lie Ideals and Derivations of Prime Rings", J. Algebra **71** (1981), 259-268 (with I. N. Herstein and J. W. Kerr).
2. "Automorphisms with Unipotent Values", Rend. Circ. Mat. Palermo **31** (1982), 226-232.
3. "Derivations with Invertible Values", Canadian J. Math. **35** (1983), 300-310 (with I. N. Herstein and C. Lanski).
4. "Rings with a Special Kind of Automorphism", Canadian Math. Bull. **26** (1983), 3-8 (with I. N. Herstein).
5. "Derivations in Prime Rings", Canadian Math. Bull. **26** (1983), 267-270.
6. "The Algebraic Hypercenter and Some Applications", J. Algebra **85** (1983), 217-242 (with I. N. Herstein).
7. "On the Derivation of  $X^n$  in a Ring", Proc. A.M.S. **90** (1984), 25-29 (with D. Bridges).
8. "Lie Ideals with Regular and Nilpotent Elements and a Result on Derivations", Rend. Circ. Mat. Palermo **33** (1984), 99-108.
9. "Annihilators in Rings with Involution", Rend. Circ. Mat. Palermo **34** (1985), 111-121 (with C. Lanski).
10. "Multilinear Polynomials with Power Commuting Values", Houston J. Math **11** (1985), 283-292.
11. "Actions of Commutative Hopf Algebras", Bull. London Math. Soc. **18** (1986), 159-164 (with M. Cohen).

12. "Smash Products and Outer Derivations", Israel J. Math. **53** (1986), 321-345 (with S. Montgomery).
13. "Radicals of Crossed Products of Enveloping Algebras", Israel J. Math. **59** (1987), 167-184 (with S. Montgomery and D. S. Passman).
14. "f- Radical Extensions of Rings", Rend. Sem. Mat. Univ. Padova **77** (1987), 125-133 (with A. Giambruno).
15. "Derivations with Invertible Values on a Lie Ideal", Canadian Math. Bull. **31** (1988), 103-110 (with L. Carini).
16. "A Note on Derivations with Power Central Values on a Lie Ideal", Pacific J. Math. **132** (1988), 209-213 (with L. Carini).
17. "Constants of Lie Algebra Actions", J. Algebra **114** (1988), 452-465.
18. "Automorphic-Differential Identities", Proc. A.M.S. **106** (1989), 297-305.
19. "Delta Methods in Enveloping Rings", J. Algebra **133** (1990), 277-313 (with D. S. Passman).
20. "Actions of Solvable Lie Algebras on Rings with No Nilpotent Elements", J. Algebra **135** (1990), 217-227.
21. "Irreducible Actions and Faithful Actions of Hopf Algebras", Israel J. Math. **72** (1990), 5-18 (with M. Cohen and D. Fischman).
22. "Delta Methods in Enveloping Algebras of Lie Superalgebras", Trans. A.M.S. **334** (1992), 259-280 (with D. S. Passman).
23. "Ideals and Quotients of Crossed Products of Hopf Algebras", J. Algebra **152** (1992) 374-396 (with S. Montgomery).
24. "Delta Methods in Enveloping Rings II", J. Algebra **156** (1993), 494-534 (with D. S. Passman).
25. "A Note on Smash Products over Frobenius Algebras", Comm. Algebra. **21** (1993), 4021-4024.
26. "Enveloping Algebras of Infinite Dimensional Lie Algebras", Proc. 1992 Denison Conference, World Scientific (1993), 95-101.
27. "Semisimplicity of Restricted Enveloping Algebras of Lie Superalgebras", Pacific J. Math. **162** (1994), 1-11.
28. "Delta Methods in Enveloping Algebras of Lie Superalgebras II", J. Algebra **166** (1994), 568-610 (with D. S. Passman).
29. "A Correspondence Theorems for Modules over Hopf Algebras", Proc. A.M.S. **121** (1994), 343-345.
30. "Engel-Type Theorems for Lie Color Algebras", Lecture notes in pure and applied mathematics, Marcel Dekker, New York **159** (1994), 31-33 (with P. Grzeszczuk).
31. "Invariants of Domains Under the Actions of Restricted Lie Algebras", J. Algebra **177** (1995), 115-131.
32. "Delta Ideals of Lie Color Algebras", J. Algebra **177** (1995), 740-754 (with D. S. Passman).
33. "A Note on the Primitivity of Ring Extensions", Comm. Algebra **23**(12) (1995), 4625-4631.
34. "Gradings, Derivations, and Automorphisms of Nearly Associative Algebras", J. Algebra **179** (1996), 732-750 (with P. Grzeszczuk).
35. "Invariants of Lie Superalgebras Acting on Associative Rings", Israel J. Math. **94** (1996), 403-428 (with P. Grzeszczuk).
36. "Invariants of Skew Derivations", Proc. A.M.S. **125** (1997), 3481-3488 (with P. Grzeszczuk).
37. "Enveloping Algebras of Lie Color Algebras: Primeness Versus Graded-Primeness", Proc. A.M.S. **126**(6) (1998), 1627-1635 (with D. S. Passman).

38. "Invariants of  $U_q(\mathfrak{sl}(2))$  and  $q$ -Skew Derivations", *J. Pure and Applied Algebra* **133** (1998), 27-38 (with P. Grzeszczuk).
39. "P. 1. Algebras with Hopf Algebra Actions", *J. Algebra* **214**(2) (1999), 636-651 (with A. Berele).
40. "Skew Derivations with Central Invariants", *J. London Math. Soc.* **59** (1999), 87-99 (with P. Grzeszczuk).
41. "X-Inner Automorphisms of Semi-Commutative Quantum Algebras", *J. Algebra* **220** (1999), 152-173 (with M. Wilson).
42. "Invariants of Lie Color Algebras Acting on Graded Algebras", *Colloq. Math.* **83** (2000), 107-124 (with P. Grzeszczuk).
43. "Simple Lie Algebras of Special Type", *J. Algebra* **227** (2000), 45-67 (with D. S. Passman).
44. "Skew Derivations whose Invariants Satisfy a Polynomial Identity", *J. Algebra* **228** (2000), 710-737 (with P. Grzeszczuk).
45. "Simple Jordan Color Algebras Arising from Associative Graded Algebras", *J. Algebra* **246** (2002), 915-950 (with P. Grzeszczuk).
46. "X-Inner Automorphisms, Automorphisms, and Isomorphisms of Skew Polynomial Rings", *Comm. Algebra* **31** (2003), no. 2. 1007-1029.
47. "A New Proof of the Skolem-Noether Theorem", *Lecture notes in pure and applied mathematics*, Marcel Dekker, New York **237** (2004), 93-96.
48. "Derivation Algebras of Rings Related to Heisenberg Algebras", *J. Algebra and its Applications* **3** (2004), no. 2. 181-191.
49. "Isomorphism Classes of Rings Related to Heisenberg Algebras", *Comm. Algebra* **32** (2004), no. 9. 3471-3478.
50. "Smash Products Satisfying a Polynomial Identity", *Comm. Algebra* **33** (2005), no. 1. 221-233 (with Piotr Grzeszczuk).
51. "Adjoint Actions of Cocommutative Hopf Algebras", *Contemporary Mathematics*, American Mathematical Society, Providence, Rhode Island **420** (2006), 25-34.
52. "Finite Block Theory and Hopf Algebra Actions", *Algebras and Representation Theory* **11** (2008), no. 1, 1 – 23. (with Piotr Grzeszczuk).
53. "Actions of Lie Superalgebras on Reduced Rings", *Algebras and Representation Theory* **11** (2008), no. 3, 251 – 273. (with Piotr Grzeszczuk and Malgorzata Hryniewicka).
54. "Values of Trigonometric Functions", *Math Horizons*, February (2009), 17-19.
55. "On Rings with Locally Nilpotent Skew Derivations", *Comm. Algebra* **39** (2011), 3698 – 3708 (with Piotr Grzeszczuk).
56. "Skew Power Series Rings of Derivation Type", *J. Algebra and its Applications* **10**(6) (2011), 1383-1399 (with Piotr Grzeszczuk).
57. "Nilpotent Subsets of Graded Algebras with Color Involution", *Comm. Algebra* **40**(3), (2012), 823-833.
58. "Goldie Dimension of Constants of Locally Nilpotent Skew Derivations", *J. Algebra and its Applications* **11**(6), (2012), 12 pages (with Piotr Grzeszczuk).
59. "Jacobson Radicals of Ring Extensions", *Journal of Pure and Applied Algebra* **216**(12), (2012), 2601-2607, (with Piotr Grzeszczuk).
60. "Skew Derivations and the Nil and Prime Radicals", *Colloq. Math.* **128**(2), (2012), 229-236 (with P. Grzeszczuk).
61. "Lie Superalgebras whose Enveloping Algebras Satisfy a Non-Matrix Polynomial Identity", *Israel J. Math.* **196** (2013), 161-173 (with D. Riley and H. Usefi).

62. "GK Dimension and Locally Nilpotent Skew Derivations", Glasgow Math. J. **57** (2015), no. 3, 555-567 (with Piotr Grzeszczuk).
63. "Gelfand-Kirillov Dimension of Algebras with Locally Nilpotent Derivations", Israel J. Math. **206** (2015), no. 1, 313-325 (with Piotr Grzeszczuk).
64. "Taft Algebras Acting on Associative Algebras:", J. Algebra **423** (2015), 422-440.
65. "Invariants of Domains with Finite GK Dimension", Monatsh. Math. **179** (2016), no. 2, 191-199 (with Piotr Grzeszczuk).
66. "Factorizations for Difference Operators", Adv. Difference Equ. (2015), **2015:57**, 6 pp (with M. Giesrecht, P. N. Shivakumar, Y. Zhang)
67. "Affine Actions of  $Uq(sl(2))$  on polynomial rings", Canad. Math. Bull. **58** (2015), no.2, 233-240.
68. "Skew Derivations with Algebraic Invariants of Bounded Degree", J. Algebra **447** (2016), 422-440 (with Piotr Grzeszczuk).
69. "Nagata-Higman and Rings with Involution", Contemporary Math., American Mathematical Society, Providence, Rhode Island, to appear.
70. "Is This the Easiest Proof that  $n$ th Roots are Always Integers or Irrational?", Math. Mag., to appear.
71. "Locally Nilpotent Skew Derivations with Central Invariants", J. Algebra, to appear (with Piotr Grzeszczuk).
72. "Cancellation in Skew Polynomial Rings", submitted.
73. "Jacobson Radicals of Invariants Under Hopf Algebra Actions", to appear (with Piotr Grzeszczuk).

### **Invited Talks Presented:**

1. Ring Theory Seminar at Univ. of Chicago (3 talks), Spring 1982
2. Denison Conference at Ohio State Univ., June 1982
3. Midwest Ring Theory Conference at Michigan St. Univ., October 1982
4. Colloquium at Northern Illinois Univ., October 1982
5. Visiting Professor at Univ. of Palermo (2 talks), July 1983
6. N.A.T.O Conference in Ring Theory at Univ. of Antwerp, August 1983
7. Algebra Seminar at Univ. of Southern California (3 talks), Fall 1983
8. A.M.S. Conference at Notre Dame Univ., April 1984
9. Algebra Seminar at Univ. of California-San Diego, May 1984
10. A.M.S. Conference on "Group Actions" at Bowdoin College, July 1984
11. Algebra Seminar at Univ. of Southern Cal. (2 talks), December 1984
12. Ring Theory Seminar at Univ. of Chicago (9 talks), Winter 1985
13. Univ. of Cincinnati Colloquium and Algebra Sem. (2 talks), May 1985
14. Univ. of Messina (3 talks), July 1985
15. Univ. of Palermo, July 1985
16. Univ. of Wisconsin-Madison Ring Theory Seminar (3 talks), Fall 1985
17. Leeds Univ. Algebra Seminar, December 1985
18. Denison Conference at Denison Univ., April 1986
19. London Math. Soc. Conference at Leeds Univ., July 1986
20. Univ. of Palermo (2 talks), November 1986

21. Univ. of Messina (2 talks), December 1986
22. Colloquium at Ben-Gurion Univ., December 1986
23. Colloquium at Bar-Ilan Univ., December 1986
24. Algebra Seminar at Hebrew Univ., December 1986
25. Ring Theory Seminar at Univ. of Chicago (2 talks), April 1987
26. A.M.S. Conference at Kent State Univ., April 1987
27. A.M.S. Conference at Univ. of Utah, August 1987
28. Colloquium at Univ. of Wisconsin-Parkside, September 1987
29. Algebra Seminar at Northwestern Univ., May 1989
30. A.M.S. Conference at Loyola Univ., May 1989
31. Micro-Program in Non-Commutative Ring Theory at Math. Sci. Res Inst. in Berkeley, July 1989
32. A.M.S. Conference at Ball State Univ., October 1989
33. Algebra Seminar at Univ. of Southern California, February 1990
34. A.M.S. Conference at Univ. of Indiana-South Bend, March 1991
35. Denison Conference at Denison Univ., May 1992
36. Algebra Conference at Univ. of Wisconsin-Parkside, March 1993
37. A.M.S. Conference at Univ. of Utah, April 1993
38. Colloquium at Univ. of Warsaw - Bialystok Division (2 talks), June 1993
39. Colloquium at Polytechnic Inst. of Bialystok, June 1993
40. Colloquium and Algebra Seminar at Univ. of Munich (2 talks), July 1993
41. Ohio State-Denison Conference at Ohio State Univ., March 1994
42. A.M.S. Conference at DePaul University, March 1995
43. Colloquium at Univ. of Warsaw - Bialystok Division (2 talks), July 1995
44. Conference at California State Univ. - Northridge, October 1995
45. A.M.S. Conference at California Institute of Technology, Nov. 1996
46. Colloquium at Univ. of Warsaw - Bialystok Division (2 talks), Feb. 1997
47. Colloquium at Loyola Univ. , March 1997
48. Australasian Mathematics Conference at Univ. of Auckland, July 1997
49. Denison Conference at Denison Univ., May 1998
50. A.M.S. Conference at Wake Forest University, October 1998
51. Seventh International Conference on Groups and Group Rings in Suprasl, Poland (2 talks), June 1999
52. Ninth International Conference on Groups and Group Rings Bialystok, Poland (2 talks), June 2001
53. Midwest Algebra Conference at DePaul University, November 2001
54. Denison Conference at Denison Univ., May 2002
55. A.M.S. Conference at Univ. of Wisconsin-Madison, October 2002
56. Colloquium at Bialystok Technical University, June 2003
57. Research Workshop in Noncommutative Ring Theory at Stefan Banach Center in Warsaw, Poland (2 talks), June 2003
58. Conference in honor of D.S. Passman at University of Wisconsin-Madison, June 2005
59. Colloquium at Bialystok Technical University, June 2005
60. Colloquium at University of Western Ontario, July 2006
61. Colloquium and Graduate Student Seminar at University of Wisconsin-Oshkosh (2 talks), December 2006

62. NCAT Conference on Course Redesign in Austin, Texas, April 2007
63. Algebra Seminar at University of Illinois-Chicago, March 2008
64. 5<sup>th</sup> Podlasie Conference at Bialystok Technical University (2 talks), June 2012
65. A.M.S. Conference at Boston College, April 2013
66. Conference on Groups, Rings, and Group Rings at Brock University, July 2014
67. Morton West High School, March 2015
68. Metropolitan Math Club of Chicago, December 2016

## **Refereeing:**

1. Proceedings A.M.S.
2. Houston J. Math
3. Communications in Algebra
4. Journal of Algebra
5. Chinese J. of Math.
6. Rend. Circ. Mat. Palermo
7. Rocky Mountain J. Math.
8. Canadian Math. Bull.
9. Transactions A.M.S.
10. N.S.F. Research Proposals
11. Bull. Acad. Sinica
12. Canadian J. Math.
13. N.S.A. Research Proposals
14. Publicationes Mathematicae Debrecen
15. Pacific J. Math
16. Journal of Pure and Applied Algebra
17. Turkish Journal of Mathematics
18. Israel Science Foundation Research Proposals
19. American Mathematical Monthly
20. Research Council of Canada
21. Chilean Journal of Mathematics
22. Israel Journal of Mathematics
23. Radovi Matematicki
24. Hong Kong Research Foundation
25. Soochow J. Math
26. Advances in Math
27. International J of Math, Game Theory, and Algebra
28. Journal of Algebra and its Applications
29. International Journal of Mathematics and Mathematical Sciences
30. Monatshefte fur Mathematics
31. Nova Journal
32. Linear Algebra and its Applications
33. Glasgow Journal of Mathematics
34. Indian Journal of Pure and Applied Mathematics
35. Quaestiones Mathematicae
36. Algebra and Representation Theory

37. Hindawi Journal of Mathematics
38. Hacettepe Journal of Mathematics and Statistics
39. Abhandlungen Math. Seminar Hamburg
40. Afrika Matemtika
41. Colloquium Mathematicum
42. Asian-European Journal of Mathematics
43. Publicationes Mathematicae Debrecen
44. Indian Journal of Mathematics

## **Editorial Boards**

1. Ege University Journal of the Faculty of Science
2. Hindawi - Algebra

## **Other Mathematical Activities:**

1. Organized Midwest Ring Theory Conference at DePaul Univ., April 1985
2. Organized Special Session in Non-Commutative Ring Theory at A.M.S. Meeting at Loyola Univ., 1989
3. Organized N.S.F.-C.B.M.S. Conference at DePaul Univ., July 1990
4. Organized N.S.F.-C.B.M.S. Conference at DePaul Univ., August 1992
5. Organized A.M.S. Regional Meeting at DePaul Univ., March 1995
6. Organized A.M.S. Regional Meeting at DePaul Univ., September 1998
7. Co-organizer of a series of Algebra Conferences at DePaul Univ., Oct., Nov., Dec. 2001 and Feb. 2002
8. Organizing A.M.S. Regional Meeting at DePaul Univ., October 2007
9. Co-organizer Special Session of A.M.S. Meeting at Loyola Univ. in honor of the 75<sup>th</sup> birthday of D. S. Passman, October 2015

## **Reviewing:**

1. Mathematical Reviews
2. Abstract Algebra text for W.C. Brown
3. Calculus text for Prentice-Hall
4. Set Theory text for P.W.S. Kent
5. Problem Solving text for John Wiley
6. Abstract Algebra text for John Wiley
7. Transition to Higher Mathematics text for Elsevier
8. Abstract Algebra text for Elsevier

## **Membership in Professional Organizations:**

1. American Mathematical Society
2. National Council of Teachers of Mathematics
3. Mathematical Association of America



#### 4. Polish Mathematical Society

### **Department Service:**

1. Undergraduate Committee, 1981-83, 84-92 (Undergraduate Coordinator 1987-89)
2. Personnel Committee, 1982-83, 84-86, 2002-03, 03-04
3. Colloquium Committee, 1984-87, 90-93, 96-98
4. Math Club Faculty Advisor, 1983, 84-87
5. Hiring Committee, 1986-88, 2002-03, 03-04, 05-06, 06-07, 08-09, 10-11, 11-12, 12-13, 13-14, 14-15, 15-16
6. Liberal Studies, 1987-90
7. Skills Committee, 1988-89
8. M.A.M.Ed. Committee, 1988-present (M.A.M.Ed. Director 1996 - present)
9. Elementary Education Committee, 1990-92, 93-98
10. B.M.S. Committee, 1992-96 (B.M.S. Coordinator 1992-95)
11. Chair of Search Committee for Department Chairman, 2000-01
12. Assessment Committee 2002-03, 2004-2012
13. Precalculus/Placement 2003-present
14. Liberal Arts Mathematics 2004
15. Ad-Hoc Committee on Masters Degree Program 2005-2007
16. Course Redesign Committee 2006-present
17. Chair of Academic Program Review Committee 2009-2010
18. Committee on Revising Departmental P&T Guidelines 2017

### **University Service:**

1. Committee on the Status of the Faculty, 1988-90
2. Committee on Academic Policies, 1990-92
3. L.A. & S. Grade Challenge Board, 1991-92, 95-98
4. L.A. & S. Faculty Research and Development Fund Board, 1991-92, (Chair) 92-93, 98-00
5. Dean's Committee on Combined 5 Year B.A. - M.B.A. Degree, 1994
6. University Research Council, 1997-2000
7. Faculty Council, 1998-2001
8. University Board on Tenure and Promotion, 1998, 2004-2007
9. L. A. & S. Committee on Excellence in Teaching, 2001-03
10. Professional Education Committee, 2003-2009
11. Education Assessment Committee, 2003-2009
12. School of Education Joint Degree Committee, 2003-05
13. L.A. & S. Curriculum Committee 2004 - 2007
14. L.A. & S. Scientific Inquiry Domain Committee 2004-2010
15. Honors Program in Science Committee 2004-05
16. Quantitative Reasoning Committee 2004-present
17. L.A. & S. Committee on Lincoln Park Campus Schedules 2008
18. L. A. & S. Awards Committee 2008 – 2011
19. University Promotion and Tenure Appeals Board 2009, 2011

20. Joint L. A. & S. – College of Education Committee on 5 Year BS-MA Degree 2009-2016
21. Academic Program Review Committee 2010 – 2013
22. CSH Promotion and Tenure Board 2011 – 2017, Chair 2015-2017
23. Provost Search Committee 2012-2013
24. University Athletic Board 2014-present
25. Summer Working Group on P&T Guidelines - 2015