

# RALF SCHIFFLER

## CURRICULUM VITAE

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### EDUCATION

2002 Ph.D. (Mathematics), Université du Québec à Montréal  
1997 M.Sc. (Mathematics), Universität Köln, Germany

### ACADEMIC POSITIONS

Aug 16 – to date Professor, University of Connecticut  
Aug 13 – Aug 16 Associate Professor, University of Connecticut  
Aug 08 – Aug 13 Assistant Professor, University of Connecticut  
Sep 05 – Aug 08 Visiting Assistant Professor, UMass Amherst  
Apr 05 – Aug 05 Postdoc, Université de Sherbrooke  
Jan 03 – Apr 05 NATEQ Postdoc, Carleton University, Ottawa  
Jun 02 – Dec 02 FCAR Postdoc, CRM Université de Montréal

### HONORS AND AWARDS

2017 Simons Visiting Professor, Mathematisches Forschungsinstitut  
Oberwolfach and Universität Bielefeld, Germany.  
2015 Excellence in Research Award Medal in the Physical Sciences,  
University of Connecticut, College of Liberal Arts and Sciences.  
2013 – 2018 NSF CAREER Grant DMS-1254567, \$400,000,  
“Cluster algebras, combinatorics and representation theory”.  
2013 – 2015 NSF Grant, DMS-1101377  
“Wall-crossing, stability conditions and mirror symmetry”.  
2010 – 2013 NSF Grant, DMS-1001637, \$150,000,  
“Cluster algebras and tilting theory II”.  
2007 – 2010 NSF Grant, DMS-0700358 and DMS-0908766, \$87,048,  
“Cluster algebras and tilting theory”.  
2003 – 2005 NATEQ Canada, Post-doctoral fellowship  
2002 FCAR Canada, Post-doctoral fellowship  
2002 Governor General’s Academic Gold Medal (Canada).  
2000 – 2002 FCAR Canada, Doctoral scholarship  
1998 – 2000 ISM Canada, Doctoral scholarship

**INVITED RESEARCH OR TEACHING VISITS**

- Feb 17 Universität Bielefeld and MFOberwolfach, Germany (two weeks)
- Nov 16 University of California, Berkeley, USA (one week)
- May 16 Université de Sherbrooke, Canada (one week)
- Mar 16 Universidad Nacional de Mar del Plata, Argentina (two weeks)
- Jul. 15 KIAS Seoul, Korea (two weeks)
- Jun. 15 Leicester University, United Kingdom (one week)
- Feb. 15 Universität Münster, Germany (one week)
- Dec. 14 KIAS Seoul, Korea (two weeks)
- Nov. 14 Universidad Nacional de Mar del Plata, Argentina (two weeks)
- Sep. 14 Leicester University, United Kingdom (one week)
- Jun 14 Université du Québec à Montréal, Montréal, Canada (one week)
- May 14 Centre de Recherches Mathématiques, Montréal, Canada (one week)
- Dec. 13 Math. Forschungsinstitut Oberwolfach, Germany (one week)
- Sep. 13 Nicolaus Copernicus University in Torun, Poland (one week)
- May 13 Université de Sherbrooke, Canada (one week)
- Dec. 12 Universidad Nacional de Mar del Plata, Argentina (one week)
- Oct. 12 MSRI, Berkeley, USA (one week)
- Mar. 12 Université de Sherbrooke, Canada (one week)
- Feb. 12 Wayne State University, USA (one week)
- Nov. 11 Université de Sherbrooke, Canada (one week)
- Sep. 11 BIRS, Banff, Canada (one week)
- Aug. 11 ICERM, Providence, USA (one week)
- Aug 11 MSRI, Berkeley, USA (one week)
- Jul. 11 Universidad Nacional del Sur, Bahia Blanca, Argentina (three weeks)
- Feb. 11 Math. Forschungsinstitut Oberwolfach, Germany (one week)
- Jan. 11 Hausdorff Institut Bonn, Germany (three weeks)
- Oct. 10 Université de Sherbrooke, Canada (one week)
- Jul. 10 University of California, Berkeley, USA (one week)
- Jan. 10 Université de Sherbrooke, Canada (one week)
- Jun. 09 Université de Sherbrooke, Canada (one week)
- Feb. 09 Université de Sherbrooke, Canada (one week)
- Jan. 09 Universität Bonn, Germany (two weeks)
- Jun. 07 Université de Sherbrooke, Canada (three weeks)
- Feb. 07 Universidad de la Republica, Montevideo, Uruguay (one week)
- Jan. 07 Université Lyon, France (four weeks)
- Sep. 06 Centre International de Rencontres Mathématiques, Luminy,  
France (one week)
- Jun. 06 Université de Sherbrooke, Canada (one week)
- Jun. 06 North Carolina State University, Raleigh, USA (one week)
- May 06 Universität Bielefeld, Germany, (one week)
- May 06 Université de Sherbrooke, Canada (one week)
- Jan. 06 Université de Sherbrooke, Canada (one week)
- Apr. 04 Université Lyon, France (three weeks)

## PUBLICATIONS

### Books

1. R. Schiffler. *Quiver Representations*, CMS Books in Mathematics, Springer Verlag, 2014.
2. R. Schiffler. *Variétés de carquois et homologie d'intersection*, Publications LACIM 30, Montréal (2003).

### Articles

1. C. Paquette and R. Schiffler, Group actions on cluster algebras and cluster categories, 48 pages, (preprint 2017).
2. İ. Çanakçı, and R. Schiffler, Cluster algebras and continued fractions, 28 pages, (preprint 2016).
3. I. Assem, R. Schiffler and K. Serhiyenko, Modules over cluster-tilted algebras that do not lie on local slices, 10 pages, (preprint 2016).
4. I. Assem, R. Schiffler and K. Serhiyenko, Cluster-tilted and quasi-tilted algebras, 27 pages, to appear in *J. Pure Appl. Alg.*
5. R. Schiffler and K. Serhiyenko, Injective presentations of induced modules over cluster-tilted algebras, 24 pages, (preprint 2016).
6. İ. Çanakçı, and R. Schiffler, Snake graph calculus and cluster algebras from surfaces III: Band graphs and snake rings, 51 pages, (preprint 2015).
7. R. Schiffler and K. Serhiyenko, Induced and coinduced modules over cluster-tilted algebras, 27 pages, to appear in *J. Algebra* **472**, (2017), 226–258.
8. A. Garcia Elsener and R. Schiffler : On syzygies over 2-Calabi-Yau tilted algebras, *J. Algebra* **470**, (2017), 91–121.
9. R. Schiffler : Lecture notes on cluster algebras, by Robert J. Marsh, book review, *Bull. Amer. Math. Soc.* **53** (2016), 325–330.
10. I. Assem, M. A. Gatica, R. Schiffler, and R. Taillefer : Hochschild cohomology of relation extension algebras, *J. Pure Appl. Alg.* **220**, 7, (2016), 2471–2499.
11. İ. Çanakçı, K. Lee and R. Schiffler, On cluster algebras from unpunctured surfaces with one marked point, *Proc. Amer. Math. Soc. Ser. B* **2**, (2015) 35–49.
12. İ. Çanakçı, and R. Schiffler, Snake graph calculus and cluster algebras from surfaces II: Self-crossing snake graphs, *Math. Z.* **281** (1), (2015), 55–102.

13. K. Lee and R. Schiffler, Positivity for cluster algebras, *Annals of Math.* **182** (1), (2015) 73–125.
14. I. Assem, M.J. Redondo and R. Schiffler, On the first Hochschild Cohomology of a cluster-tilted algebra, *Algebr. Represent. Theory* **18** (6), (2015), 1547–1576.
15. I. Assem, V. Shramchenko and R. Schiffler, Cluster automorphisms and compatibility of cluster variables, *Glasgow Math. J.* **56** (3), (2014) 705–720.
16. I. Assem, V. Shramchenko, R. Schiffler : Addendum to Cluster automorphisms and compatibility of cluster variables, *Glasgow Math. J.* **56** (3), (2014).
17. I. Assem, G. Dupont and R. Schiffler, On a category of cluster algebras, *J. Pure Appl. Alg.* **218** (3), (2013) 553–582.
18. K. Lee and R. Schiffler. Positivity for cluster algebras of rank 3, *Publ. Res. Inst. Math. Sci.* **49**, (2013) 601–649.
19. I. Assem, J. C. Bustamante, K. Igusa and R. Schiffler, The first Hochschild cohomology group of a cluster-tilted algebra revisited, *Internat. J. Algebra Comput* **23** (4), (2013) 729–744.
20. İ. Çanakçı, and R. Schiffler, Snake graph calculus and cluster algebras from surfaces, *J. Algebra*, **382**, (2013), 240–281.
21. G. Musiker, R. Schiffler and L. Williams, Bases for cluster algebras from surfaces, *Compositio Math.* **149**, 2, (2013) 217–263.
22. K. Lee and R. Schiffler. Proof of a positivity conjecture of M. Kontsevich on non-commutative cluster variables, *Compositio Math.* **148**, 6, (2012) 1821–1832.
23. K. Lee and R. Schiffler. A combinatorial formula for rank 2 cluster variables, *J. Alg. Comb.* **37**, 1, (2013) 67–85.
24. I. Assem, M.G. Gatica and R. Schiffler, The higher relation bimodule, *Algebras and Representation Theory* **16**, 4 (2013), 979–999.
25. R. Kinser and R. Schiffler. Idempotents in the representation rings of quivers, *Algebra Number Theory* **6**, No. 5, (2012), 967–994.
26. M. Oryu and R. Schiffler, On one-point extensions of cluster-tilted algebras, *J. Algebra* **357**, (2012), 168–182.
27. I. Assem, R. Schiffler and V. Shramchenko. Cluster automorphisms, *Proc. Lond. Math. Soc.* **104** (6), (2012), 1271–1302

28. L. David-Roesler and R. Schiffler. Algebras from surfaces without punctures, *J. Algebra* **350**, (2012), 218–244.
29. I. Assem, G. Dupont, R. Schiffler and D. Smith. Friezes, strings and cluster variables, *Glasgow Math. Journ.* **54**, 1, (2012) 27–60.
30. G. Musiker, R. Schiffler and L. Williams. Positivity for cluster algebras from surfaces, *Advances in Math.* **227** (2011) 2241–2308.
31. I. Assem, T. Brüstle and R. Schiffler. Cluster-tilted algebras without clusters, *J. Algebra* **324** (2010), 2475–2502.
32. K. Igusa and R. Schiffler. Exceptional sequences and clusters, *J. Algebra* **323**, 8, (2010), 2183–2202.
33. G. Musiker and R. Schiffler. Cluster expansion formulas and perfect matchings, *J. Alg. Comb.*, **32**, 2, (2010), 187–209.
34. R. Schiffler. On cluster algebras arising from unpunctured surfaces II, *Advances in Math.* **223** (2010), 1885–1923.
35. R. Schiffler. Cluster algebras and cluster categories, Lecture notes for the Latin American Colloquium, São Pedro, Brazil, (2009).
36. G. Musiker, R. Schiffler : Cluster algebras of unpunctured surfaces and snake graphs, in *DMTCS Proceedings 2009*, 21st International Conference on Formal Power Series and Algebraic Combinatorics FPSAC (2009), 673–684.
37. R. Schiffler and H. Thomas: On cluster algebras arising from unpunctured surfaces, *Int. Math. Res. Not.* **17** (2009), 3160–3189.
38. I. Assem, T. Brüstle and R. Schiffler. On the Galois covering of a cluster-tilted algebra, *J. Pure Appl. Alg.* **213** (7) (2009), 1450–1463.
39. R. Schiffler. A cluster expansion formula ( $A_n$  case), *Electron. J. Combin.* **15** (2008), #R64 1.
40. I. Assem, T. Brüstle and R. Schiffler. Cluster-tilted algebras and slices, *J. Algebra* **319** (2008), 3464–3479.
41. I. Assem, T. Brüstle and R. Schiffler. Cluster-tilted algebras as trivial extensions, *Bull. London Math. Soc.* **40** (2008), 151–162.
42. R. Schiffler. A geometric model for cluster categories of type  $D_n$ , *J. Alg. Comb.* **27** (1) (2008), 1–21.
43. I. Assem, T. Brüstle, R. Schiffler and G. Todorov.  $m$ -cluster categories and  $m$ -replicated algebras, *J. Pure Appl. Alg.* **212** (4) (2008), 884–901.
44. I. Assem, T. Brüstle, R. Schiffler and G. Todorov. Cluster categories and duplicated algebras, *J. Algebra* **350** (1) (2006), 548–561.

45. P. Caldero, F. Chapoton and R. Schiffler. Quivers with relations and cluster tilted algebras, *Algebras and Representation Theory* **9**, no. 4, (2006), 359–367.
46. P. Caldero, F. Chapoton and R. Schiffler. Quivers with relations arising from clusters ( $A_n$  case), *Trans. Amer. Math. Soc.* **358** (2006), no. 3, 1347–1367.
47. R. Schiffler. On the multiplication in the quantized enveloping algebra of type  $A$ , in *Representations of Algebras and Related Topics*, Fields Institute Communications **45**, (2005), 357–361.
48. P. Caldero and R. Schiffler. Rational smoothness of varieties of representations for quivers of Dynkin type, *Annales de l'Institut Fourier* **54(2)** (2004), 295–315.
49. R. Schiffler. Projective rational smoothness of varieties of representations for quivers of type  $A$ , *Representation Theory* **7** (2003), 549–586.
50. R. Bédard and R. Schiffler. Rational smoothness of varieties of representations for quivers of type  $A$ , *Representation Theory* **7** (2003), 481–548.

#### Lecture notes

1. R. Schiffler : Lecture notes on cluster algebras from surfaces, CIMPA School, Mar del Plata, 2016.
2. R. Schiffler : Cluster algebras and cluster categories, lecture notes for the Latin American Colloquium, Sao Pedro, Brazil, 2009.

#### COLLOQUIUM TALKS

1. On cluster algebras from surfaces, Wayne State University, 2012.
2. Path algebras, Universidad Nacional del Sur, Bahia Blanca, 2011.
3. Introduction aux algèbres amassées, Université de Sherbrooke, 2009.
4. Quiver representations: basic facts and some recent developments, University of Maine, 2008.
5. Quiver representations: basic facts and some recent developments, Loyola University, 2008.
6. Quiver representations: basic facts and some recent developments, University of Connecticut, 2008.
7. Quiver representations: basic facts and some recent developments, University of Waterloo, 2008.

8. Quiver representations: basic facts and some recent developments, Kansas State University, 2007.
9. Quiver representations: basic facts and some recent developments, Brandeis-Harvard-MIT-Northeastern Joint Mathematics Colloquium, Brandeis University, Boston 2005.

### INVITED SHORT COURSES AND WORKSHOPS

1. Cluster algebras from surfaces, Cluster Algebra Spring School, University of Connecticut, USA, 2017
2. Cluster algebras from surfaces, CIMPA graduate course, Universidad Nacional de Mar del Plata, Argentina, 2016.
3. Cluster algebras and Chern-Simons invariants, First Encounter to Quantum Topology: School and Workshop, KIAS, Seoul, Korea, 2015.
4. Cluster algebras and cluster algebras from surfaces, Cluster algebras and dynamical systems, Winter School, Universität Münster, Germany 2015.
5. Cluster algebras, summer graduate course, Universidad Nacional de Mar del Plata, Argentina, 2014.
6. Cluster algebras and tilting theory, Summer Graduate Workshop, Mathematical Sciences Research Institute MSRI, Berkeley, 2011.
7. Cluster algebras from surfaces, Colloque sur les surfaces et les représentations, Université de Sherbrooke, 2010.
8. Cluster algebras and cluster categories, South American meeting on representations of algebras and related topics, Mar del Plata, Argentina, 2010.
9. Cluster algebras and cluster categories, Latin-American algebra colloquium, Sao Pedro, Brazil, 2009.
10. Cluster categories, Workshop on representation theory and related areas, Universidad de la Republica, Montevideo, Uruguay, 2007.

### TALKS AT INTERNATIONAL MEETINGS

1. Cluster algebras, snake graphs and continued fractions, Idun 75 Conference on Representations of Artin algebras on the occasion of Idun Reiten's birthday, Trondheim, Norway, 2017.
2. Cluster algebras, snake graphs and continued fractions, AMS Sectional Meeting, New York City, USA, 2017.

3. Cluster algebras, snake graphs and continued fractions, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2017.
4. Cluster-tilted algebras and quasi-tilted algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany, 2017.
5. Cluster algebras and continued fractions, Joint Notre Dame/La Sapienza workshop on lie theory and cluster algebras, University of Notre Dame's Rome Global Gateway, Rome, Italy, 2016.
6. Modules over cluster-tilted algebras that do not lie on local slices, XXVIII-th Meeting on Representation Theory, Université de Sherbrooke, Sherbrooke, Canada, 2016.
7. Cluster algebras and Chern-Simons invariants, Quivers and bipartite graphs: Physics and Mathematics, University of Notre Dame's London Global Gateway, London, UK, 2016.
8. Snake graphs and continued fractions, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2016.
9. Snake graphs and continued fractions, XXVII-th Meeting on Representation Theory, Université de Sherbrooke, Sherbrooke, Canada, 2015.
10. Cluster algebras of surface type, snake graphs and applications, Workshop on cluster algebras and finite dimensional algebras, Leicester, UK 2015.
11. Cluster-tilted algebras, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2015.
12. Definition and basic properties of cluster algebras, Conference on Strings, Quivers and Cluster Algebras in Mathematical Physics, KIAS, Seoul, Korea, 2014.
13. On the first Hochschild cohomology of spit extension algebras, XXVI-th Meeting on Representation Theory, Université de Sherbrooke, Sherbrooke, Canada, 2014.
14. On cluster algebras from unpunctured surfaces with one marked point, ICERM Workshop on Integrability and Cluster Algebras: Geometry and Combinatorics, Providence, USA, 2014.
15. Surface algebras, Advances in Representation Theory of Algebras, ARTA III, Université du Québec à Montréal, Canada, 2014.
16. Cluster algebras and rings of snake graphs, Workshop on Hall and cluster algebra, Centre de recherches Mathématiques, Montréal, Canada, 2014.
17. Cluster algebras and rings of snake graphs, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2014.

18. Cluster algebras and rings of snake graphs, Cluster algebras and combinatorics, Universität Münster, Germany, 2014.
19. Positivity in cluster algebras, Mathematisches Forschungsinstitut Oberwolfach, Germany, 2013.
20. Positivity in cluster algebras, XXV-th Meeting on Representation Theory, Université de Sherbrooke, Sherbrooke, Canada, 2013.
21. Positivity in cluster algebras, Advances in Representation Theory of Algebras, ARTA II, Torun, Poland 2013.
22. Positivity in cluster algebras, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2013.
23. Positivity in cluster algebras, AMS sectional meeting, University of Colorado, Boulder, USA, 2013.
24. Positivity in cluster algebras of rank 3, XXIV-th Meeting on Representation Theory, Université de Sherbrooke, Sherbrooke, Canada, 2012.
25. Positivity in cluster algebras of rank 3, International Conference on Representations of Algebras (ICRA), Universität Bielefeld, Germany, 2012.
26. On the first Hochschild cohomology of a cluster-tilted algebra, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2012.
27. A combinatorial formula for rank 2 cluster variables, XXIII-th Meeting on Representation Theory, Bishop's University, Sherbrooke, Canada, 2011.
28. Positivity for cluster algebras from surfaces, ICERM Topical Workshop: Cluster Algebras and Statistical Physics, Providence, USA, 2011.
29. On cluster algebras from surfaces, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2011.
30. Cluster automorphisms, Sectional Meeting of the American Mathematical Society, Iowa, USA, 2011.
31. On cluster algebras from surfaces, Hausdorff Institute for Mathematics, Bonn, Germany, 2011.
32. Minicourse on Cluster Algebras from Surfaces (three lectures), Colloque sur les surfaces et les représentations, Université de Sherbrooke, Canada, 2010.
  - (a) Cluster algebras
  - (b) Cluster algebras from surfaces
  - (c) Expansion formula and positivity

33. Cluster automorphisms, Sectional Meeting of the American Mathematical Society, Syracuse, NY, USA, 2010.
34. Cluster algebras from surfaces, Summer Meeting of the Canadian Mathematical Society, Fredericton, Canada, 2010.
35. Cluster automorphisms, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2010.
36. Minicourse on Cluster Algebras and Cluster Categories (three lectures), South American Meeting on Representations of Algebras and Related Topics, Mar del Plata, Argentina, 2010:
  - (a) Cluster algebras
  - (b) Cluster categories
  - (c) Cluster-tilted algebras
37. Cluster-tilted algebras without clusters, Sectional Meeting of the American Mathematical Society, Riverside, CA, USA, 2009.
38. Cluster-tilted algebras without clusters, XXIth Meeting on Representation Theory of Algebras, Sherbrooke, Canada, 2009.
39. Minicourse on Cluster Algebras and Cluster Categories (four lectures), XVIII Latin-American Algebra Colloquium, Sao Pedro, Brazil, 2009:
  - (a) Cluster algebras
  - (b) Cluster categories
  - (c) Cluster-tilted algebras
  - (d) Cluster algebras from surfaces
40. Clusters, exceptional sequences and reduced expressions, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2009.
41. Positivity for cluster algebras associated to surfaces, International Conference on Cluster Algebras and Related Topics, Mexico City, Mexico, 2008
42. Positivity for cluster algebras associated to surfaces, XXth Meeting on Representation Theory of Algebras, Sherbrooke, Canada, 2008.
43. Positivity for cluster algebras associated to surfaces, Colloquium of non commutative algebra, Sherbrooke, Canada, 2008.
44. Positivité dans les algèbres amassées associées aux surfaces, Second Canada-France Congress, Montreal, Canada, 2008.
45. Cluster-tilted algebras and slices, International Conference on Representations of Algebras and Related Topics, Woods Hole, USA, 2008.

46. Cluster-tilted algebras, XIXth Meeting on Representation Theory of Algebras, Sherbrooke, Canada, 2007.
47. A cluster expansion formula, International Conference on Representations of Algebras and Related Topics, Northeastern University, Boston, USA, 2007.
48. Geometric realizations of cluster categories, International Conference on Representations of Algebras, Torun, Poland, 2007.
49. Formules de développement dans les algèbres amassées, Colloquium on Representation Theory of Algebras, Sherbrooke, Canada, 2007.
50. Mini-course on cluster categories (three lectures), Workshop on Representation Theory and Related Areas, Universidad de la Republica, Montevideo, Uruguay, 2007.
  - (a) Cluster algebras
  - (b) Cluster categories
  - (c) Geometric realizations of cluster categories
51.  $m$ -replicated algebras and  $m$ -cluster categories, Winter Meeting of the Canadian Mathematical Society, Toronto, Canada, 2006.
52. Geometric models for cluster categories of type  $A$  and  $D$ , International Conference on Representations of Algebras and Related Topics, Northeastern University Boston, USA, 2006.
53. Les catégories amassées et les algèbres répliquées, Colloque Homologie et Déformation en Algèbre, Géométrie et Représentations, Centre International de Rencontres Mathématiques, Luminy, France, 2006.
54. Geometric models for cluster categories, XVIIIth Meeting on Representation Theory of Algebras, Sherbrooke, Canada, 2006.
55. Introduction to cluster categories, Conference on Cluster Algebras and Applications, North Carolina State University, Raleigh, USA, 2006.
56. From tilted algebras to cluster-tilted algebras, Workshop on cluster algebras and cluster-tilted algebras, Bielefeld, Germany, 2006.
57. Cluster-tilted algebras, Sectional Meeting of the American Mathematical Society, Durham NH, USA, 2006.
58. Algèbres amassées inclinées, IVe Colloque sur la Théorie des Modules et Sujets Connexes. Université du Québec à Montréal, Canada, 2006.
59. Cluster categories and duplicated algebras, International Conference on Representations of Algebras and Related Topics, Northeastern University Boston, USA, 2005.

60. Quivers with relations arising from clusters, XVIth Meeting on Representation Theory of Algebras, Sherbrooke, Canada, 2004.
61. Quivers with relations arising from clusters, International Conference on Representations of Algebras and Related Topics, Northeastern University Boston, USA, 2004.
62. Quantized enveloping algebras and rational smoothness, XVth Meeting on Representation Theory of Algebras, Sherbrooke, Canada, 2003.
63. On the multiplication in the quantized enveloping algebra of type  $A$ , XIVth Meeting on Representation Theory of Algebras, Sherbrooke, Canada, 2002.
64. On the multiplication in the quantized enveloping algebra of type  $A$ , International Conference on Representations of Algebras and Related Topics (ICRA X), Toronto, Canada, 2002.
65. Singularités des variétés de carquois de type  $A$ , Summer Meeting of the Canadian Mathematical Society, Québec, Canada, 2002.

#### SEMINAR TALKS

1. Cluster algebras, snake graphs and continued fractions, Algebra Seminar, Universität Bielefeld, Germany, 2017.
2. Cluster algebras, snake graphs and continued fractions, Combinatorics Seminar, University of California, Berkeley, USA 2016.
3. Cluster algebras and continued fractions, SIGMA seminar, UConn, USA, 2016.
4. A combinatorial interpretation of continued fractions, UConn Math Club, USA, 2016.
5. Graphes de serpents et fractions continues, Séminaire d'Algèbre, Université de Sherbrooke, Québec, Canada, 2016.
6. Snake graphs and continued fractions, Discrete Mathematics Seminar, Brown University, Providence, USA, 2016.
7. Snake graphs and continued fractions, Algebra Seminar, University of Connecticut, Storrs, USA, 2016.
8. Graphes de serpents et fractions continues, Séminaire de Combinatoire, LACIM, Université du Québec à Montréal, Québec, Canada, 2015.
9. Cluster categories, Cluster Algebra Seminar, University of Connecticut, Storrs, USA, 2015.

10. Introduction to cluster algebras, Cluster Algebra Seminar, University of Connecticut, Storrs, USA, 2015.
11. Snake graphs and continued fractions, Cluster Algebra Seminar, University of Notre Dame, USA, 2015.
12. Cluster algebras, snake graphs and applications, Séminaire SAG, Université de Sherbrooke, Québec, Canada, 2015.
13. Cluster algebras and invariant theory, Cluster Algebra Seminar, University of Connecticut, Storrs, USA 2015.
14.  $\tau$ -tilting theory and Caldero-Chapoton algebras, Northeastern UConn Joint Seminar in Representation Theory, 2014.
15. Cluster algebras and rings of snake graphs, Cluster Algebra Seminar, University of Connecticut, Storrs, USA 2014.
16. Positivity for cluster algebras, Algebra Seminar, University of Connecticut, USA, 2014.
17. Positivity for cluster algebras, Pure Mathematics Seminar, University of Leicester, UK, 2014.
18. Cluster algebras and rings of snake graphs, Cluster Algebra Seminar, University of Connecticut, Storrs, USA, 2014.
19. Representation type of Jacobian algebras, Cluster Algebra Seminar, University of Connecticut, Storrs, USA, 2013.
20. Cluster algebras, six talks in the Cluster Algebra Seminar, University of Connecticut, Storrs, USA, 2013.
21. Caracteres de conglomerada, Seminario de Algebra, Universidad Nacional de Mar del Plata, Argentina, 2012.
22. Positivity in cluster algebras of rank 3, Quivers and Invariant Theory Seminar, Northeastern University, Boston, USA, 2012.
23. Positivity in cluster algebras, Algebra Seminar, University of Connecticut, Storrs, USA, 2012.
24. Sur les extensions ponctuelles des algèbres inclinées amassées, Séminaire d'Algèbre, Université de Sherbrooke, Canada, 2011.
25. Cluster-tilted algebras, two talks in the Cluster Algebra Seminar, University of Connecticut, Storrs, USA 2012.
26. Cluster algebras from surfaces I, Representation Theory Seminar, University of Maryland, USA, 2011.

27. Cluster algebras from surfaces II, Geometry Seminar, University of Maryland, USA, 2011.
28. Cluster theory and quantum dilogarithm identities, five talks in the Cluster Algebra Seminar, University of Connecticut, Storrs, USA 2011.
29. A combinatorial formula for rank 2 cluster variables, Algebra Seminar, University of Connecticut, Storrs, USA, 2011.
30. Cyclic sieving and cluster algebras, Cyclic Sieving Seminar, University of Connecticut, Storrs, USA 2011.
31. Quivers with potentials, three talks in the Cluster Algebra Seminar, University of Connecticut, Storrs, USA 2011.
32. Applications to cluster algebras, Monoidal Categorification Seminar, University of Connecticut, Storrs, USA 2010.
33. Cluster automorphisms, Cluster Algebra Seminar, University of Connecticut, Storrs, USA 2010.
34. Cluster algebras from surfaces, four talks, Cluster Algebra Seminar, University of Connecticut, Storrs, USA 2010.
35. Path algebras, Computer Science Graduate Seminar, University of Connecticut, Storrs, USA 2010.
36. Cluster-tilted algebras, Representation Theory Seminar, University of Massachusetts, Amherst, USA, 2010.
37. Cluster-tilted algebras, Algebra Seminar, University of Connecticut, Storrs, USA, 2010.
38. Path algebras and cluster-tilted algebras, SIGMA Graduate Seminar, University of Connecticut, Storrs, USA, 2009.
39. Clusters in terms of reduced expressions in Weyl groups, Algebra Seminar, University of Connecticut, Storrs, USA, 2009.
40. Algèbres amassées, suites exceptionnelles et expressions réduites, Séminaire d'Algèbre, Université de Sherbrooke, Canada, 2009.
41. On cluster algebras arising from unpunctured surfaces II, Representation Theory Seminar, Universität Bonn, Germany, 2009.
42. On cluster algebras arising from unpunctured surfaces I, Representation Theory Seminar, Universität Bonn, Germany, 2009.
43. Positivity for cluster algebras associated to surfaces, Combinatorics Seminar, Massachusetts Institute of Technology, Cambridge, USA 2008.

44. Cluster algebras from triangulated surfaces, Algebra Seminar, University of Connecticut, Storrs, USA, 2008.
45. Cluster algebras, Algebra Seminar, University of Connecticut, Storrs, USA, 2008.
46. Positivity for cluster algebras associated to surfaces, Algebra and Combinatorics Seminar, University of New Brunswick, Fredericton, Canada, 2008.
47. Positivity for cluster algebras associated to surfaces, Representation Theory Seminar, University of Massachusetts, Amherst, USA, 2008.
48. Sur la Structure Combinatoire des Algèbres Amassées, Colloquium on Modules and Related Topics, Université du Québec à Montréal, Canada, 2008.
49. Cluster-tilted algebras, Geometry-Algebra-Singularities-Combinatorics Seminar, Northeastern University Boston, USA, 2007.
50. Algèbres amassées et surfaces triangulées, Séminaire d'Algèbre, Sherbrooke, Canada, 2007.
51. What is a path algebra?, The "What Is..." Graduate Seminar, University of Massachusetts, Amherst, USA, 2007.
52. Des modèles géométriques pour les algèbres amassées, Séminaire d'Algèbre, IGD Université Claude Bernard Lyon 1, France, 2007.
53. Varieties of representations of quivers, Quiver Varieties Seminar, University of Massachusetts, Amherst, USA, 2006.
54. Développements récents dans les algèbres inclinées amassées, Séminaire d'Algèbre, Université de Sherbrooke, Canada, 2006.
55. Quivers with relations arising from clusters, Representation Theory Seminar, University of Massachusetts, Amherst, USA, 2005.
56. Introduction aux algèbres clusters 2, Séminaire d'Algèbre, Université de Sherbrooke, Canada, 2005.
57. Introduction aux algèbres clusters 1, Séminaire d'Algèbre, Université de Sherbrooke, Canada, 2005.
58. More examples of cluster algebras, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2004.
59. Cluster tilted algebras, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2004.
60. Introduction to cluster algebras, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2004.

61. Sur la multiplication dans l'algèbre enveloppante quantique de type  $A$ , Séminaire d'Algèbre, IGD Université Claude Bernard Lyon 1, France, 2004.
62. Quantum groups and rational smoothness, Algebra Seminar, Carleton University, Ottawa, Canada, 2003.
63. Explicit results in type  $A$ , Representation Theory Seminar, Carleton University, Ottawa, Canada, 2003.
64. Geometric interpretation of base change II, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2003.
65. Geometric interpretation of base change I, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2003.
66. Bases of quantized enveloping algebras II, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2003.
67. Bases of quantized enveloping algebras I, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2003.
68. Quantized enveloping algebras and Hall algebras, Representation Theory Seminar, Carleton University, Ottawa, Canada, 2003.
69. Algèbres enveloppantes quantiques et algèbres de Hall, Séminaire de Combinatoire, Université du Québec à Montréal, Canada, 2002.
70. On quiver varieties of type  $A$ , Quebec Mathematical Science Colloquium, Sherbrooke, Canada, 2001.
71. On quiver varieties of type  $A$ , Student Colloquium of the Institut des Sciences Mathématiques, McGill University, Montréal, Canada, 2001.

## ADVISING

### **PhD Students:**

Lucas David-Roesler, University of Connecticut, PhD 2012

İlke Çanakçı, University of Connecticut, PhD 2013

Khrystyna Serhiyenko, University of Connecticut, PhD 2015

Stephen Zito, University of Connecticut, PhD 2016

Ana Garcia Elsener, Universidad Nacional de Mar del Plata, PhD 2017

Michelle Rabideau, University of Connecticut, PHD expected 2018

### **Masters Students:**

Miki Oryu, Okayama University, graduated in 2011

### **Postdocs**

Emily Gunawan, University of Connecticut 2017–2020

Charles Paquette, University of Connecticut 2014–2017

Ryan Kinser, University of Connecticut 2009–2011

Kyungyong Lee, University of Connecticut 2010–2011

## Research Visitors at UConn

Khrystyna Serhiyenko, UC Berkeley, (2 weeks) June 2017

Sira Gratz, Oxford University, UK, (2 weeks) March 2017

Diego Bravo, Montevideo, Uruguay, (5 weeks) Feb 2017

Hipolito Treffinger, Sherbrooke, Canada (1 week) Dec 2016

Khrystyna Serhiyenko, UC Berkeley, (1 week) Nov 2015

İlke Çanakçı, Leicester, UK (2 weeks) April 2014

## CONFERENCES ORGANIZED

1. Special Session on Representation Theory of Algebras at the Mathematical Congress of the Americas, Montreal, July 24-28, 2017.
2. International Conference on Representations of Algebras, ICRA, Syracuse, 2016.
3. International Conference on Representation Theory and Commutative Algebra, in honor of Jerzy Weyman's 60th birthday UConn, April 24-27, 2015.
4. Strings, Quivers and Cluster Algebras in Mathematical Physics, KIAS, Seoul, Korea, Dec. 18-22, 2014.
5. Cluster Algebras in Combinatorics and Topology, KIAS, Seoul, Korea, Dec. 13-17, 2014.
6. Cluster Algebras and Representation Theory, KIAS, Seoul, Korea, Nov. 3-7, 2014.
7. Special Semester in Representation Theory at UConn, Sep.–Oct., 2014.
8. Cluster Algebras and Related Topics, CMS Summer Meeting, Regina, June 2-4, 2012

## SEMINARS AND SCHOOLS ORGANIZED

1. Cluster Algebra Spring School at UConn, May 15-19, 2017.
2. Special Semester in Representation Theory at UConn, Sep.–Oct., 2014.
3. Northeastern-UConn Joint Seminar in Representation Theory, Spring 2014, 2015 and 2016.
4. Cluster Algebras Seminar, UConn, since Fall 2010.

## COURSES TAUGHT

### **At the University of Connecticut:**

Calculus I, Multivariable Calculus, Applied Linear Algebra,  
Linear Algebra, Precalculus, Undergraduate Abstract Algebra I  
Combinatorics, Quiver Representations  
Graduate Abstract Algebra I, Graduate Abstract Algebra II,  
Representations of Algebras, Tilting Theory, Homological Algebra  
Introduction to Cluster-Tilting Theory.

### **At the University of Massachusetts:**

Basic Math Skills, Calculus I , Calculus II,  
Honors Calculus I, Honors Calculus II,  
Abstract Algebra I, Abstract Algebra II,  
Honors Abstract Algebra I, Honors Abstract Algebra II.

### **At the Universidad Nacional de Mar del Plata:**

Cluster Algebras, Graduate Summer School 2014.

### **At the Universidad Nacional del Sur, Bahia Blanca:**

Cluster Algebras from Surfaces, Graduate Summer School 2011.

### **At the Université du Québec à Montréal:**

General Mathematics, Calculus.

### **At the University of New Brunswick:**

Quiver representations, Graduate Summer School, 2008.

**OTHER**

**Reviewer for the following Journals**

Advances in Mathematics

Advances in Applied Mathematics

Algebra and Number Theory

Algebras and Representation Theory

Annales des Sciences Mathématiques du Québec.

Annals of Combinatorics,

Cahiers mathématiques de l'Université de Sherbrooke

Communications in Algebra

Compositio Mathematica

Electronic Journal of Combinatorics

FPSAC

Inventiones Mathematicae

International Electronic Journal of Algebra,

International Mathematics Research Notices,

Journal of Algebra

Journal of Algebra and Number Theory

Journal of Algebraic Combinatorics

Journal of Pure and Applied Algebra

Linear Algebra and its Applications

London Mathematical Society

Mathematische Zeitschrift

Operators and Matrices,

Proceedings of the LMS

Pacific Journal of Mathematics

Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)

**Panels and committees**

Panel member for the National Science Foundation (three times)

Ad hoc Reviewer for NSF

PhD-Committee member for Michael Joseph, University of Connecticut, 2016.

PhD-Committee member for Tze-Chun Oh, University of Connecticut, 2016.

PhD-Committee member for Andras Lorincz, University of Connecticut, 2016.

PhD-Committee member for Jon Judge, University of Connecticut, 2016.

PhD-Committee member for Gabriel Feinberg, University of Connecticut, 2013.

PhD-Committee member for Benjamin Salisbury, University of Connecticut, 2012.

PhD-Committee member for Ryan Schwarz, University of Connecticut, 2011.

External PhD-committee member for

Yadira Valdivieso Diaz, Universidad Nacional de Mar del Plata, Argentina, 2014

Louis Beaudet, Université de Sherbrooke, 2014

Bertrand Nguéfack, Université de Sherbrooke, 2009.

External committee member for undergraduate thesis for

Pierre-Guy Plamondon, Université de Sherbrooke 2008.