

Curriculum Vitae

Iana I. Anguelova

Current position: Associate Professor, Department of Mathematics, College of Charleston

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Charleston, SC 29414

Postal address, work:
College of Charleston
Math Department
66 George Street
Charleston, SC 29424

Work experience:

- Associate Professor, Department of Mathematics, College of Charleston, SC, USA
(August 2014–current)
- Assistant Professor, Department of Mathematics, College of Charleston, SC, USA
(August 2010–August 2014)
- James H. Simons Instructor, Department of Mathematics, Stony Brook University, NY, USA
(August 2008–August 2010)
- CRM Postdoctoral Fellow, Centre de Recherches Mathematiques (CRM), Montreal, Canada
(June 2006–June 2008)
- Research Assistant Professor, Department of Mathematics, Concordia University, Canada
(Sept. 2006–June 2008)

Education:

- PhD, Mathematics, University of Illinois at Urbana-Champaign (2006)
Dissertation: Bicharacter Construction of Quantum Vertex Algebras
Research Adviser: Prof. Maarten Bergvelt, Department of Mathematics, UIUC
- Coursework requirements for MSc/PhD in Department of Theoretical and Applied Mechanics
(Spring 2004)
- MSc in Mathematics, University of Illinois at Urbana-Champaign (Fall 2002)
- Diploma for completed higher education, Department of Mathematics, Sofia University, Bulgaria
(1996)

Final year dissertation: Singular vectors in Verma modules over Virasoro algebra

Specialization: Differential Equations

Publications and preprints:

1. M. Short, J. Bdzil, I. Anguelova, *Stability of CJ detonations for a stiffened gas model of condensed phase explosives*, Journal of Fluid Mechanics, 552, 299 - 309, 2006.
2. I. Anguelova, *Symmetric polynomials and H_D -quantum vertex algebras*, in "Lie algebras, Vertex algebras and their applications", Contemporary Mathematics 442, proceedings of the Conference in honor of J. Lepowsky and R. Wilson, 269-278, 2007.
3. I. Anguelova, *Bicharacter construction of quantum vertex algebras*, University of Illinois at Urbana-Champaign, PhD Thesis, 2006.
4. M. Short, I. Anguelova, T. Aslam, J. Bdzil, A. Henrick, G. Sharpe, *Stability of detonations for an idealized condensed state model*, Journal of Fluid Mechanics, 595, 45-82, 2008.
5. I. Anguelova, *Super-bicharacter construction of quantum vertex algebras*, Reports in Mathematical Physics 61, no. 2, 253-263, 2008.
6. I. Anguelova. *Bosonization through super-bicharacter construction*, Proceedings of the 7th International Workshop "Lie Theory and Its Applications in Physics" (LT-7), Varna, Bulgaria, 2007.
7. I. Anguelova. *A note on quantum vertex operators and associativity*, J. Gen. Lie Theory Appl. 2, no. 3, 117-121, 2008.
8. I. Anguelova, M. Bergvelt *H_D -quantum vertex algebras and bicharacters*, Communications in Contemporary Mathematics, 11, no. 6, 937-991, 2009.
9. I. Anguelova. *Boson-fermion correspondence of type B and twisted vertex algebras*, in "Lie Theory and Its Applications in Physics" (LT-9), Springer Proceedings in Mathematics and Statistics, vol. 36, 399-410, 2013.
10. I. Anguelova, M. Bergvelt, *Quadratic differential operators, bicharacters and \bullet products*, Communications in Algebra, 42, 389-416, 2014.
11. I. Anguelova, *Twisted vertex algebras, bicharacter construction and boson-fermion correspondences*, Journal of Mathematical Physics, 54(12), 38pp., 2013. doi:10.1063/1.4842075
12. I. Anguelova, Ben Cox, Elizabeth Jurisich, *Representations of a_∞ and d_∞ with central charge 1 on the single neutral fermion Fock space $F^{\otimes \frac{1}{2}}$* , 20pp., Journal of Physics: Conference Series, 474(1), 2013. doi:10.1088/1742-6596/563/1/012001
13. I. Anguelova, Ben Cox, Elizabeth Jurisich, *N -point locality for vertex operators: normal ordered products, operator product expansions, twisted vertex algebras*, Journal of Pure and Applied Algebra, vol. 218, Issue 12, pp. 21652203, 2014. doi:10.1016/j.jpaa.2014.03.010
14. I. Anguelova, *Virasoro structures in the twisted vertex algebra of type C*, in "Lie Theory and Its Applications in Physics" (LT-10), Springer Proceedings in Mathematics and Statistics Volume 111, pp 435-446, 2014.
15. I. Anguelova, *Virasoro representations with central charges $\frac{1}{2}$ and 1 on the real neutral fermion Fock space $F^{\otimes \frac{1}{2}}$* , Journal of Physics: Conference Series 563, 012001. doi:10.1088/1742-6596/563/1/012001, 2014.
16. I. Anguelova, *Boson-fermion correspondence of type D-A and multi-local Virasoro representations on the Fock space $F^{\otimes \frac{1}{2}}$* , Journal of Mathematical Physics 55, 111704, 2014. doi:10.1063/1.4901557.
17. I. Anguelova, *Multilocal Bosonization*, accepted in Journal of Mathematical Physics, 2015. <http://arxiv.org/abs/1507.08646>.
18. I. Anguelova, *Virasoro structures in the twisted vertex algebra of type B*, in preparation
19. I. Anguelova, *Bosonization of type C and the CKP hierarchy*, in preparation
20. I. Anguelova, *Boson-fermion correspondences on Riemann surfaces*, in preparation

Selected Recent Conferences:

- 8th Southeastern Lie Theory Workshop, Raleigh, North Carolina (October 2015)
Presentation: *Multilocal bosonization and multilocal fermionization*
- Workshop on Integrable Systems and Quantum Symmetries, Prague, Czech Republic (June 2014)
Presentation: *Chiral algebras with Γ -type singularities, Virasoro fields and particle correspondences*
- X International Workshop on Lie Theory and its Applications in Physics, Varna, Bulgaria
Presentation: *Boson-Fermion Correspondences: Hopf algebra approach* (June 2013)
- Workshop on Integrable Systems and Quantum Symmetries, Prague, Czech Republic
Presentation: *Boson-Fermion Correspondences: Hopf algebra approach* (June 2013)
- 2012 AMS Southeastern Section Meeting, Tampa, FL (March 2012)
Presentation: *\mathbf{Z}_n -graded Hopf algebras, vertex algebras and particle correspondences*
- IX International Workshop on Lie Theory and its Applications in Physics, Varna, Bulgaria
Presentation: *Boson-Fermion Correspondences and Twisted Vertex Algebras* (June 2011)
- 2011 AMS National Meeting, New Orleans, LA (January 2011)
Presentation: *Bicharacter construction for the boson-fermion correspondences*
- Bifurcation Theory, Integrable Systems, and the Bispectral Problem, Sofia, Bulgaria (May 2010)
Presentation: *Twisted and quantum vertex algebras via enhanced $(A; H; S)$ vertex algebras*
- 2009 AMS Southeastern Section Meeting, Raleigh, NC (April 2009)
Presentation: *Vertex algebras: generalized, twisted and quantum—a comparison*
- Noncommutative Structures in Mathematics and Physics, Brussels, Belgium
Presentation: *Quantum vertex algebras with Hopf symmetry* (July 2008)

Past academic research work experience:

- James H. Simons Instructor, Department of Mathematics, Stony Brook University (August 2008–August 2010)
- CRM Postdoctoral Fellow, CRM, Montreal (June 2006–June 2008)
- Research Assistant Professor, Mathematics, Concordia University (Sept. 2006–June 2008)
- Research Assistant, Theoretical and Applied Mechanics, UIUC (August 2002–August 2005)
Asymptotic expansions of systems of differential equations around regular and irregular singular points, with application to detonation stability
- Research Assistant, Theoretical and Applied Mechanics, UIUC (Spring 2002)
Matched asymptotic expansions with application to three-step chain-branching reaction
- Research Assistant, Department of Mathematics, UIUC (Spring 2000, Fall 2002)
Vertex algebras and soliton hierarchies

Teaching experience:

- Associate Professor, Department of Mathematics, College of Charleston (August 2014–current)
- Assistant Professor, Department of Mathematics, College of Charleston (August 2010–August 2014)
- James H. Simons Instructor, Department of Mathematics, Stony Brook University (August 2008–August 2010)
- Research Faculty, Department of Mathematics and Statistics, Concordia University (Sept. 2006–June 2008)
- Teacher ranked as excellent by University of Illinois ICES score student evaluations (Fall 1999, Spring 2001, Fall 2001, Fall 2005, Spring 2006)
- Mentor, Department of Mathematics Peer TA Mentoring program, UIUC (Fall 2005, Spring 2006)
- Teaching Assistant, Department of Mathematics, UIUC (1999, 2000; 2001; Fall 2005, Spring 2006)
- Teaching Assistant, Department of Mathematics, Sofia University, Bulgaria (Spring 1996 - Spring 1999)
- Teaching Assistant, Department of Physics, Sofia University, Bulgaria (Spring 1996 - Spring 1999)

Service:**Service to the Mathematics Profession:**

- Referee for “Communications in Mathematical Physics”, “Journal of Mathematical Physics”, “Journal of Pure and Applied Algebra”, “Journal of Physics A, Mathematical and General”;
- Organizer of the Seminar on Algebra and Mathematical Physics, College of Charleston;
- Co-organizer of the Southeast Lie Theory Workshop, 2012, College of Charleston;
- Organizer of the Seminar on Algebraic Methods in Statistical Mechanics, Stony Brook University;
- Co-organizer of the Working Seminar on Integrable Systems, Random Matrices and Random Processes, Concordia University and CRM;
- Co-organizer of AMS Special Session, AMS Sectional Meeting, University of Georgia, 2016.

Service to the College of Charleston:

- Faculty Senator, representative of the Mathematics Department in the Faculty Senate (2014–current);
- Member of the MES admissions committee (2010–current);
- Member of the Honor Board committee (2012–current).

Citizenship: Bulgarian; US permanent resident

Languages: English (fluent), Bulgarian (native), Russian (fluent)