KANG LU

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EMPLOYMENT

University of Denver, Visiting assistant professor — Sept. 2020 - Present

EDUCATION

Indiana University Purdue University Indianapolis, Ph.D. in Mathematics — Aug. 2014 - Aug. 2020

Zhejiang University, M.S. in Mathematics — Sept. 2012 - Jul. 2014

Fudan University, B.S. in Mathematics — Sept. 2006 - Jul. 2010

RESEARCH INTERESTS

Representation theory, Quantum algebras, and Integrable systems.

PREPRINTS

5. Kang Lu, E. Mukhin, V. Tarasov, *TBA*, in preparation.
4. Kang Lu, V. Tarasov, *On Bethe eigenvectors and higher transfer matrices for supersymmetric spin chains*, in preparation.
3. Kang Lu, *Completeness of the Bethe ansatz for Gaudin models associated with* $\mathfrak{gl}(1|1)$, appear soon.
2. Kang Lu, *A note on odd reflections of super Yangian and Bethe ansatz*, arXiv:2111.10655, submitted.
1. Kang Lu, *Schur-Weyl duality for quantum toroidal superalgebras*, arXiv:2109.09005, submitted.

PUBLICATIONS

11. Kang Lu, *Gelfand-Tsetlin bases for representations of super Yangian and quantum affine superalgebra*, Lett. Math. Phys. **111** (2021), Article no.: 145.
10. Kang Lu, E Mukhin, *Bethe ansatz equations for orthosymplectic Lie superalgebras and self-dual superspaces*, Annales Henri Poincaré **22** (2021), no. 12, 4087–4130.
9. Kang Lu, E. Mukhin, *Jacobi-Trudi identity and Drinfeld functor for super Yangian*, Int. Math. Res. Not. IMRN **2021** (2021), no. 21, 16749-16808.
8. Kang Lu, E. Mukhin, *On the supersymmetric XXX spin chains associated to* $\mathfrak{gl}_{1|1}$, Commun. Math. Phys. **386** (2021), 711-747.
7. Kang Lu, *Perfect integrability and Gaudin models*, SIGMA **16** (2020), 132, 10 pages.
6. C.-L. Huang, Kang Lu, and E. Mukhin. *Solutions of* $\mathfrak{gl}_{m|n}$ *XXX Bethe ansatz equation and rational difference operators*, J. Phys. A: Math. Theor. **52** (2019), no. 37, 375204, 31 pages.
5. Kang Lu, E. Mukhin. *On the Gaudin model of type* G_2, Commun. Contemp. Math. **21** (2019), no. 3, 1850012, 31 pages.
4. Gang Han, Yucheng Liu, and Kang Lu. *Multiplicity free gradings on semisimple Lie and Jordan algebras and skew root systems*, Algebra Colloq. **26** (2019), no. 1, 123-138.
3. Kang Lu, *Lower bounds for numbers of real self-dual spaces in problems of Schubert calculus*, SIGMA **14** (2018), 046, 15 pages.
2. Kang Lu, E. Mukhin, A. Varchenko. *Self-dual Grassmannian, Wronski map, and representations of* $\mathfrak{gl}_N$, $\mathfrak{sp}_{2r}$, $\mathfrak{so}_{2r+1}$, Pure Appl. Math. Q. **13** (2017), no.2, 291–335, special issue in honor of Yuri Manin's 80-th birthday.
1. Kang Lu, E. Mukhin, A. Varchenko. *On the Gaudin model associated to Lie algebras of classical types*, J. Math. Phys. **57** (2016), no. 10, 101703, 23 pages.

CONFERENCE PRESENTATIONS

- 2021 AMS Spring Southeastern Sectional Meeting, Special Session on Superalgebras, Quantum Groups, and Related Topics.
  Talk: Skew representations of super Yangian
- Joint Mathematics Meetings 2020, Colorado Convention Center, Denver, CO January 15-18, 2020.
  Talk: On the supersymmetric XXX spin chains
- Representation Theory and Integrable Systems, ETHZ, Zurich, Switzerland, August 12-16, 2019.
  Talk: On the supersymmetric XXX spin chain associated to $\mathfrak{gl}_{1|1}$

- 2019 AMS Spring Eastern Sectional Meeting, University of Connecticut, Hartford, CT, April 13-14, 2019.
  Talk: On the supersymmetric XXX spin chain associated to $\mathfrak{gl}_{1|1}$
- 2019 AMS Spring Southeastern Sectional Meeting, Auburn University, Auburn, AL, March 15-17, 2019.
  Talk: Self-dual Grassmannian and Representations of $\mathfrak{gl}_N$, $\mathfrak{sp}_{2r}$, and $\mathfrak{so}_{2r+1}$
- Representation Theory at the Crossroads of Modern Mathematics, Université de Reims Champagne Ardenne, Reims, France, May 29-June 2, 2017.
  Poster: Self-dual Grassmannian and Representations of $\mathfrak{gl}_N$, $\mathfrak{sp}_{2r}$, and $\mathfrak{so}_{2r+1}$
- 2017 AMS Spring Central Sectional Meeting, Indiana University, Bloomington, April 1-2, 2017.
  Talk: Bethe ansatz method in Gaudin Model

SEMINAR TALKS

- Rocky Mountain Representation Theory Seminar, Zoom, March 11, 2021.
  Talk: Skew representations of super Yangian
- Representations and Lie Theory seminar, @ Ohio State University, Zoom, February 17, 2021.
  Talk: Skew representations of super Yangian
- Algebra and Logic Seminar, University of Denver, Denver, CO, October 19, 2020.
  Talk: Gaudin model, Feigin-Frenkel center, and Grassmannian
- Algebra Seminar, University of Virginia, Charlottesville, VA, November 15, 2019.
  Talk: Jacobi-Trudi identity, Berezinian, and transfer matrices
- Physically inspired mathematics seminar, University of North Carolina, Chapel Hill, NC, October 4, 2019.
  Talk: Supersymmetric quantum spin chains

TEACHING

University of Denver

- MATH 1951: Calculus I, 2022 Winter Quarter
- MATH 1150: Mathematics for Cryptography, 2022 Winter Quarter
- MATH 1951: Calculus I, 2021 Autumn Quarter
- MATH 1952: Calculus II, 2021 Spring Quarter
- MATH 1150: Introduction to Cryptography, 2021 Winter Quarter
- MATH 2070: Introduction to Differential Equations, 2021 Winter Quarter
- MATH 1951: Calculus I, 2020 Autumn Quarter

Indiana University Purdue University Indianapolis

- MATH 16500: Calculus and Analytic Geometry I, 2020 Summer I
- MATH 22100: Calculus for Technology I, 2020 Spring
- MATH 15400: Trigonometry, 2019 Fall
- MATH 26600: Ordinary Differential Equations, 2019 Summer II
- MATH 22100: Calculus for Technology I, 2019 Spring
- MATH 11100: Intermediate algebra, 2018 Fall
- MATH 15400: Trigonometry, 2018 Summer II
- MATH 11000: Fundamentals of Algebra, 2018 Spring
- MATH 16500: Calculus and Analytic Geometry I (Recitation), 2017 Fall

SERVICE

- Referee for: Algebras and Representation Theory, Communications in Mathematical Physics, Compositio Mathematica, Journal of Mathematical Physics (2), Letters in Mathematical Physics, SciPost, SIGMA, Transformation Groups

REFERENCES

- Andrew Linshaw, Department of Mathematics, University of Denver, andrew.linshaw@du.edu
- Evgeny Mukhin, Department of Mathematical Science, Indiana University Purdue University Indianapolis, emukhin@iupui.edu
- Vitaly Tarasov, Department of Mathematical Science, Indiana University Purdue University Indianapolis, vtarasov@iupui.edu
- Alexander Varchenko, Department of Mathematics, University of North Carolina at Chapel Hill, anv@email.unc.edu