

# 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, *Schur-Weyl duality for quantum toroidal superalgebras*, in preparation.
4. Kang Lu, E Mukhin, *Bethe ansatz equations for orthosymplectic Lie superalgebra and self-dual superspaces*, [arXiv:2103.16729](#).
3. Kang Lu, *Gelfand-Tsetlin bases for representations of super Yangian and quantum affine superalgebra*, [arXiv:2103.08758](#).
2. Kang Lu, E. Mukhin, *On the supersymmetric XXX spin chains associated to  $\mathfrak{gl}_{1|1}$* , submitted, [arXiv:1910.13360](#).
1. Kang Lu, Gang Han, and Jun Yu. *Fine gradings of complex simple Lie algebras and Finite Root Systems*, preprint, [arXiv:1410.7945](#).

## PUBLICATIONS

8. Kang Lu, E. Mukhin, *Jacobi-Trudi identity and Drinfeld functor for super Yangian*, accepted by *IMRN*, [arXiv:2007.15573](#).
7. Kang Lu, *Perfect integrability and Gaudin models*, *SIGMA* **16** (2020), 132, 10 pages, [arXiv:2008.06825](#).
6. Chenliang 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, [arXiv:1811.11225](#).
5. Kang Lu, E. Mukhin. *On the Gaudin model of type  $G_2$* , *Commun. Contemp. Math.* **21** (2019), no. 3, 1850012, 31 pages, [arXiv:1711.02511](#).
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, [arXiv:1611.03943](#).
3. Kang Lu, *Lower bounds for numbers of real self-dual spaces in problems of Schubert calculus*, *SIGMA* **14** (2018), 046, 15 pages, [arXiv:1710.06534](#).
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, [arXiv:1705.02048](#).
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, [arXiv:1512.08524](#).

## CONFERENCES 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

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- **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

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### University of Denver

- 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

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- Referee for: Communications in Mathematical Physics, SIGMA, Transformation Groups

## REFERENCES

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- 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
- Sharon Rangazas, Department of Mathematical Science, Indiana University Purdue University Indianapolis, srangaza@iupui.edu