Junya Yagi

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Personal Information

Date of Birth	March 13, 1982
Citizenship	Japanese
Languages	English (fluent), Japanese (mother tongue)

Education

Sept 2003 – Oct 2009	PhD in Physics (supervisor: Gregory W. Moore) Department of Physics and Astronomy, **Rutgers University**, USA
Apr 2002 – Sept 2003	Master's Program in Physics Graduate School of Science, **Chiba University**, Japan
Apr 1999 – Mar 2002	BS in Physics Frontier Science Program, **Chiba University**, Japan

Positions

Dec 2020 –	Assistant Professor Yau Mathematical Sciences Center, **Tsinghua University**, China
Sept 2020 – Dec 2020	Visiting Scholar Yau Mathematical Sciences Center, **Tsinghua University**, China
Oct 2017 – Dec 2020	Postdoctoral Researcher **Perimeter Institute for Theoretical Physics**, Canada
Oct 2015 – Sept 2017	Research Assistant Professor Faculty of Physics, **University of Warsaw**, Poland
Oct 2013 – Oct 2015	INFN Postdoctoral Fellow **INFN – Sezione di Trieste** and **SISSA**, Italy
Oct 2012 – Sept 2013	Research Fellow Department of Physics, **National University of Singapore**
Oct 2011 – Oct 2012	Postdoctoral Fellow Department of Mathematics, **University of Hamburg**, Germany
Apr 2010 – Oct 2011	Specially-Appointed Assistant Professor Center for Frontier Science, **Chiba University**, Japan

Fellowship, Scholarship and Awards

2013 – 2015	INFN Postdoctoral Fellowship in Theoretical Physics Istituto Nazionale di Fisica Nucleare
2007	Richard J. Plano Outstanding Teaching Assistant Award Department of Physics and Astronomy, Rutgers University
1999 – 2002	Shin-Nihon Scholarship, Shin-Nihon Scholarship Foundation
1998	President's Prize, Mathematical Sciences Contest, Chiba University

Teaching Experience

- *Supersymmetric field theories in low dimensions*, Fall 2020 at YMSC, Tsinghua University. Lecture series (2 hours/week × 7 weeks) on Ω-deformation of B-twisted 2d $\mathcal{N} = (2, 2)$ supersymmetric sigma models and its applications to higher-dimensional quantum field theories.
- Teaching assistant at the Department of Physics and Astronomy, Rutgers University, 2005–2008. Taught general physics courses (labs and recitation sessions), each consisting of about a couple of dozens students:
  - Physics 115 & 116, Extended Analytical Physics (Fall 2005, Spring 2006)
  - Physics 124, Analytical Physics (Spring 2008)
  - Physics 161, Elements of Physics (Fall 2006, Fall 2007)
  - Physics 201, Extended General Physics (Spring 2007)
  - Physics 204, General Physics (Summer 2008)
  - Physics 205/229 & 206, General Physics Labs (Summer 2006, Summer 2007)
- Various lectures aimed at graduate students and researchers:
  - Localization and equivariant cohomology, University of Hamburg Mathematical Physics Seminar, April 26, 2011
  - Topological A- and B-models, University of Hamburg Mathematical Physics Seminar, December 15, 2011
  - Chiral algebras and the Stolz–Höhn conjecture, University of Hamburg Algebra and Mathematical Physics Research Seminar, January 10, 17 & 31, 2012
  - Supersymmetric gauge theories, University of Warsaw String Theory Journal Club, November 2, 2016
  - Quiver gauge theories and cluster algebras, University of Warsaw String Theory Journal Club, December 12, 2016

Organization Experience

- *Advanced School on Integrability*, University of Warsaw, March 6–9, 2017 (67 participants from 13 countries)

Talks

Invited Talks at Conferences and Workshops

- *Wilson–'t Hooft lines as transfer matrices*
  "Online 2020 NTU–Kyoto High Energy Physics Workshop," December 3, 2020

- *Poisson vertex algebras in supersymmetric field theories*
  "APCTP Workshop on Quantum Field Theory and String Theory," Asia Pacific Center for Theoretical Physics, November 22, 2019

- *Chiral algebras from* Ω*-deformation*
  "Unfashionable Pursuits: Informal Workshop on SCFT and Supergravity – I," Institute of Theoretical Physics, Chinese Academy of Sciences, November 15, 2019

- Ω*-deformation of B-twisted theories*
  "Unfashionable Pursuits: Informal Workshop on SCFT and Supergravity – I," Institute of Theoretical Physics, Chinese Academy of Sciences, November 13, 2019

- *String theory, gauge theories and integrable systems*
  "Higher structures in holomorphic and topological field theory," IHÉS, January 17, 2019

- *Unification of integrability in supersymmetric gauge theories*
  "String and M-Theory: The New Geometry of the 21st Century," National University of Singapore, December 13, 2018

- *"Integrable lattice models from gauge theory" from string theory*
  One-day workshop at Seikei University, March 15, 2018

- *String theory and integrable lattice models*
  "Elliptic Hypergeometric Functions in Combinatorics, Integrable Systems and Physics," Erwin Schrödinger Institute, Vienna, March 24, 2017

- *Branes, TQFTs and integrable lattice models*
  "5th Workshop on Combinatorics of Moduli Spaces, Hurwitz Numbers, and Cohomological Field Theories," Moscow, June 7, 2016

- *Quiver gauge theories and integrable lattice models*
  "Physics and Mathematics of Knot Homologies," Simons Center for Geometry and Physics, Stony Brook University, June 4, 2015

- $\mathcal{N} = (0, 2)$ *supersymmetry and Höhn–Stolz conjecture*
  "Mathematics of String Theory," Center of Mathematical Sciences, Zhejiang University, July 2, 2013

Contributed Talks at Conferences and Workshops

- *String theory and integrable lattice models*
  "stringtheory.pl/2017," Warsaw, April 21, 2017

- $(2, 0)$ *theory, cigars, and AGT*
  "String–Math 2012," Bonn, July 18, 2012

- *Vanishing chiral algebras and Höhn–Stolz conjecture*
  "String–Math 2011," Philadelphia, June 28, 2011

- *Vanishing chiral algebras*
  "DESY Theory Workshop 2010," DESY, Hamburg, September 23, 2010

Invited Seminar Talks

- *Wilson–'t Hooft lines as transfer matrices*
  KIAS String Seminar, August 17, 2020

- *Disk, interval, point: on constructions of quantum field theories with holomorphic action functionals*
  QFT, Geometry and Representation Theory Working Seminar, May 13, 2020

- *Disk, interval, point: on constructions of quantum field theories with holomorphic action functionals*
  Simons Center for Geometry and Physics, Stony Brook University, March 8, 2020

- *Unification of integrability in supersymmetric gauge theories*
  UC Davis, February 15, 2019

- *Unification of integrability in supersymmetric gauge theories*
  Caltech, High Energy Theory seminar, February 1, 2019

- *String theory, gauge theories and integrable systems*
  Yau Mathematical Sciences Center, Tsinghua University, December 20, 2018

- *Unification of integrability in supersymmetric gauge theories*
  Kavli IPMU, December 18, 2018

- *Unification of integrability in supersymmetric gauge theories*
  IHÉS, November 8, 2018

- *"Integrable lattice models from gauge theory" from string theory*
  National University of Singapore, String Theory group meetings, March 7–8, 2018

- *Integrable lattice models and supersymmetric gauge theories*
  University of Warsaw, KMMF Seminar "Theory of Duality," May 4, 2017

- *String theory and integrable lattice models*
  Perimeter Institute for Theoretical Physics, Quantum Fields and Strings Seminar, April 26, 2017

- *Surface defects as transfer matrices*
  University of Tokyo, Hongo, High Energy Theory Seminar, March 9, 2016

- *Surface defects as transfer matrices*
  KIAS, String Theory & Gravity Seminar, February 24, 2016

- *Surface defects as transfer matrices*
  University of Tokyo, Komaba, Particle Theory Seminar, February 18, 2016

- *Surface defects as transfer matrices*
  Kavli IPMU, Mathematics–String Theory Seminar, February 16, 2016

- *Quiver gauge theories, TQFTs and integrable lattice models*
  Perimeter Institute for Theoretical Physics, December 4, 2015
- *Quiver gauge theories, TQFTs and integrable lattice models*
  Caltech, High Energy Theory Seminar, November 6, 2015
- *Quiver gauge theories and integrable lattice models*
  University of Warsaw, Seminar "Exact Results in Quantum Theory and Gravity," April 1, 2016
- *Quiver gauge theories and integrable lattice models*
  Imperial College London, September 4, 2015
- *Quiver gauge theories and integrable lattice models*
  Erwin Schrödinger Institute, Vienna, June 17, 2015
- Ω*-deformation and quantization*
  Kavli IPMU, Mathematics–String Theory Seminar, July 8, 2014
- Ω*-deformation and quantization*
  University of Tokyo, Komaba, Particle Theory Seminar, July 3, 2014
- *M5-branes on* $S^1 \times S^2$*: complex Chern-Simons theory and quantum integrable systems*
  Nikhef, Theory Seminar, February 2, 2014
- *Compactification on the* Ω*-background and the AGT correspondence*
  LMU Munich, Fields and Strings Seminar, June 28, 2012

Publications

In Refereed Journals

1. N. Ishtiaque and **J. Yagi**, *Disk, interval, point: on constructions of quantum field theories with holomorphic action functionals*
JHEP **06** (2020) 180 [arXiv:2002.10488]

2. J. Oh and **J. Yagi**, *Poisson vertex algebras in supersymmetric field theories*
Lett. Math. Phys. **110** (2020) 2245–2275 [arXiv:1908.05791]

3. J. Oh and **J. Yagi**, *Chiral algebras from Ω-deformation*
JHEP **08** (2019) 143 [arXiv:1903.11123]

4. **J. Yagi**, *Surface defects and elliptic quantum groups*
JHEP **06** (2017) 013 [arXiv:1701.05562]

5. K. Maruyoshi and **J. Yagi**, *Surface defects as transfer matrices*
Prog. Theor. Exp. Phys. (2016) 113B01 [arXiv:1606.01041]

6. **J. Yagi**, *Quiver gauge theories and integrable lattice models*
JHEP **10** (2015) 065 [arXiv:1504.04055]

7. Y. Luo, M.-C. Tan, **J. Yagi** and Q. Zhao, *Ω-deformation of B-twisted gauge theories and the 3d-3d correspondence*
JHEP **02** (2015) 047 [arXiv:1410.1538]

8. **J. Yagi**, *Ω-deformation and quantization*
JHEP **08** (2014) 112 [arXiv:1405.6714]

9. Y. Luo, M.-C. Tan and **J. Yagi**, $\mathcal{N} = 2$ *supersymmetric gauge theories and quantum integrable systems*
JHEP **03** (2014) 090 [arXiv:1310.0827]

10. **J. Yagi**, *3d TQFT from 6d SCFT*
JHEP **08** (2013) 017 [arXiv:1305.0291]

11. **J. Yagi**, *Compactification on the Ω-background and the AGT correspondence*
JHEP **09** (2012) 101 [arXiv:1205.6820]

12. **J. Yagi**, *On the six-dimensional origin of the AGT correspondence*
JHEP **02** (2012) 020 [arXiv:1112.0260]

13. **J. Yagi**, *Chiral algebras of* $(0, 2)$ *models*
Adv. Theor. Math. Phys. **16** (2012) 1–37 [arXiv:1001.0118]

14. M.-C. Tan and **J. Yagi**, *Chiral algebras of* $(0, 2)$ *models: beyond perturbation theory*
Lett. Math. Phys. **84** (2008) 257–273

Preprints

15. K. Maruyoshi, T. Ota and **J. Yagi**, *Wilson–'t Hooft lines as transfer matrices*
arXiv:2009.12391. To appear in *JHEP*.

16. K. Costello and **J. Yagi**, *Unification of integrability in supersymmetric gauge theories*
arXiv:1810.01970

17. M.-C. Tan and **J. Yagi**, *Chiral algebras of* $(0,2)$ *sigma models: beyond perturbation theory – II*
arXiv:0805.1410

18. M.-C. Tan and **J. Yagi**, *Chiral algebras of* $(0,2)$ *sigma models: beyond perturbation theory*
arXiv:0801.4782

Invited Review Article

19. **J. Yagi**, *Branes and integrable lattice models*
Mod. Phys. Lett. A **32** (2017) 1730003 [arXiv:1610.05584]

Conference Proceedings (Refereed)

20. **J. Yagi**, *Vanishing chiral algebras and the Höhn–Stolz conjecture*
String–Math 2011, 477–484, Proc. Sympos. Pure Math., 85, *Amer. Math. Soc., Providence, RI*, 2012 [arXiv:1002.0028]

References

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