GUANGBO XU

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EMPLOYEMENT

Assistant Professor	**Texas A&M University**	*2019–*
Senior Postdoctoral Associate	**Simons Center for Geometry and Physics**	*2018–2019*
Associate Research Scholar	**Princeton University**	*2015–2018*
Lecturer	**Princeton University**	*2015–2018*
Visiting Assistant Professor	**University of California, Irvine**	*2013–2015*

EDUCATION

PhD, **Princeton University** *2013*
Advisor: Gang Tian
MA, **Chern Institute of Mathematics, Nankai University** *2008*
Advisor: Weiping Zhang
BA, **Nankai University** *2006*

HONORS AND AWARDS

NSF Award DMS-2204321	**NSF**	*2022–2025*
NSF Conference Award		
(co-PI) South Central Topology Conference	**NSF**	*2021*
SEC Faculty Travel Program Award	**TAMU**	*2020–2021*
Travel Assistance Award	**TAMU College of Science**	*2020*
Discovery Early Career Researcher Award (declined)	**Australian Research Concil**	*2018*
AMS-Simons Travel Grant	**Simons Foundation**	*2014–2016*
Research Assistant Allowance	**Nankai University**	*2007*
Qiu Shi Fellowship (declined)	**Qiu Shi Foundation**	*2006–2011*
Jiang Li-Fu Award	**Nankai University**	*2005*

PAPERS

1. (with H. Feng and W. Zhang) *Real embedding, η-invariant and Chern–Simons current*, **Pure Appl. Math. Q.**, 26 (2009), no.3, Special Issue: In honor of Friedrich Hirzebruch, Part 2, 1113–1137.

2. *Moduli space of twisted holomorphic maps with Lagrangian boundary condition: compactness*, **Adv. Math.** 242 (2013) 1–49.

3. (with S. Schecter) *Morse theory for Lagrange multipliers and adiabatic limits*, **J. Differential Equations** 257 (2014) 4277–4318.
4. *Classification of $U(1)$-vortices with target $\mathbb{C}^N$*, **International J. Math.** 26 (2015), no.13, 1550109, 20pp.
5. *Gauged Hamiltonian Floer homology I: definition of the Floer homology groups*, **Trans. Amer. Math. Soc.** 368 (2016), 2967–3015.
6. (with G. Tian) *Correlation functions of gauged linear σ-model*, **Science China Math.** 59 (2016), 823–838.
7. (with G. Tian) *The symplectic approach of gauged linear σ-model* **Proceedings of the Gökova Geometry-Topology Conference 2016**, 86–111.
8. (with D. Wang) *Compactness of disk vortices in adiabatic limit*, **Math. Z.**, 287 (2017), 405–459.
9. (with S. Venugopalan) *Local model of affine vortices*, **International J. Math.**, 29 (2018), no. 3 1850020 (54 pages)
10. (with G. Tian) *Analysis of gauged Witten equation*, **J. Reine Angew. Math.**, 740 (2018), 187–274.
11. (with W. Wu) *Gauged Floer homology and spectral invariants*, **Int. Math. Res. Not. IMRN**, 2018, no. 13, 3959–4021.
12. (with C. Woodward) *Partly-local domain-dependent almost complex structures*, https://arxiv.org/abs/1903.05557, 9pp.
13. (with G. Tian) *A wall-crossing formula and the invariance of GLSM correlation functions* **Peking Mathematical Journal**, 3 (2020), 235–291.
14. (with G. Tian) *Virtual cycles of gauged Witten equation*, **J. Reine Angew. Math.** 771 (2021), 1–64
15. (with G. Tian) *Gauged Witten equations and adiabatic limit*, **Symp. Pure App. Math.** 103 (2021) 503–514
16. *A compactness theorem for $SO(3)$ anti-self-dual equation with translation symmetry* **Adv. Math.**, 408B (2022) 108576, 95pp.
17. (with G. Tian) *Gauged linear sigma model in geometric phases* *submitted*, https://arxiv.org/abs/1809.00424, 131pp.
18. (with C. Woodward) *An open quantum Kirwan map* *submitted*, https://arxiv.org/abs/1806.06717, 106pp.
19. (with S. Venugopalan and C. Woodward) *Fukaya categories of blowups*, *submitted*, https://arxiv.org/abs/2006.12264, 82pp.
20. (with G. Tian) *Counting pointlike instantons virtually without gluing*, https://arxiv.org/abs/2110.15379, 44pp.
21. *Gluing affine vortices*, *submitted*, https://arxiv.org/abs/1610.09764, 63pp.

22. (with S. Bai) *An integral Euler cycle in normally complex orbifolds and $\mathbb{Z}$-valued Gromov–Witten type invariants*,
submitted, https://arxiv.org/abs/2201.02688, 67pp.

RESEARCH TALKS

- *Integer-valued Gromov–Witten invariants in symplectic geometry*, **Topics in Enumerative Geometry**, University of Oregon, 05/22/2022.
- *Gromov compactness without boundary estimate*, **Recent developments in Lagrangian Floer theory**, Simons Center for Geometry and Physics, Stony Brook University, 03/15/2022.
- *Integral Gromov–Witten invariants*, **Geometry, Symmetry, and Physics Seminar**, Rutgers University, Zoom, 03/07/2022.
- *Integral Gromov–Witten invariants*, **Geometry Seminar**, University of Georgia, Zoom, 02/04/2022.
- *Closed and open string theories of gauged linear sigma model*, **Differential Geometry and Symplectic Topology Seminar**, University of Minnesota, Zoom, 12/02/2021.
- *Counting pointlike instantons virtually without gluing*, **Symplectic geometry, topology, and gauge theory seminar**, Simons Center for Geometry and Physics, Stony Brook University, 10/07/2021
- *Compactness results in $SO(3)$ Atiyah–Floer conjecture*, **Mathematical Institute Geometry and Analysis Seminar, Oxford University**, Zoom, 05/03/2021
- *Compactness of instantons and the Atiyah–Floer conjecture*, **Boston University Geometry Seminar**, Zoom, 10/07/2020
- *Compactness of instantons and the Atiyah–Floer conjecture*, **University of Iowa Differential Geometry Seminar**, Zoom, 10/06/2020
- *Adiabatic limit of the gauged Witten equation*, **Mirror Symmetry, gauged linear sigma model, matrix factorization, and related topics**, CMSA, Harvard University, 03/04/2020
- *Lectures on Gauged linear sigma model and gauged Witten equation*, **Simons Center Series Talks**, 01/21/2020–01/24/2020
- *Adiabatic limit of the gauged Witten equation*, **Simons Center workshop on "Novel Vistas on Vortices"**, 11/15/2019
- *Adiabatic limit of the gauged Witten equation*, **The 3rd IBS–BICMR Joint Symplectic Geometry Workshop**, Pohang, Korea, 09/25/2019
- *Anti-Self-Dual equation over certain noncompact 4-manifolds and the $SO(3)$ Atiyah–Floer conjecture*, **Columbia Symplectic Geometry, Gauge Theory, and Categorification Seminar**, September 6, 2019
- *An open quantum Kirwan map*, Symplectic Geometry and Topology Seminar, **Simons Center for Geometry and Physics and Department of Mathematics of Stony Brook University**, March 2019
- *Gauged linear sigma model in geometric phases*, Symplectic Geometry Seminar, **IAS**, 01/28/19
- *Mirror Symmetry and Gauged Linear Sigma Model*, Mathematics Colloquim, **Rutgers University at Newark**, 11/28/18
- *Mirror Symmetry and Gauged Linear Sigma Model*, Geometry Seminar, **University of Rochester**, 11/12/18
- *Mirror Symmetry and Gauged Linear Sigma Model*, Geometry and Topology Seminar, **North Carolina State University**, 10/30/18
- *Bershadsky–Cecotti–Ooguri–Vafa torsion for Landau–Ginzburg models*, Geometric Analysis Seminar, **University of Oregon**, 10/23/18
- *Bershadsky–Cecotti–Ooguri–Vafa torsion for Landau–Ginzburg models*, Differential Geometry Seminar, **UC Santa Barbara**, 10/12/18
- *Bershadsky–Cecotti–Ooguri–Vafa torsion for Landau–Ginzburg models*, Joint UCI–UCSD–UCR Differential Geometry Seminar, **UC Irvine**, 10/09/18
- *Bershadsky–Cecotti–Ooguri–Vafa torsion for Landau–Ginzburg models*, Geometry seminar, **Texas A & M**, 10/01/18
- Geometry and Topology Seminar, **University of Virginia**, 09/25/18
- *Gauged linear sigma model in geometric phases*, Geometry and Topology Seminar, **MIT**, 09/17/18
- *Gauged linear sigma model in geometric phases*, New Postdoc Talks, **Stony Brook University**, 08/30/18
- *Vortex equation and gauged linear sigma model*, **University of Georgia**, Georgia Topology Conference 2018, 06/08/18
- *Bershadsky–Cecotti–Ooguri–Vafa torsion for Landau–Ginzburg models*, Geometry and Topology Seminar, **Simons Center for Geometry and Physics**, Stony Brook University, 04/09/18

- *Open quantum Kirwan map*, **IAS/Princeton** Symplectic Geometry Seminar, 03/26/18
- *Open quantum Kirwan map and bulk deformations*, Geometry and Physics Seminar, **Boston University**, 03/21/18
- *Open quantum Kirwan map*, Mirror Symmetry Seminar, **Harvard University**, 03/09/18
- Conference in honour of Professor Gang Tian for his 60th birthday, **University of Sydney**, 02/01/18
- *Vortices, Gauged Sigma Model, and Kirwan Map*, Geometry and Physics Seminar, **Rutgers University**, 11/09/17
- *Open Quantum Kirwan Map*, Geometry seminar, **University of Georgia**, 10/06/17
- *Gauged linear sigma model and geometric phases*, Conference on "Holomorphic curves & symplectic topology", **Institut Mittag-Leffler**, 08/09/17
- *Gauged linear sigma model and adiabatic limits*, The 7th International Workshop on Differential Geometry, **Karatsu, Japan**, 03/24/17
- *Open Quantum Kirwan Map*, Workshop on Global Mirror Symmetry, **Nankai University**, 06/10/16
- *Open Quantum Kirwan Map*, Workshop on Symplectic Geometry and Mathematical Physics, **Beijing International Center for Mathematical Research**, 05/27/16
- *Correlation Functions of Gauged Linear σ-Model*, Joint "Geometric Analysis" and "Geometry, Physics and Symmetry" Seminar, **Rutgers University**, 04/16
- *Gauged Witten Equation and Gauged Linear σ-Model*, Differential Geometry Seminar, **UC Riverside**, 05/15
- *Gauged Witten Equation and Gauged Linear σ-Model*, Differential Geometry Seminar, **UC Irvine**, 05/15
- *Gauged Witten Equation and Gauged Linear σ-Model*, **IAS/Princeton** Symplectic Geometry Seminar, 12/05/14
- Workshop on gauged sigma-model in two dimensions, **Simons Center for Geometry and Physics**, Stony Brook, 11/05/14
- *Compactness of gauged Witten equation*, **Center of Geometry and Physics, Pohang, Korea**, 06/16
- *Compactness of gauged Witten equation*, **University of Minnesota**, 05/14
- *Compactness of gauged Witten equation*, Workshop on equivariant Gromov-Witten theory and applications, **Simons Center for Geometry and Physics**, Stony Brook, 05/14/14
- *Morse theory for Lagrange multipliers*, *Adiabatic limits and Hamiltonian Floer homology*, **Caltech** Geometry and Topology Seminar, 01/17/14
- *Gauged Floer homology for Hamiltonian isotopies*, **AMS special session on geometric analysis**, 11/02/13
- *Adiabatic limits of vortex equation in gauged linear sigma-model*, **UC Irvine** Differential Geometry Seminar, 10/01/13
- *Gauged linear σ-model and its adiabatic limits*, UMD-JHU joint complex geometry seminar, 04/02/13

TEACHING

MATH 423 Linear Algebra II	**Texas A&M University**	Spring 2022
MATH 689 Special Topics in Morse Theory	**Texas A&M University**	Spring 2022
MATH 622 Differential Geometry I	**Texas A&M University**	Spring 2021
MATH 323 Linear Algebra (Honor Section)	**Texas A&M University**	Spring 2021
MATH 308 Differential Equations (2 Sections)	**Texas A&M University**	Fall 2019
Linear Algebra (2 Sections)	**Princeton University**	Spring 2018
Multivariable Calculus (2 Sections)	**Princeton University**	Fall 2016
Introduction to Engineering, Mathematics, and Physics (2 Sections)	**Princeton University**	Fall 2015
Linear Algebra (2 Sections)	**UC Irvine**	Spring 2015
Differential Geometry	**UC Irvine**	Winter 2015
Linear Algebra	**UC Irvine**	Winter 2015
Linear Algebra	**UC Irvine**	Spring 2014
Differential Geometry	**UC Irvine**	Winter 2014
Modern Geometry	**UC Irvine**	Winter 2014
Linear Algebra	**UC Irvine**	Fall 2013

Elementary Analysis	**UC Irvine**	Fall 2013
Analysis in Several Variables (Honor Course, with Professor Robert Gunning)	**Princeton University**	Fall 2012
Linear Algebra	**Princeton University**	Spring 2011

STUDENT ADVISEE

1. Jose Lopez Garcia, PhD, TAMU, 2021, Reading course
2. Alexander Adams, Undergraduate, TAMU, 2022 Spring

SERVICES

- Reviewer for MathReview (19 MathReview articles)
- Journal Referee: Geometry & Topology, Journal of Symplectic Geometry, Advances in Mathematics, Journal of Geometry and Physics, Frontiers in Mathematics of China, Science China Mathematics, Calculus of Variation and Partial Differential Equations, SIAM Journal of Applied Dynamical Systems, Mathematical Survey and Monographs, Peking Mathematical Journal
- Organizer of Stony Brook Symplectic Geometry and Topology Seminar (2018–2019)
- Organizer of Princeton/IAS Symplectic Geometry Seminar (2016–2018)
- Minicourse on Hodge Theorem at TAMU (6 hours, 2021)
- Volunteer for MathCount (2014, 2015)
- Instructor for TAMU Math Circle (2019–Now) (Weekly problem solving session for the group of 5th–6th graders)
- Organizer of TAMU Geometry Seminar (2019–Now) (invited 3 speakers)
- Organizer of TAMU Topology Seminar (2020–Now) (invited 16 speakers)
- Maintainer of TAMU Geometry and Topology Research Page (2020–Now)