

## List of Publications

Chiu-Chu Melissa Liu

April 2025

### Published Papers.

- (1) Sheldon Katz, Chiu-Chu Melissa Liu, “Enumerative geometry of stable maps with Lagrangian boundary conditions and multiple covers of the disc,” *Adv. Theor. Math. Phys.* **5** (2001), no. 1, 1–49.
- (2) Chiu-Chu Melissa Liu, Shing-Tung Yau, “Positivity of quasilocal mass,” *Phys. Rev. Lett.* **90** (2003), no. 23, 231102, 4pp.
- (3) Nan-Kuo Ho, Chiu-Chu Melissa Liu, “Connected components of the space of surface group representations,” *Int. Math. Res. Not.* **2003**, no. 44, 2359–2372.
- (4) Chiu-Chu Melissa Liu, Kefeng Liu, Jian Zhou, “A proof of a conjecture of Mariño-Vafa on Hodge integrals,” *J. Differential Geom.* **65** (2003), no. 2, 289–340.
- (5) Chiu-Chu Melissa Liu, Kefeng Liu, Jian Zhou, “On a proof of a conjecture of Mariño-Vafa on Hodge integrals,” *Math. Res. Lett.* **11** (2004), no. 2, 259–272.
- (6) Nan-Kuo Ho, Chiu-Chu Melissa Liu, “On the connectedness of moduli spaces of flat connections over Compact Surfaces,” *Canad. J. Math.* **56** (2004), no. 6, 1228–1236.
- (7) Chiu-Chu Melissa Liu, Shing-Tung Yau, “Liu and Yau reply: ‘Comment on: Positivity of Quasilocal mass’,” *Phys. Rev. Lett.* **92** (2004), no. 25, 259002, 1p.
- (8) Nan-Kuo Ho, Chiu-Chu Melissa Liu, “Connected components of the space of surface group representations II,” *Int. Math. Res. Not.* **2005**, no.16, 959–979.
- (9) Nan-Kuo Ho, Chiu-Chu Melissa Liu, “On the connectedness of the spaces of surface group representations,” *Noncommutative geometry and physics*, 199–214, World Sci. Publ., Hackensack, NJ, 2005.
- (10) Chiu-Chu Melissa Liu, Shing-Tung Yau, “Positivity of quasi-local mass II,” *J. Amer. Math. Soc.* **19** (2006), no. 1, 181–204.
- (11) Chiu-Chu Melissa Liu, Kefeng Liu, Jian Zhou, “Mariño-Vafa formula and Hodge integral identities,” *J. of Algebraic Geom.* **15** (2006), 379–398.
- (12) Dagan Karp, Chiu-Chu Melissa Liu, Marcos Mariño, “The local Gromov-Witten invariants of configurations of rational curves,” *Geom. Topol.* **10** (2006), 115–168.
- (13) Sheldon Katz, Chiu-Chu Melissa Liu, “Enumerative geometry of stable maps with Lagrangian boundary conditions and multiple covers of the disc,” *The interaction of finite-type and Gromov-Witten invariants (BIRS 2003)*, 1–47, *Geom. Topol. Monogr.*, **8**, *Geom. Topol. Publ.*, Coventry, 2006. [Reprint of (1)]
- (14) Chiu-Chu Melissa Liu, “Formulae of one-partition and two-partition Hodge integrals,” *The interaction of finite-type and Gromov-Witten invariants (BIRS 2003)*, 105–128, *Geom. Topol. Monogr.* **8**, *Geom. Topol. Publ.*, Coventry, 2006.

- (15) Chiu-Chu Melissa Liu, Kefeng Liu, Jian Zhou, “A formula of two-partition Hodge integrals,” *J. Amer. Math. Soc.* **20** (2007), no.1, 149–184.
- (16) Nan-Kuo Ho, Chiu-Chu Melissa Liu, “Yang-Mills connections on nonorientable surfaces,” *Comm. Anal. Geom.* **16** (2008), no.3, 617–679.
- (17) Jun Li, Chiu-Chu Melissa Liu, Kefeng Liu, Jian Zhou, “A mathematical theory of the topological vertex,” *Geom. Topol.* **13** (2009), 527–621.
- (18) Nan-Kuo Ho, Chiu-Chu Melissa Liu, *Yang-Mills connections on orientable and nonorientable surfaces*, *Mem. Amer. Math. Soc.* **202** (2009), no.949, viii+98 pp.
- (19) Nan-Kuo Ho, Chiu-Chu Melissa Liu, Daniel Ramras “Orientability in Yang-Mills theory over nonorientable surfaces,” *Comm. Anal. Geom.* **17** (2009), no.5, 903–954.
- (20) Elizabeth Gasparim, Chiu-Chu Melissa Liu, “The Nekrasov conjecture for toric surfaces,” *Comm. Math. Phys.* **293**, 661–700 (2010).
- (21) Chiu-Chu Melissa Liu, “Gromov-Witten invariants of toric Calabi-Yau three-folds,” *Handbook of geometric analysis*, Vol. 2, 139–159, *Adv. Lect. Math. (ALM)* **13**, Higher Education Press, 2010.
- (22) Chiu-Chu Melissa Liu, “Gromov-Witten theory of Calabi-Yau 3-folds,” *Proceedings of the International Congress of Mathematicians (Hyderabad, 2010)*, 497–512, Hindustan Book Agency, New Delhi, 2010.
- (23) Bohan Fang, Chiu-Chu Melissa Liu, David Treumann, Eric Zaslow, “The coherent-constructible correspondence and Fourier-Mukai transforms,” *Acta Math. Sin. (Engl. Ser.)* **27** (2011), no.2, 275–308.
- (24) Nan-Kuo Ho, Chiu-Chu Melissa Liu, “Anti-perfect Morse stratification,” *Selecta Math. (N.S.)* **17** (2011), no. 2, 505–532.
- (25) Bohan Fang, Chiu-Chu Melissa Liu, David Treumann, Eric Zaslow, “A categorification of Morelli’s theorem,” *Invent. Math.* **186** (2011), no.1, 79–114.
- (26) Bohan Fang, Chiu-Chu Melissa Liu, David Treumann, Eric Zaslow, “The Coherent-Constructible Correspondence and Homological Mirror Symmetry for Toric Varieties,” 3–37, *Geometry and Analysis Vol. 2*, *Adv. Lect. Math. (ALM)* **18**, Higher Education Press, 2011.
- (27) Chiu-Chu Melissa Liu, “Lectures on the ELSV formula,” *Transformation Groups and Moduli Spaces of Curves*, 195–216, *Adv. Lect. Math. (ALM)* **16**, Higher Education Press, 2011.
- (28) Chiu-Chu Melissa Liu, “Formulae of one-partition and two-partition Hodge integrals,” *Transformation groups and moduli spaces of curves*, 217–238, *Adv. Lect. Math. (ALM)*, **16**, Int. Press, Somerville, MA, 2011. [Reprint of (15)]
- (29) Bohan Fang, Chiu-Chu Melissa Liu, David Treumann, Eric Zaslow, “T-duality and homological mirror symmetry for toric varieties,” *Adv. Math.* **229** (2012), 1873–1911.
- (30) Chiu-Chu Melissa Liu, “Localization in Gromov-Witten theory and orbifold Gromov-Witten theory,” *Handbook of Moduli*, Volume II, 353–425, *Adv. Lect. Math.*, (ALM) **25**, International Press and Higher Education Press, 2013.
- (31) Chiu-Chu Melissa Liu, Florent Schaffhauser, “Yang-Mills equations over Klein surfaces,” *J. Topology* **6** (2013) no. 3, 569–643.

- (32) Bohan Fang, Chiu-Chu Melissa Liu, “Open Gromov-Witten invariants of toric Calabi-Yau 3-folds,” *Commun. Math. Phys.* **323** (2013), 285–328.
- (33) Bohan Fang, Chiu-Chu Melissa Liu, David Treumann, Eric Zaslow, “The coherent-constructible correspondence for toric DM stacks,” *Int. Math. Res. Not.* **2014**, no. 4, 914–954.
- (34) Bohan Fang, Chiu-Chu Melissa Liu, Zhengyu Zong, “Equivariant Gromov-Witten Theory of Affine Smooth Toric Deligne-Mumford Stacks,” *Int. Math. Res. Not.* **2016**, no. 7, 2127–2144.
- (35) Bohan Fang, Chiu-Chu Melissa Liu, Zhengyu Zong, “All genus mirror symmetry for toric Calabi-Yau 3-orbifolds,” *Proceedings of Symposia in Pure Mathematics* **93** (2016), 1–19.
- (36) Bohan Fang, Chiu-Chu Melissa Liu, and Zhengyu Zong, “The SYZ mirror symmetry and the BKMP remodeling conjecture,” *Adv. Theor. Math. Phys.* **20** (2016), no. 1, 165–192.
- (37) Bohan Fang, Chiu-Chu Melissa Liu, Zhengyu Zong, “The Eynard-Orantin recursion and equivariant mirror symmetry for the projective line,” *Geometry & Topology* **21** (2017), no.4, 2049–2092.
- (38) Chiu-Chu Melissa Liu, Artan Sheshmani, “Equivariant Gromov-Witten Invariants of Algebraic GKM Manifolds,” *SIGMA Symmetry Integrability Geom. Methods Appl.* **13** (2017), 048, 21 pages.
- (39) Huai-Liang Chang, Jun Li, Wei-Ping Li, Chiu-Chu Melissa Liu, “A survey on mixed spin  $P$ -fields,” *Chin. Ann. Math. Ser. B* **38** (2017), no. 4, 869–882.
- (40) Huai-Liang Chang, Jun Li, Wei-Ping Li, Chiu-chu Melissa Liu, “On the mathematics and physics of mixed spin  $P$ -fields,” *Proceedings of Symposia in Pure Mathematics* **96** (2017), 47–75.
- (41) Sergei Gukov, Chiu-Chu Melissa Liu, Artan Sheshmani, Shing-Tung Yau, “On topological approach to local theory of surfaces in Calabi-Yau three-folds,” *Adv. Theor. Math. Phys.* **21** (2017), no. 7, 1679–1728.
- (42) Huai-Liang Chang, Jun Li, Wei-Ping Li, Chiu-Chu Melissa Liu, “Mixed-Spin- $P$  fields of Fermat polynomials,” *Camb. J. Math.* **7** (2019), no. 3, 319–364.
- (43) Chiu-Chu Melissa Liu, “Moduli of  $J$ -holomorphic curves with Lagrangian boundary conditions and open Gromov-Witten invariants for an  $S^1$ -equivariant pair,” *Journal of the Iranian Mathematical Society* **1** (2020), no.1, 5–95.
- (44) Bohan Fang, Chiu-Chu Melissa Liu, Zhengyu Zong, “All Genus Open-Closed Mirror Symmetry for Affine Toric Calabi-Yau 3-Orbifolds,” *Algebr. Geo.* **7** (2020), no. 2, 192–239.
- (45) Bohan Fang, Chiu-Chu Melissa Liu, Zhengyu Zong, “On the Remodeling Conjecture for Toric Calabi-Yau 3-Orbifolds,” *J. Amer. Math. Soc.* **33** (2020), no. 1, 135–222.
- (46) Chiu-Chu Melissa Liu and Artan Sheshmani, “Stacky GKM Graphs and Orbifold Gromov-Witten Theory,” *Asian J. Math.* **24** (2020), no. 5, 855–902.
- (47) Chiu-Chu Melissa Liu, “A Lecture on Holomorphic Anomaly Equations and Extended Holomorphic Anomaly Equations,” *Singularities, Mirror Symmetry, and the Gauged Linear Sigma Model*, 191–203, *Contemp. Math.*, **763**, Amer. Math. Soc., Providence, RI, 2021.

- (48) Huai-Liang Chang, Jun Li, Wei-Ping Li, Chiu-Chu Melissa Liu, “An effective theory of GW and FJRW invariants of quintics Calabi-Yau manifolds,” *J. Differential Geom.* **120** (2022) 251–306.
- (49) Bohan Fang, Chiu-Chu Melissa Liu, Hsian-Hua Tseng, “Open-closed Gromov-Witten invariants of 3-dimensional Calabi-Yau smooth toric DM stacks,” *Forum Math. Sigma* **10** (2022), Paper No. e58, 56pp.
- (50) Jun Li and Chiu-Chu Melissa Liu, “Counting curves in quintic Calabi-Yau threefolds and Landau-Ginzburg models,” *Surv. Differ. Geom.*, **24** International Press, Boston, MA, 2022, 173–203.
- (51) Chiu-Chu Melissa Liu and Song Yu, “Open/closed Correspondence via Relative/local Correspondence,” *Adv. Math.* **410** (2022) 10869, 43pp.

#### Preprints.

- (52) Mitchell Faulk and Chiu-Chu Melissa Liu, “Embedding Deligne-Mumford stacks into GIT quotient stacks of linear representations,” [arXiv:2111.01068](#).
- (53) Konstantin Aleshkin and Chiu-Chu Melissa Liu, “Wall-crossing for K-theoretic quasimap invariants I,” [arXiv:2210.10315](#).
- (54) Chiu-Chu Melissa Liu and Song Yu, “Orbifold Open/Closed Correspondence and Mirror Symmetry,” [arXiv:2210.11721](#).
- (55) Konstantin Aleshkin and Chiu-Chu Melissa Liu, “Higgs-Coulomb correspondence and wall-crossing in abelian GLSMs,” [arXiv:2301.01266](#).
- (56) Konstantin Aleshkin and Chiu-Chu Melissa Liu, “Open/closed Correspondence and Extended LG/CY Correspondence for Quintic Threefolds,” [arXiv:2309.14628](#).
- (57) Haniya Azam, Catherine Cannizzo, Heather Lee, and Chiu-Chu Melissa Liu, “Fukaya category on a symplectic manifold with a B-field,” [arXiv:2311.04143](#).
- (58) Haniya Azam, Catherine Cannizzo, Heather Lee, and Chiu-Chu Melissa Liu, “On fiber and base decompositions in the Fukaya category of a symplectic Landau-Ginzburg model,” [arXiv:2312.00973](#).
- (59) Haniya Azam, Catherine Cannizzo, Heather Lee, and Chiu-Chu Melissa Liu, “Global SYZ mirror symmetry and homological mirror symmetry for principally polarized abelian varieties,” [arXiv:2503.20948](#).
- (60) Bohan Fang, Chiu-Chu Melissa Liu, Song Yu, and Zhengyu Zong, “Remodeling Conjecture with Descendants,” [arXiv:2504.15696](#).