Curriculum Vitae: Bohan Fang

Work Address
5 Yiheyuan Road, Jingchunyuan Courtyard #78
Haidian, Beijing 100871, China

Email: bohanfang@gmail.com
Phone: 86-10-62744124

Education

Ph.D. in Mathematics, Northwestern University, Evanston, IL, USA, 2010
Advisor: Professor Eric Zaslow
Thesis: *Mirror symmetry, constructible sheaves and toric varieties*

B.S. in Mathematics, Peking University, Beijing, China, 2005

Affiliation

Professor, Peking University, Beijing, China, 2023 – present

Associate Professor, Peking University, Beijing, China, 2020 – 2023

Member, Institute for Advanced Study, Princeton, NJ, USA, 2017 Spring

Assistant Professor, Peking University, Beijing, China, 2014 – 2020

Ritt Assistant Professor, Columbia University, New York, NY, USA, 2010 – 2014

Grants

NSFC 12125101, PI, *Mirror symmetry*, 2021-2026

NSFC 11890661, Co-PI, *Geometric structures and topological invariants*, 2019–2024

NSFC 11831017, Co-PI, *Gromov-Witten invariants*, 2019–2024

NSF DMS-1206667, PI, *Open Mirror Symmetry for Toric Varieties*, 2012 – 2015

Awards

China Youth Science and Technology Prize 中国青年科技奖, 2022

Research Area

Algebraic and symplectic geometry. Mirror symmetry, both categorical and enumerative aspects (homological mirror symmetry and Gromov-Witten invariants).

Publication

B. Fang, C.-C. M. Liu, H.-H. Tseng; *Open-closed Gromov-Witten invariants of 3-dimensional Calabi-Yau smooth toric DM stacks*, Forum Math. Sigma 10 (2022), Paper No. e58, 56 pp.

B. Fang, *Central charges of T-dual branes for toric varieties*, Trans. Amer. Math. Soc. **373** (2020), no. 6, 3829 – 3851.

B. Fang, C.-C. M. Liu, Z. Zong, *On the Remodeling Conjecture for Toric Calabi-Yau 3-orbifolds*, J. Amer. Math. Soc. **33** (2020), no. 1, 135 – 222.

B. Fang, C.-C. M. Liu, Z. Zong, *All genus open-closed mirror symmetry for affine toric Calabi-Yau* 3*-orbifolds*, Algebr. Geom. **7** (2020), no. 2, 192 – 239.

B. Fang, Y. Ruan, Y. Zhang, J. Zhou, *Open Gromov-Witten theory of* $K_{\mathbb{P}^2}$,$K_{\mathbb{P}^1\times\mathbb{P}^1}$, $K_{W\mathbb{P}[1,1,2]}$, $K_{\mathbb{F}_1}$ *and Jacobi forms*, Comm. Math. Phys. **369** (2019), no. 2, 675–719.

B. Fang, Z. Zong, *Topological recursion for the conifold transition of a torus knot*, Selecta Math.(N.S.) **25** (2019), no. 3, 25:35.

B. Fang, *Eynard-Orantin B-model and its application in mirror symmetry*, in *B-model Gromov-Witten theory*, 499–538, Trends in Mathematics, *Birkhäuser, Basel, 2018.* ISBN: 978-3-319-94220-9.

B. Fang, Z. Zong, *Graph sums in the remodeling conjecture,* in *Topological Recursion and its Influence in Analysis, Geometry, and Topology, 2016 AMS von Neumann Symposium*, 359–403, Proc. Symps. Pure Math. **100**, *Amer. Math. Soc., Providence, RI, 2018.*

B. Fang, C.-C. M. Liu, Z. Zong, *The Eynard-Orantin recursion and equivariant mirror symmetry for the projective line*, Geom. Topol. **21** (2017), no. 4, 2049–2092,

B. Fang, C.-C. M. Liu, Z. Zong, *All genus mirror symmetry for toric Calabi-Yau 3-orbifolds,* in *String-Math 2014,* 1–19, Proc. Sympos. Pure Math., 93, *Amer. Math. Soc., Providence, RI, 2016.*

B. Fang, C.-C. M. Liu, Z. Zong, *The SYZ mirror symmetry and the BKMP remodeling conjecture*, Adv. Theo. Math. Phys. **20**, no. 1, 165–192, 2016.

B. Fang, C.-C. M. Liu, Z. Zong, *Equivariant Gromov-Witten theory of affine smooth toric Deligne-Mumford stacks*, Int. Math. Res. Not. IMRN (2016), no. 7, 2127–2144.

B. Fang, C.-C. M. Liu, D. Treumann and E. Zaslow, *Coherent-constructible correspondence for toric Deligne-Mumford stacks,* Int. Math. Res. Not. IMRN (2014), no. 4, 914–954.

B. Fang, C.-C. M. Liu, *Open Gromov-Witten invariants of toric Calabi-Yau 3-folds,* Comm. Math. Phys. **323** (2013), no. 1, 285–328.

B. Fang, C.-C. M. Liu, D. Treumann and E. Zaslow, *T-duality and homological mirror symmetry for toric varieties,* Adv. Math. **229** (2012), no. 3, 1875–1911, with C.-C. M. Liu, D. Treumann and E. Zaslow.

B. Fang, C.-C. M. Liu, D. Treumann and E. Zaslow, *A categorification of Morelli's theorem*, Invent. Math. **186** (2011), no. 1, 79–114.

B. Fang, C.-C. M. Liu, D. Treumann and E. Zaslow, *The coherent-constructible correspondence and Fourier-Mukai transforms*, Acta Math. Sin. (Engl. Ser.) **27** (2011), no. 2, 275–308.

B. Fang, C.-C. M. Liu, D. Treumann and E. Zaslow, *The coherent-constructible correspondence and homological mirror symmetry for toric varieties,* Geometry and analysis. No. 2, 3–37, Adv. Lect. Math. (ALM), **18**, *Int. Press,* Somerville, MA, 2011.

B. Fang, *Homological mirror symmetry is T-duality for $\mathbb{P}^n$*, Commun. Number Theory Phys. **2** (2008), no. 4, 719–742.

B. Fang, X. Tan, W. Zhang, *Some results on special stable vector bundles of rank 3 on algebraic curves,* Acta Math. Sin. (Engl. Ser.) **24** (2008), no. 3, 417–430.

Preprints

Q. Bai, **B. Fang**, *Topological Fukaya category and mirror symmetry for toric Calabi-*

Yau 3-orbifolds, arXiv:2204.12483.

B. Fang, P. Zhou, *Gamma II for toric varieties from integrals on T-dual branes and homological mirror symmetry*, arXiv:1903.05300.

Teaching experience

Instructor at Peking Univeristy:

- Mathematical Methods in Classical Mechanics: Fall 2022
- Topics in Topological Field Theory: Spring 2019, Fall 2021
- Geometry II Honor: Spring 2018
- Topics in Modern Mathematical Physics II: Spring 2017, Spring 2022
- Linear Algebra: Fall 2016, Fall 2017, Fall 2018, Fall 2020
- Topics in Modern Mathematical Physics: Fall 2015
- Riemann Surfaces: Spring 2015

Instructor at Columbia Univeristy:

- Ordinary Differential Equations MATH V3027: Fall 2013
- Ordinary Differential Equations MATH E1210: Spring 2011, Spring 2012, Spring 2013
- Calculus III MATH V1201: Fall 2010, Fall 2011, Fall 2012