

Hao Sun

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Research Interests	Primary research interest is <i>algebraic geometry</i> . When I was Ph.D, I focused on <i>Hurwitz number</i> . Now I am working on <i>Higgs bundles</i> and its related field from the viewpoint of algebraic geometry.	
Education	<ul style="list-style-type: none">Ph.D., University of Illinois at Urbana-Champaign <i>Advisor: Maarten Bergvelt</i>M.A.¹, University of Illinois at Urbana-ChampaignB.S., South China University of Technology,	<ul style="list-style-type: none">2013-20182012-20132008-2012
Professional Experience	<ul style="list-style-type: none">Associate Professor², South China University of Technology,Postdoc, Sun Yat-Sen University <i>Mentor: Changzheng Li</i>	<ul style="list-style-type: none">2020-now2018 - 2020
Fundings	<ul style="list-style-type: none">Guangdong Basic and Applied Basic Research Foundation No. 2019A1515110961National Natural Science Foundation of China (NSFC) No. 12101043National Key R&D Program of China No. 2022YFA1006600 (hosted by Qionglng Li)Guangdong Basic and Applied Basic Research Foundation	<ul style="list-style-type: none">2020-20222022-20242023-20272024-2026
Publications Preprints	<ol style="list-style-type: none">A formula about W-operator and its application to Hurwitz number, <i>Discrete Math.</i> 342(3), 715-722 (2019).Degree of the W-operator and Noncrossing Partitions, <i>Bull. Aust. Math. Soc.</i> 101(2), 186-200 (2020).Deformation of Locally Free Sheaves and Hitchin Pairs over Nodal Curve, <i>J. Korean Math. Soc.</i> 57(4), 809-823 (2020).Topological invariants of parabolic G-Higgs bundles (with G. Kydonakis and L. Zhao) <i>Math. Z.</i> 297(1), 585-632 (2021).The Beauville-Narasimhan-Ramanan correspondence for twisted Higgs V-bundles and components of parabolic $Sp(2n, R)$-Higgs moduli, (with G. Kydonakis and L. Zhao) <i>Trans. Amer. Math. Soc.</i> 374(6), 4023-4057 (2021).Moduli Problem of Hitchin Pairs over Deligne-Mumford Stack, <i>Proc. Amer. Math. Soc.</i> 150(1), 131-143 (2022).	

¹I transferred from master program to Ph.D program in 2013 without obtaining a master degree. Prof. Laugesen, who was the director of graduate studies at UIUC, told me that it does not matter, do not worry about it. I am also curious about whether I got a master degree.

²I was employed as an assistant professor (new system of position track) in 2020, which is equivalent to associate professor in the old track. In 2022, it seems that the new track changes the position's title.

7. Monodromy of Rank 2 Parabolic Hitchin Systems,
(with G. Kydonakis and L. Zhao) *J. Geom. Phys.* 171, Paper No. 104411,
18pp (2022).
8. Meromorphic Parahoric Higgs Torsors and Filtered Stokes G -Local Systems on
Curves,
(with P. Huang) *Adv. Math.* 429, Paper No. 109183, 38 pp (2023).
9. On the image of Hitchin morphism for algebraic surfaces: The case GL_n ,
(with L. Song) *Int. Math. Res. Not.* IMRN 2024, no. 1, 492–514 (2024).
10. Logahoric Higgs Torsors for a Complex Reductive Group,
(with G. Kydonakis and L. Zhao) *Math. Ann.* 388, no. 3, 3183–3228 (2024).
11. Poisson Structures on Moduli Spaces of Higgs Bundles over Stacky Curves,
(with G. Kydonakis and L. Zhao) arXiv:2008.12518 (2020). (to appear at Adv.
Geom.)
12. Tame Parahoric Nonabelian Hodge Correspondence in Positive Characteristic
over Algebraic Curves,
(with M. Li) arXiv:2109.00850 (2021). (to appear at Selecta Math.)
13. Moduli Space of Λ -modules on Projective Deligne-Mumford Stacks,
arXiv: 2003.11674 (2020).
14. Tame Parahoric Nonabelian Hodge Correspondence on Curves,
(with P. Huang, G. Kydonakis and L. Zhao) arXiv: 2205.15475 (2022).
15. Moduli Spaces of Filtered G -local Systems on Curves,
(with P. Huang) arXiv: 2304.09999 (2023).
16. On the Gr-semistable Filtration of Orthogonal/Symplectic λ -connections,
(with M. Sheng and J. Wang) arXiv:2401.09956 (2024).
17. Filtered Stokes G -local Systems in Nonabelian Hodge Theory on Curves,
(with P. Huang) arXiv: 2404.13553.