Xuemiao Chen

CONTACT INFORMATION	Email: x67chen@uwaterloo.ca

RESEARCH INTERESTS

Complex algebraic and differential geometry
Gauge theory particularly on Yang-Mills connections

EMPLOYMENT

University of Waterloo 2022-
Assistant Professor

University of Maryland, College Park 2019-2022
Brin Postdoctoral Fellow. Mentor: Richard Wentworth.

EDUCATION

Stony Brook University 2013-2019
Ph.D. in pure Mathematics. Advisor: Song Sun.

University of Science and Technology of China 2009-2013
School of the Gifted Young (00)

VISITS

University of California, Berkeley 2018-2019
Visiting Student Research Scholar.

PUBLICATIONS & PREPRINTS

On Vafa-Witten equations over Kähler manifolds
[arXiv]

Admissible Hermitian-Yang-Mills connections over normal varieties
[arXiv]

A Donaldson-Uhlenbeck-Yau theorem for normal varieties and semistable bundles on degenerating families (with Richard Wentworth)
[Math. Ann. (2023)] [arXiv]

Compactness for Ω-Yang-Mills connections (with Richard Wentworth)
[Cal.Var.PDE (2022)] [arXiv]

Nonabelian Hodge correspondence for balanced Hermitian metrics of Hodge-Riemann type (with Richard Wentworth)
accepted by MRL [arXiv]

Reflexive sheaves, Hermitian-Yang-Mills connections, and tangent cones (with Song Sun)
[Invent. Math. (2021)] [arXiv]

Algebraic tangent cones of reflexive sheaves (with Song Sun)
[IMRN (2018)] [arXiv]

Analytic tangent cones of admissible Hermitian-Yang-Mills connections (with Song Sun)
[Geometry & Topology (2021)] [arXiv]

Singularities of Hermitian-Yang-Mills connections and the Harder-Narasimhan-Seshadri filtration (with Song Sun)
[Duke Math. J. (2020)] [arXiv]

INVITED TALKS	*Geomety and Topology Seminar* CIRGET, April 2024;
	Geomety and Topology Seminar McMaster University, April 2024;
	Geometric Analysis Seminar, University of Oregon, April 2023;
	Complex Geometry and Moduli Space CMS winter meeting Toronto, Dec 2022
	Geomety and Topology Seminar McMaster University, Nov 2022
	Geometric Analysis Colloquium Fields Institute, October 2022
	Differential geometry and geometric analysis seminar Princeton University, October 2021
	Special Holonomy: Progress and Open Problems 2021 Simons Center, Sony Brook University, September 2021;
	GAP seminar University of Science and Technology of China, August, 2021
	Special geometric analysis talk, University of California, Berkeley, August, 2021
	OLGA 2021 Oxford-London Gauge Assembly, June 2021;
	Differential Geometry and Complex Analysis seminar, University of Florence, April 2021;
	Informal geometric analysis seminar, University of Maryland, March 2021;
	Complex Geometry Seminar organized by Ya Deng etc, November 2020;
	AMS Fall Eastern Virtual Sectional Meeting, October 3-4, 2020;
	Geometry-Topology seminar, University of Maryland, October 2019;
	Differential Geometry seminar, University of California, Berkeley, November 2018;
	Geometric Analysis seminar, University of Oregon, May 2018;
	Gauge theory and special holonomy, Imperial College London, January 2018;
	Differential geometric analysis seminar, University of Science and Technology of China, July 2017.
RESEARCH GRANTS	NSERC Discovery Grant (2023-2028): $160,000$ ($32,000$ per year)
	NSERC Discovery Launch Supplements (2023-2024): $12,500$
	UWaterloo Start-up grant (2022-2027): $60,000$
AWARDS AND FELLOWSHIPS	Funded as a graduate student by Simons Collaboration on Special Holonomy in Geometry, Analysis, and Physics starting in June, 2017 - June 2019;
	Summer Research Fund, Stony Brook University, 2015&2016&2017;
	The National Undergraduate Scholarship, University of Science and Technology of China, 2012.
	National Encouragement Scholarship, University of Science and Technology of China, 2010&2011
	Xianzi Zeng Scholarship 2010-2012.

TEACHING	University of Waterloo, 2022-
	Instructor: Pmath 465/665 smooth manifolds, Fall 2022; Pmath 863, Introduction to Lie groups and Lie algebras Winter 2023; Pmath 965-Selected topics on Riemann surfaces.
	University of Maryland, 2019-2022
	Instructor: Differential equations for scientists and engineers (honor), Spring 2020/Spring 2021; Calculus I, Spring 2020; Linear algebra for scientists and engineers (honor), Fall 2020; Complex Variables, Fall 2021, Spring 2022
	Stony Brook University, 2013-2018:
	Instructor: Calculus III with applications, Summer 2015; Introduction to linear algebra, Summer 2014; Calculus C, Summer 2014;
	Teaching Assistant: Calculus I (Advanced), Fall 2017; Calculus II (Advanced), Fall 2016; Calculus A, Spring 2016; Calculus A, Fall 2015; Calculus II (Advanced), Spring 2015; Calculus I (Advanced), Fall 2015.
	Grader: Differential Geometry of curves and surfaces, Spring 2017; Euclidean and non-Euclidean geometry, Spring 2017; Topology and Geometry II, Fall 2015; Calculus C, Spring 2014; Introduction to linear algebra, Fall 2013.

SUPERVISION	University of Waterloo 2022-
	Postdoc fellows [1]
	Aleksandar Milivojevic (PhD Stony Brook), 2023–2025
	Lucía Martín Merchan (PhD Universidad de Málaga), 2022–2024
	Michael Albanese (PhD Stony Brook), 2022–2024
	Master students
	Daniel Samuel Zeldin Clark 2022–2023
	Ravi Mudaliar 2022-2023
	Undergraduate students
	Derek Wu (MURA) Fall 2023
	Sam Brinkerhoff (MURA) Spring 2023

SERVICE	University of Waterloo 2022-
	Undergraduate committee 2023-
	PHD commitee for
	Amanda Maria Petcu 2023-
	Robert Cornea 2023-
	Paul Cusson 2023-
	Second Master Thesis Reader
	Jacques Van Wyk 2022-2023
	Seminar organization
	Co-organize Uwaterloo Differential Geometry working seminar 2022-
	Co-organize Uwaterloo Geometry and Topology seminar 2022-
	Co-organize Fields institute geometric analysis colloquium 2023

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[1] Jointly with Uwaterloo Geometry and Topology group

University of Maryland 2019-2022

      NSF Panelist 2022

      Co-organizer of *Informal geometric analysis seminar* 2021

Referee for journals:

      Annali di Matematica Pura ed Applicata

      Analysis&PDE

      Calculations and variations of partial differential equations

      Geometry&Topology

      Geometriae Dedicata

      International Journal of Mathematics

      Journal of Geometric Analysis

      Pure and Applied Mathematics Quarterly

      Transactions of American Mathematical Society