

# CURRICULUM VITAE

PENGFEEI GUAN

## Address:

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## Education:

Ph.D in Mathematics (1989), Princeton University (advisor: J.J. Kohn).  
M.S. in Mathematics (1986), Princeton University.  
B.S. in Mathematics (1982), Zhejiang University, China.

## Awards:

Alfred P. Sloan Fellowship (1993-1995).

## Honors:

Distinguished James McGill Professor (May 2019-)  
Canada Research Chair (Tier I, April 2005- March 2019),  
Fellow of Royal Society of Canada (inducted in 2008).  
Queen Elizabeth II Diamond Jubilee Medal (2012)

## Employment:

Assistant Professor (1989-1993, McMaster University)  
Associate Professor (1993-1997, McMaster University)  
Professor (1997-2004, McMaster University).  
Professor (2004-, McGill University)

## Research Interest:

Nonlinear Partial Differential Equations and Geometric Analysis.

## Research Funding:

I have been supported by NSERC grants since 1989.

**Publication:**

<http://www.math.mcgill.ca/guan/pb.html>

**Supervision of the graduate students 2012–:***Ph.D.:*

- (1) Xiangwen Zhang (2012, CMS Ph.D. thesis prize, went to Columbia University as Rita assistant professor 2012-2015, tenured associate professor at UC Irvine) , Complex Monge-Ampère Equation and its Applications in Complex Geometry
- (2) Siyuan Lu (2017-2019, Hill assistant professor at Rutgers University, tenure-track assistant professor, McMaster University, 2019–), On a class of fully nonlinear equations and their applications in geometry
- (3) Shaodong Wang (co-supervisor, postdoctoral fellow, Shanghai JiaoTong University, 2019–). Compactness and Noncompactness of Yamabe-type Problems on Manifolds with Boundary
- (4) Fengrui Yang, (current, Supervisor)
- (5) Jinzhou Huang, (current, Supervisor)

*Ph.D. graduate trainee:*

Guohuan Qiu (2015-2016, he continued as CRC postdoctoral fellow at McGill University, 2016-2018, now an assistant professor at Chinese University of Hong Kong). Neumann problem for  $\sigma_k$ -equations.

*MSc.:*

- (1) Sebastien Picard (2011-2013, after obtained Ph.D. at Columbia University (2013-2018), now is a Benjamin Peirce fellow at Harvard University ), A priori estimates of the degenerate Monge-Ampère equation on compact Kähler manifolds
- (2) Sung Chul Park (2013-2014, Ph. D. student at University of Berkeley now). an interior estimate for a class of Weingarten curvature equations
- (3) Edward Chernysh (2018-now, co-supervisor).
- (4) Bartosz Syroka, (2019–, co-supervisor).
- (5) Gates Wang, (2019–, co-supervisor).

**Supervisorships of postdoctoral fellows 2012–:**

- (1) Renjie Feng (8-2012 to 8-2013, co-supervisor, assistant professor at Beijing University), Topics in geometric analysis
- (2) Yiyang Xu (7-2013 to 8-2014, tenure-track assistant professor at Nanjing University), Shrinking Ricci solitons.
- (3) Chao Xia (1-2015 to 7-2016, associate professor at Ximen University, awarded Thousand Young Talents in China),  $L^p$  Christoffel-Minkowski problem

- (4) Rohit Jain (8-2016 to 8-2018, co-supervisor, now at Lawrence Livermore National Laboratory), Regularity of the obstacle problems
- (5) Guohuan Qiu (8-2016 to 8-2018, now an assistant professor at Chinese university of Hong Kong). interior estimates for convex solutions of scalar curvature equation.
- (6) Saikat Mazumdar (9-2018 to 4-2019, co-supervisor), Blow up analysis for nonlinear PDEs.

**Research collaborators 2012–:**

- (1) Chuanhe Li (8-2014 to 8-2015), Infinitesimal rigidity of the Weyl's problem in general Riemannian manifolds
- (2) Zhizhang Wang (7-2014 to 7-2015), Infinitesimal rigidity of the Weyl's problem in general Riemannian manifolds
- (3) Junfang Li (August-Dec., 2016). An integral formula and its applications.
- (4) Wubin Zhou, (8-2018 to 8-2019), Poincarè-Mok-Yau type Kähler metrics.
- (5) Changyu Ren (11-2018 to 11-2019),  $C^2$  estimates for curvature equations.

**Supervision of undergraduate students summer research 2012–:**

- (1) Xixi Shen (2012-2013, Ph.D. student Dept of math., Northwestern University), Rigidity of immersed hypersurfaces
- (2) Xuesi Cai (2013-2014, now at National Bank, Montreal), Positivity of mean curvature of hypersurfaces with nonnegative scalar curvature.
- (3) Zhiguo Zhang (2015, Ph.D. student dept of Computer Science, McGill University), Curve shorting flows.
- (4) Dylan Cant (2015-2016, to be a Ph.D. student dept of math., Stanford University in 2017). A Curvature Flow and Applications to an Isoperimetric Inequality.
- (5) Dragos Cristian Manta (2018 ), Basics of nonlinear partial differential equations.
- (6) Maia Darmon (2019), curve shorting flow and isoperimetric inequality.

**Organization of conferences and workshops (as organizer or co-organizer):**

*International conference on Elliptic and Geometric PDEs*, December, 2012, Huangshan, China.

*Nice meeting of Geometric Analysis in honor of Philippe Delanoë*, June 2-4, 2014, Nice, France.

*Nirenberg Lecture Series in Geometric Analysis*, CRM, 2014–

*BIRS workshop on geometric and analytic inequalities*, July 10-15, 2016.

*Geometric Analysis, Mathematical Congress of Americans*, session organizer, July 2017.

*Workshop on geometric analysis*, CRM, March 23-17, 2018.

*A Celebration of Geometry, Analysis and Physics. Conference honouring Niky Kamran on his 60th birthday*, CRM, June 10-14, 2019