Po Lam Yung

Curriculum Vitae

Place of birth:	Hong Kong
Address:	Department of Mathematics, The Chinese University of Hong Kong, Hong Kong
Email:	plyung@math.cuhk.edu.hk

Education

Ph.D.	Princeton University, Department of Mathematics, 2010 Adviser: Elias M. Stein
M.Phil.	The Chinese University of Hong Kong, 2005 Adviser: Ka-Sing Lau
B.Sc.	The Chinese University of Hong Kong, 2003

Appointments

Senior Lecturer, Australian National University, 2019–present

Assistant Professor, The Chinese University of Hong Kong, 2014–present (currently on leave)

Titchmarsh Fellow, University of Oxford, 2013–2014

Hill Assistant Professor, Rutgers, the State University of New Jersey, 2010–2013

Research Interests

Harmonic Analysis, Partial Differential Equations

Awards/Honors

2018	Distinguished Paper Award, The International Congress of Chinese Mathematicians

2016	Faculty Exemplary Teaching Award, Faculty of Science, The Chinese University of Hong Kong
2015	Early Career Award, Research Grant Council, Hong Kong
2013	Junior Research Fellow, St. Hilda's College, University of Oxford
2007	New World Mathematics Silver Award for Master Thesis, presented at the International Congress of Chinese Mathematicians
2004, 2005	Sir Edward Youde Memorial Fellowship
2003	Dr. Chao Yong Chi-Hsing Scholarships in Mathematics
2002	Bankee Kwan Award for Mathematics Project

Research Grants

2017	HKRGC General Research Fund 14303817 Problems in harmonic analysis related to Carleson's operators
2016	HKRGC General Research Fund 14313716 Restrictions of pseudodifferential operators of mixed homogeneities
2015	HKRGC Early Career Fund 24300915 Compensation for the failures of some critical Sobolev embeddings
2012	NSF Grant DMS 1201474 Three problems in Harmonic Analysis
2011	AMS Simons Travel Grant

Publications

28. (Joint with Haïm Brezis and Jean Van Schaftingen) *A surprising formula for Sobolev norms and related topics*, submitted.

27. (Joint with Shaoming Guo, Zane Kun Li and Pavel Zorin-Kranich) *A short proof of ℓ^2 decoupling for the moment curve*, submitted.

26. (Joint with Shaoming Guo, Changkeun Oh, Joris Roos and Pavel Zorin-Kranich) *Decoupling for two quadratic forms in three variables: a complete characterization*, submitted.

25. (Joint with Shaoming Guo and Zane Kun Li) *A bilinear proof of decoupling for the cubic moment curve*, submitted.

24. (Joint with Philip T. Gressman, Shaoming Guo, Lillian B. Pierce and Joris Roos) *Reversing a philosophy: from counting to square functions and decoupling*, submitted.

23. (Joint with Shaoming Guo, Joris Roos and Andreas Seeger) *Maximal functions associated with families of homogeneous curves: L^p bounds for $p \leq 2$*, Proc. Edinb. Math. Soc. 63 (2020), no. 2, 398–412.

22. (Joint with Shaoming Guo, Joris Roos and Andreas Seeger) *A maximal function for families of Hilbert transforms along homogeneous curves*, Mathematische Annalen 377 (2020), no. 1–2, 69–114.

21. (Joint with Shaoming Guo and Joris Roos) *Sharp variation-norm estimates for oscillatory integrals related to Carleson's theorem*, to appear in Analysis & PDE.

20. (Joint with Chin-Yu Hsiao) *Solution of the tangential Kohn Laplacian on a class of non-compact CR manifolds*, Calc. Var. Partial Differential Equations 58 (2019), no. 2, Art. 71, 62 pp.

19. (Joint with Pierre Bousquet, Emmanuel Russ and Yi Wang) *Approximation in higher-order Sobolev spaces and Hodge systems*, J. Funct. Anal. 276 (2019), no. 5, 1430–1478.

18. (Joint with Lillian B. Pierce) *A polynomial Carleson operator along the paraboloid*, Rev. Mat. Iberoam. 35 (2019), no. 2, 339–422.

17. (Joint with Shaoming Guo, Lillian B. Pierce and Joris Roos) *Polynomial Carleson operators along monomial curves in the plane*, J. Geom. Anal. 27 (2017), no. 4, 2977–3012.

16. (Joint with Sagun Chanillo and Jean Van Schaftingen) *Bourgain-Brezis Estimates on Symmetric Spaces of Non-compact Type*, J. Funct. Anal. 273 (2017), no. 4, 1504–1547.

15. (Joint with Sagun Chanillo and Jean Van Schaftingen) *The incompressible Navier Stokes flow in two dimensions with prescribed vorticity*, in Sagun Chanillo, Bruno Franchi, Guozhen Lu, Carlos Perez and Eric T. Sawyer (eds.), Harmonic Analysis, Partial Differential Equations and Applications, Birkhäuser, Applied and Numerical Harmonic Analysis, 2017, 19–25.

14. (Joint with Sagun Chanillo and Jean Van Schaftingen) *Variations on a proof of a borderline Bourgain-Brezis Sobolev embedding theorem*, Chin. Ann. Math. Ser. B 38 (2017), no. 1, 235–252.

13. (Joint with Philip T. Gressman, Danqing He, Vjekoslav Kovač, Brian Street and Christoph Thiele) *On a trilinear singular integral form with determinantal kernel*, Proc. Amer. Math. Soc. 144 (2016), no. 8, 3465–3477.

12. (Joint with Sagun Chanillo and Jean Van Schaftingen) *Applications of Bourgain-Brezis inequalities to Fluid Mechanics and Magnetism*, C. R. Math. Acad. Sci. Paris 354 (2016), no. 1, 51–55.

11. (Joint with Chin-Yu Hsiao) *Solving the Kohn Laplacian on asymptotically flat CR manifolds of dimension 3*, Adv. Math. 281 (2015), 734–822.

10. *A sharp subelliptic Sobolev embedding theorem with weights*, Bull. London Math. Soc. 47 (2015), no. 3, 396–406.

9. (Joint with Sagun Chanillo) *Absence of self-similar blow-up and local well-posedness for the constant mean-curvature wave equation*, J. Funct. Anal. 269 (2015), no. 4, 1180–1202.

8. (Joint with Yi Wang) *A subelliptic Bourgain-Brezis inequality*, J. Eur. Math. Soc. 16 (2014), 649–693.

7. (Joint with Elias Stein) *Pseudodifferential operators of mixed type adapted to distributions of k-planes*, Math. Res. Lett. 20 (2013), no. 6, 1183–1208.

6. (Joint with Chin-Yu Hsiao) *The tangential Cauchy-Riemann complex on the Heisenberg group via Conformal Invariance*, Bulletin of the Institute of Mathematics, Academia Sinica (New Series), Vol. 8 (2013), no. 3, 359–375.

5. (Joint with Sagun Chanillo) *Wave Equations Associated to Liouville Systems and Constant Mean Curvature equations*, Adv. Math, Vol 235 (2013), 187–207.

4. (Joint with Sagun Chanillo) *An improved Strichartz estimates for systems with divergence free data*, Comm. PDE., Vol 37 (2012), no. 2, 225–233.

3. *Sobolev inequalities for $(0, q)$ forms on CR manifolds of finite type*, Math. Res. Lett. 17 (2010), no. 1, 177–196.

2. *Doubling properties of self-similar measures*, Indiana Univ. Math. J. 56 no. 2 (2007), 965–990.

1. (Joint with Jonathan Needleman, Robert Strichartz and Alexander Teplyaev) *Calculus on the Sierpinski gasket I: polynomials, exponentials and power series*, J. Funct. Anal., 215 (2004), 290–340.

Organization of Summer Schools and Workshops

10. (Joint with Kwok-Wai Chan, Conan Nai-Chung Leung and Jun Zou) Organizer of CUHK Mathematics Alumni International Conference, at the Chinese University of Hong Kong, June 5-7, 2019.

9. (Joint with Philip T. Gressman, Shaoming Guo, Lillian B. Pierce and Joris Roos) Organizer of SQuaRE workshop on Geometric perspectives in harmonic analysis, at American Institute of Mathematics (AIM), April 22-26, 2019.

8. (Joint with De-Jun Feng, Chi-Wai Leung and Zhouping Xin) Organizer of workshop on Fractal Geometry and Related Topics, On the Occasion of Professor Ka-Sing Lau's Retirement, at the Chinese University of Hong Kong, May 4-5, 2018.

7. (Joint with Philip T. Gressman, Shaoming Guo, Lillian B. Pierce and Joris Roos) Organizer of SQuaRE workshop on Geometric perspectives in harmonic analysis, at American Institute of Mathematics (AIM), March 19-24, 2018.

6. Organizer of workshop on harmonic analysis, at the Chinese University of Hong Kong, June 26-30, 2017.

5. Organizer of workshop on harmonic analysis, at the Chinese University of Hong Kong, August 10, 2016.

4. (Joint with Zhouping Xin) Organizer of workshop on wave equations, at the Chinese University of Hong Kong, July 22, 2016.

3. (Joint with Philip T. Gressman, Victor Lie and Lillian B. Pierce) Organizer of workshop on Carleson theorems and multilinear operators, at American Institute of Mathematics (AIM), May 18-22, 2015.

2. (Joint with Zhouping Xin) Organizer of workshop on Probability and PDEs, at the Chinese University of Hong Kong, April 1, 2015.

1. (Joint with Lillian B. Pierce and Christoph Thiele) Organizer of summer school on Carleson theorems and Radon type behaviour, at Hausdorff Institute of Mathematics (HIM), May 25-30, 2014.

Participation at Conferences, Workshops and Meetings

32. Invited speaker, Analysis and PDE Joint Seminar Day, at University of Sydney, Australia, 2020.

31. Invited speaker, The 7th East Asian Conference in Harmonic Analysis and applications, at Chung-Ang University, Korea, 2019.

30. Invited speaker, International Conference on Partial Differential Equations and Applications, at Beijing Normal University, 2019.

29. Invited speaker for 45 minutes lecture, the 8th International Congress of Chinese Mathematicians, at Beijing, 2019.

28. Invited speaker, International Workshop on Applied Analysis and Optimization, at Research Center for Interneural Computing, China Medical University, Taichung, 2019.

27. Invited speaker, International Workshop on Geometric and Harmonic Analysis, at National Center for Theoretical Sciences, Taiwan, 2019.

26. Invited speaker, Madison Lectures in Fourier Analysis, at the University of Madison, Wisconsin, 2019.

25. Invited speaker, Follow-up Workshop to Trimester program "Harmonic Analysis and Partial Differential Equations", at Universität Bonn, 2019.

24. Invited speaker, Conference on Differential Geometry, Geometric Analysis and PDEs, at Academia Sinica, Taiwan, 2018.

23. Plenary speaker, ICM Satellite Conference in Harmonic Analysis, at Federal University of Rio Grande do Sul, Brazil, 2018.

22. Participant in the IAS/PCMI Research Program on Harmonic Analysis, at the Park City Mathematics Institute, Utah, 2018.

21. Invited speaker, Special Session in Harmonic Analysis and Partial Differential Equations, at the 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, at National Center for Theoretical Sciences, Taiwan, 2018.

20. Invited speaker, a series of 3 talks, at the Workshop on Critical Phenomena, at National Chiao Tung University, Taiwan, 2018.

19. Mentor in the Mathematics Research Community program on "Harmonic Analysis: New Developments on Oscillatory Integrals", organized by the American Mathematical Society, at Rhode Island, 2018.

18. Invited speaker, 2018 Taipei Conference on Geometric Invariance and Partial Differential Equations, at Academia Sinica, Taiwan, 2018.

17. Invited speaker, The 5th East Asian Conference in Harmonic Analysis and applications, at Zhejiang University of Science and Technology, 2017.

16. Invited speaker, Recent Developments in Harmonic Analysis, at MSRI, 2017.

15. Invited speaker, Harmonic Analysis, Geometric Analysis and PDE workshop, at Saitama University, 2016.

14. Invited speaker, Harmonic Analysis, $\overline{\partial}$, and CR geometry, at Casa Matemática Oaxaca, 2015.

13. Invited speaker, AMS-EMS-SPM International Meeting at Porto, 2015.

12. Invited speaker, Analytical aspects of the $\overline{\partial}$-equation, at Nagoya University, 2015.

11. Invited speaker, 2014 Taipei Workshop on Analysis and Geometry in Several Complex Variables, at Academia Sinica, Taiwan, 2014.

10. Invited speaker, Workshop on Contact and CR Geometry, at the University of Hong Kong, 2014.

9. Invited speaker, Workshop in Real Analysis, Harmonic Analysis and Applications, at Oberwolfach, 2014.

8. Invited speaker, Workshop on Real Analysis, in the Hausdorff Trimester program on Harmonic Analysis and Partial Differential Equations, at Universität Bonn, 2014.

7. Participant of workshop on the Cauchy-Riemann equations in several variables, at American Institute of Mathematics (AIM), 2014.

6. Invited speaker, 39th Spring Lecture Series, at University of Arkansas, 2014.
5. Invited lecturer, 4-hour mini-course at Rencontres d'Analyse, Institut Camille Jordan, Université Claude Bernard Lyon 1, France, 2014.
4. Invited speaker, International Conference on Several Complex Variables and Complex Geometry, at Academia Sinica, Taiwan, 2012.
3. Invited speaker, Workshop in Real Analysis, Harmonic Analysis and Applications at Oberwolfach, 2011.
2. Invited speaker, Special Day in Fourier Analysis, at National Center for Theoretical Sciences, Hsinchu, Taiwan, 2011.
1. Plenary speaker, Taiwan-Norway workshop in Analysis and Applications, at National Center for Theoretical Sciences, Hsinchu, Taiwan, 2011.

Academic Visits

University of Queensland, January 2019

Australian National University, January 2019

Princeton University, June 2018

Cornell University, March 2018

Universität Bonn, October 2017

University of Wrocław, September 2017

Princeton University, August 2017

Oberwolfach, July 2017

University of Edinburgh, July 2017

MSRI, January, April and May 2017

Rutgers, the State University of New Jersey, February 2016

Princeton University, February 2016

Academia Sinica, Taipei, January 2016

Universite Catholique de Louvain, June 2015

Princeton University, May and July 2015

University of California, Davis, May 2015

Princeton University, August 2014

Hausdorff Research Institute for Mathematics, Universität Bonn, July 2014

Rutgers, the State University of New Jersey, June 2014

Princeton University, June 2014

University of Cambridge, June 2014

University of Edinburgh, January 2014

Hausdorff Center for Mathematics, Universität Bonn, December 2013

University of Sussex, November 2013

University of Warwick, October 2013

Princeton University, June 2013

University of Connecticut, April 2013

University of Arkansas, April 2013

Washington University in St. Louis, March 2013

Hong Kong University of Science and Technology, February 2013

University of Hong Kong, February 2013

University of Oklahoma, January 2013

University of Colorado-Boulder, January 2013

University of Georgia, January 2013

Chinese University of Hong Kong, January 2013

National Central University, Taiwan, December 2012

University of Cambridge, December 2012

University of Edinburgh, December 2012

City University of New York, November 2012

University of Oxford, May 2012

Mathematical Sciences Research Institute (MSRI), December 2011

Georgetown University, November 2011

University of Oxford, April 2011

Synergistic Activities

Referee for Acta Mathematica Scientia

Referee for Advances in Mathematics

Referee for the Annals of Mathematics

Referee for Calculus of Variations and Partial Differential Equations

Referee for Communications in Contemporary Mathematics

Referee for Duke Mathematical Journal

Referee for Geometric and Functional Analysis

Referee for the Indiana University Mathematics Journal

Referee for Journal d'Analyse Mathematique

Referee for Journal of the European Mathematical Society

Referee for Journal of Fractal Geometry

Referee for Journal of Functional Analysis

Referee for Journal of Geometric Analysis

Referee for Mathematische Annalen

Referee for Mathematical Research Letters

Referee for the Proceedings of the AMS

Referee for the Pacific Journal of Mathematics

Referee for Quarterly Journal of Mathematics

Referee for Revista Matemática Iberoamericana

Referee for Transactions of the AMS

Reviewer for the Mathematical Reviews

Graduate students

Shu Shing Lai (M. Phil 2017)

Tongou Yang (M. Phil 2017)

Chun Ho Lau (M. Phil 2018)

Jianhui Li (M. Phil 2019)

Hoi Dong Ng (M. Phil 2019)

11 May, 2020