Curriculum Vitae
Chun-Kit Lai

Department of Mathematics
San Francisco State University, 1600 Holloway Ave.,
San Francisco, CA 94132.

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Education

1. **Ph.D. in Mathematics**, May 2012,
   The Chinese University of Hong Kong.
   Thesis advisor: Prof. Ka-Sing Lau
   Thesis title: *Spectral Analysis on Fractal Measures and Tiles*

2. **M.Phil. in Mathematics**, 2009, The Chinese University of Hong Kong.
   Thesis advisor: Prof. Ka-Sing Lau
   Thesis title: *Spectral Sets and Spectral Measures.*

3. **Bsc in Mathematics**, 2007, The Chinese University of Hong Kong.
   Honor: First Class
   Major: Mathematics
   Minor: Physics

Employment

1. Assistant Professor, San Francisco State University, Sept 2014- present.

2. Postdoctoral Research Fellow, McMaster University, Aug 2012 – Aug 2014.
Mentor: Prof J-P, Gabardo.

Research Interests

- Fourier analysis and harmonic analysis.
- Fractal geometry.
- Spectral and Frame theory.
- Tiling theory.

Teaching Experiences

- Lecturer and instructor, Calculus (I), Calculus(II), Linear algebra, San Francisco State University.
- Lecturer, Math 1ZB3, Calculus for Engineering, Winter 2014, McMaster University.

- Lecturer, Stats 1L03, Probability and Linear Algebra, Fall 2013, McMaster University.
- Lecturer, Math 1K03E Advanced Functions & Introductory Calculus for Humanities and the Social Sciences, Spring/Summer 2013, McMaster University.
- Lecturer, Math 1M03 Calculus for Business, Humanities and the Social Sciences, Winter 2013 and Winter 2014, McMaster University.
- *Fractal sets and their analysis*, Mini-courses for postgraduates students, The Chinese University of Hong Kong, 2013
- Teaching assistant, Department of Mathematics, The Chinese University of Hong Kong, 2007-2012. Courses include: Fourier Analysis, Real Analysis, Introductory Probability, and Stochastic processes.

Honors and Awards

- New World Mathematics Award, Silver Prize in PhD thesis, 2012, presented at the International Congress of Chinese Mathematicians.
- Young Scholar Thesis Award, The Chinese University of Hong Kong, 2012.
- Best Teaching Assistant Award, Department of Mathematics, The Chinese University of Hong Kong, 2011.
- Chan Kwok Kang Memorial Scholarship, The Chinese University of Hong Kong, 2008.
- Mathematics Alumni Foundation Scholarship, The Chinese University of Hong Kong, 2007.
- Chung Chi College Scholarship, The Chinese University of Hong Kong, 2006/2007.
- Dean's list Award, The Chinese University of Hong Kong, 2005-2007.

Invited Talks

1. Conferences and Workshops

- Workshop on time-frequency analysis and aperiodic order, Norwegian University of Science and Technology, Trondheim, Norway, June 2015.
- Joint Carnegie Mellon - Georgia Southern Workshop on Fractal Geometry and Analysis, Carnegie Mellon University and Georgia Southern University, April 2015.
- Spring American Mathematical Society's Central Eastern Sectional Meeting, Special Session on Frames, Wavelets and its application, Michigan State University, MI, Lansing, March 2015.

- 2014 Canadian Mathematical society winter meeting, Special session on Fractal, tiling, wavelets and frames. McMaster University, Hamilton, Ontario, Canada, Dec 2014 (Conference organizer).
- Fall American Mathematical Society's Eastern Sectional Meeting, Special Session on Sampling theory, Dalhousie University, Halifax, Nova Scotia, Canada, Oct 2014.
- 5th International Conference on Computational Harmonic Analysis (ICCHA 5), Vandelbilt University, May 2014.
- Applied Harmonic Analysis conference, University of Calgary, August 2013.
- The sixth International Congress of Chinese Mathematicians (ICCM, 2013), Taipei, July 2013.
- 2013 Canadian Mathematical society summer meeting, Special session on (1) Analysis, Geometry and Topology on Fractals, Wavelets and Self-Similar Tilings, and (2) The Functional Analytic and Representation Theoretic Foundations of Wavelet Theory, Dalhousie University, Halifax, Nova Scotia, June 2013. (Two different talks)
- Spring American Mathematical Society's Western Sectional Meeting, Special Session on Harmonic Analysis of Frames, Wavelets, and Tilings, University of Colorado Boulder, Boulder , CO, US, April 2013.
- International Conference on Advance on Fractals and Related Topics, The Chinese University of Hong Kong, Hong Kong, China, December 2012.
- Workshops on Fractals and Related Fields, The Chinese University of Hong Kong, Hong Kong, China, February 2012.
- 2011 National Mathematical Conference on Fractal Theory and Dynamic System, Hunan Normal University and The Chinese University of Hong Kong, Zhangjiajie, Hunan, China. May 2011.
- Spring 2011 American Mathematical Society's Southeastern Sectional Meeting: Fractals and Tilings, Georgia Southern University, Statesboro, GA, US. March 2011.
- Joint Postgraduate Students Workshop on Pure and Applied Mathematics, The Chinese University of Hong Kong, Hong Kong, China. December 2010.
- Workshop on Substitutive Tiling and Fractal Geometry, Sun Yat-Sen University, Guangzhou, China. July 2010.
- Workshop for Young Mathematicians II, RIMS and Kyoto University, Kyoto, Japan. Feb 2010.
- Workshop on Dynamics and Fractal May Meet, Sun Yat-Sen University, Guangzhou, China. May 2008.
- Workshop for Young Mathematicians I, RIMS and Kyoto University, Kyoto, Japan. Feb 2008.

2. Academic Visits

- University of Pittsburgh, US, 19-22, April, 2015.
- Hong Kong University of Science and Technology, Hong Kong, 23-31, March 2015.
- San Francisco State University, San Francisco, CA, US, 16-18, Feb 2014.
- National Tsing Hua University, Hsinchu, Taiwan, 17-22, Dec 2013.
- Michigan State University, Lansing, Michigan, 4-10, Dec 2013.
- The Chinese University of Hong Kong, Hong Kong, July 2013, April 2014
- Central China Normal University, Wuhan, July 2013.
- University of Waterloo, Ontario, Canada, Nov 2012.
- University of Central Florida, Orlando, FL, US., Nov 2012 and Mar 2011
- Tsukuba University, Japan, August 2012.
- Sun Yat Sen University, Guangzhou, Dec 2011, May 2011.

Publications

1. *On Fourier frame of absolutely continuous measures*, J. Funct. Anal., 261 (2011), 2877-2889.

2. (with K.S. Lau and X.G. He), *Exponential spectra in $L^2(\mu)$*, Appl. Comp. Harm. Anal., 34 (2013), 327-338.

3. (with K.S. Lau and H. Rao), *Spectral structure of digit sets of self-similar tiles on $\mathbb{R}^1$*, Tran. Amer. Math. Soc., 365 (2013), 3831-3850.

4. (with X.G. He and X.R. Dai), *Spectral property of Cantor measures with consecutive digits*, Adv in Math, 242 (2013) 187-208.

5. (with D. Dutkay) *Some reduction of the spectral set conjecture to integers*, Math. Proc. Cambridge Phil. Soc., 156 (2014), 123-135.

6. (with D. Dutkay) *Uniformity of measures with Fourier frames*, Adv in Math., 252 (2014), 684-707.

7. (with J.-P Gabardo) *Frames of multi-windowed exponentials on subsets of $\mathbb{R}^d$*, Appl. Comp. Harm. Anal., 36 (2014), 461-472.

8. (with J.-P Gabardo), *Spectral measures associated with the factorization of the Lebesgue measure on a set via convolution*, J. Fourier Anal. Appl., 20 (2014), 453-475.

9. (with K.S. Lau and H. Rao), *Classification of tile digit sets as product-forms*, To appear in Tran. Amer. Math. Soc.

10. (with J.-P Gabardo and Y. Wang), *Gabor orthonormal bases generated by the unit cubes*, To appear in J. Funct. Anal.

11. (with D. Dutkay) *Self-affine spectral measures and frame spectral measures on* $\mathbb{R}^d$, submitted.

12. (with D. Dutkay and J. Hausserman) *Hadamard triples generate self-affine spectral measures*, preprint.

Professional Activities

Reviewer for MathSciNet.
Referee for Journal of Fourier Analysis and Applications
Referee for Journal of Functional Analysis
Referee for Acta Applicandae Mathematicae

Referees

Referee names will be given upon email request.