

CURRICULUM VITAE OF N.-R. SHIEH

Vita

Name: Narn-Rueih SHIEH 謝南瑞 (Male, b. Oct, 1950)

Language: Chinese (native), English (fluent), Japanese (a little)

Affiliation: Mathematics Department, Honorary Faculty,
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Degree Offered

B.S./M.S. National Taiwan Normal Univ. 1977

Ph.D. National Taiwan Univ. 1980

Habilitation(D.Sc.) Kyoto Univ. 1991

Professional Experience

Lecturer, National Taiwan Univ. 1981-83

Visiting Post-doc Fellow, Courant Institute U.S.A. 1982-83

Assistant/Associate Prof., National Taiwan Univ. 1983-87

Assistant Prof., Louisiana State Univ. U.S.A. 1986-87

Mathematics Professor, National Taiwan Univ. 1987--2011 (特聘 2007-2010)

NTU Honor Emeritus Professor, 2011.08-- (台灣大學名譽教授)

NTU Math Department Chair, 2002-2005

Research Fellow, Kyoto Univ. Japan. Winter 1990 (payment without teaching).

Visiting Professor, Keio Univ. Japan. Fall 1993 (payment with teaching).

Professeur invité, Univ. Lille 1, France. July 2010 (payment without teaching).

Visiting Professor, York Univ. Canada. Fall 2011 (payment with teaching).

Visiting Professor, Chinese Univ. of Hong Kong. Spring 2012 (payment with teaching).

Visiting Professor, South China Univ. of Tech. Guangzhou. Fall 2012 (payment with teaching).

Visiting Professor, Chinese Univ. of Hong Kong. Spring 2013 (payment with teaching).

Senior Research Fellow, Hong Kong Polytechnic Univ. Spring 2014 (payment without teaching).

Visiting Professor, Chinese Univ. of Hong Kong. Spring 2015 (payment with teaching).

Visiting Fellow in various institutes (less than one-month)

Chinese Univ. of H.K. 1998.4, 2000.5, 2011.5 (Host: Prof. K.S. Lau)

Newton Institute U.K. 1999.1 (Host: Prof. K Falconer)

Wuhan Univ. China. 2002.4, 2007.4 (Host: Prof. A.H. Fan)

ENS de Paris, France. 2003.8 (Host: Prof. J.F. LeGall)

Keio Univ. Japan. 2004.10, 2007.11, 2010.10 (Host: Prof. M. Maejima)
Univ. Bath U.K. 2005.1, 2010.7 (Host: Prof. P. Morters)
Zhejiang Univ, China. 2005.4 (Host: Prof. Z.Y. Lin)
Queensland UT, Australia. 2006.7, 2007.9, 2009.9 (Host: Prof. V. Anh)
Guangzhou SCUT, China. 2008.12, 2013.10, 2014.5 (Host: Prof. M. Wu and Prof. B. Li)
Beijing Institute of Technology, China. 2014.6 (Host: Prof. Z. Chen and Prof. Y. Xiao)
Tokyo City University, Japan. 2010.9, 2015.9 (Host: Prof. S. Kanagawa)
Ryukyu University, Japan. 2010.11 (Host: Prof. M. Yamazato)
Tokyo Metropolitan University, Japan. 2013.11 (Host: Prof. M. Okada)
Macau University, China. 2016.4 (Host: Prof. H. Sun)

Activities

ICM 1990 Fellowship Grant.

Kyoto Univ. Foundation Research Grant, 1990.12-1991.2 (three months)

Taiwan National Science Council Grants, 1983-- 2011(continuously granted)

(含優等獎與傑出獎)

Committee of Taiwan NSC Math Panel and Advisor Board, 1990-91, 1995-97, 2003-05.

Chief Organizer of Symposium on Analysis and Probability (1996, 1998 Taipei)

Co-Editor of *Trends in Probability and Related Analysis* (1997, 1999 World Scientific)

Chief Organizer of Workshop on Probability with Applications (2006, Taipei)

Coordinator for the Analysis/Probability/Applications program in NCTS Taipei Office

Talks given at several major occasions: in recent years,

The 3rd Inter Congress of Chinese Mathematicians at Hong Kong, China (2004)

The 4th Levy Conference at Manchester University, U.K. (2005)

Fractal Conference at Kyoto University, Japan (2006)

The 5th Levy Conference at Copenhagen University, Denmark (2007)

The 4th Fractal Geometry and Stochastics Conference at Greifswald University, Germany (2008)

The 1st IMS-APRM Conference at Seoul National University, Korea (2009)

The 4th International Conference on Stochastic Analysis and Its Applications at Osaka-Kansai University, Japan (2010)

The Scientific Session (Probability) of Canadian Math. Soc. Winter Meeting 2011, Toronto, Canada.

The Inter. Conf on Adv. of Fractals and Related Topics. Hong Kong (2012)

The Special mini-series on Exponential Processes at Beijing Institute of Technology (2014)

The Special mini-series on Financial Mathematics at Tokyo City University (2015)

Research Interest

Probability, Stochastic Processes, and Stochastic Analysis, *with aspects on* (multi) scaling and fractality in random structures, random function analysis, Wiener's chaos expansions, spatial-temporal random fields, exponential processes, wavelets in stochastics, applications in mathematical analysis and in financial economics .

Publications: books and some recent papers

Books edited:

1. Trends in Probability and Related Analysis, Proceedings of SAP'96. World Scientific, 1997. ISBN 981-02-3290-X. Jointly with Norio Kono.
2. Trends in Probability and Related Analysis, Proceedings of SAP'98. World Scientific, 1999. ISBN 981-02-4012-0. Jointly with Norio Kono.

Books in progress:

1. *Essential Measure-theoretic Probability*.

This is a text on the intermediate-level probability theory, mainly based on the courses offered at Taiwan University over years.

2. *Lectures Notes on Stochastic Calculus, with a Chapter on Brownian Motions*.

This is a text on basic stochastic analysis, mainly based on the courses offered at Taiwan University and Chinese University of Hong Kong.

3. *Ornstein-Uhlenbeck-related Processes and their Exponentials*

This monograph aims to address the OU(OU-related) processes, mainly in the mean-reverting form, and the associated exponentials.

Some recent papers: (view A.M.S. MathSciNet for complete list)

- ◇Multifractal spectra of branching measure on a Galton-Watson tree. *Journal of Applied Probability* **39**, 2002, pp 100-111. Joint work with S.J. Taylor.
- ◇On the multifractal spectrum of branching measure on a Galton-Watson tree. *Journal of Applied Probability* **41**, 2004, pp 1223-1229. Joint work with P. Mörters.
- ◇Hausdorff dimension of the contours of symmetric additive Levy processes. *Probability Theory and Related Fields* **140**, 2008, pp 129-167. Joint work with D. Khoshnevisan and Y.M. Xiao.
- ◇Multifractality of products of geometric Ornstein-Uhlenbeck type processes. *Advances in Applied Probability* **40**, 2008, pp 1129-1156. Joint work with V. Anh and N.N. Leonenko.
- ◇The exact packing measure of Brownian double points. *Probability Theory and Related Fields* **143** 2009, pp 113-136. Joint work with P. Mörters.
- ◇On the exponentials of fractional Ornstein-Uhlenbeck Processes. *Electronic Journal of Probability* **14**, 2009, Paper no. 23, 594-611. Joint work with M. Matsui.
- ◇Multifractal products of stationary diffusions. *Stochastic Analysis and Applications* **27**, 2009, pp 475-499. Joint work with V. Anh and N.N. Leonenko.
- ◇Fractal Geometry of Levy-based spatial-temporal random fields. *Fractals* **17**, 2009, pp 505-511.
- ◇Scaling limits of time-fractional diffusion-wave systems with random initial data. *Stochastics and Dynamics* **10**, 2010, pp 1-35. Joint work with G.-R. Liu.
- ◇Multifractional Brownian Motion: Local nondeterminism and joint continuity of the local times. *Ann. Inst. Henri Poincaré – Prob. et Stat.* **47**, 2011, pp 1029-1054. Joint work with A. Ayache and Y.M. Xiao.
- ◇Free Fields associated with the Relativistic Operator $-(m-\sqrt{m^2-\Delta})$. *J. Pseudo-Differ. Oper. Appl.* **3**, 2012, pp 309-319.
- ◇American options in the Hobson-Rogers Model. a preprint for The AMA HK PolyU Financial Math Project 2014.

◇Random continued fractions: Lévy constant and Chernoff-type estimate. *J. Math. Anal. Appl.* **429**,2015, 513-531. Joint work with L. Feng, M. Wu, and B. Li.

◇Multi-scaling Limits for Relativistic Diffusion Equations with Random Initial Data. *Trans. Amer. Math. Soc.* **367**, 2015, 3423–3446. Joint work with G.-R. Liu.

PhD and Post-doc Guidance

3 PhDs (Taiwan) and 5 Postdocs (4 from mainland China and 1 from Japan).

The names in Chinese characters are

1. 林永隆 (博士, 現職屏東商業學院) 2. 陳隆奇 (博士, 現職台北政治大學) 3. 余旌胡 (博後, 現職武漢理工大學) 4. 張榮茂 (博後, 現職浙江大學) 5. 西鄉達彥 (博後, 現職日本山梨大學) 6. 章雄鷹 (博後, 現職武漢經濟大學) 7. 劉聚仁 (博士, 現職台南成功大學) 8. 李兵 (博後, 現職廣州華南理工大學)