Chengcheng Ling

Curriculum Vitae

Personal Information

28.02.1994	Born in Gansu Province, China

Experience and Education

2023.10–	**Junior Professor (W1)(declined)**, *Paderborn University*, Paderborn, Germany Stochastic Analysis (Faculty of Computer Science, Electrical Engineering and Mathematics)
2022.10– Current	**Postdoc**, *Technische Universität Wien*, Vienna, Austria In the group of Asst. Prof. Dr. Máté Gerencsér
2020.12– 2022.09	**Postdoc**, *Technische Universität Berlin*, Berlin, Germany In the group of Prof. Dr. Michael Scheutzow
2020.01– 2020.11	**Research assistant**, *Bielefeld University*, Bielefeld, Germany In the group of Prof. Dr. Michael Röckner
2016.10– 2019.12	**PhD of Probability Theory**, *Bielefeld University*, Bielefeld, Germany Supervisor: Prof. Dr. Michael Röckner
2015.09– 2020.07	**PhD of Probability Theory and Statistics**, *Beijing Jiaotong University*, Beijing, China Supervisor: Prof. Dr. Zhiming Ma
2011.09– 2015.07	**Bachelor of Information and Computing Science**, *Beijing Jiaotong University*, Beijing, China, *GPA − 3.98* Acquiring merit student and scholarship several times

Exchange study

2018 01.03–30.08	**Seoul National University, Science of Mathematics faculty** Prof. Dr. Gerald Trutnau (Seoul, South Korea)

Research visit

2022 20.11–26.11	**Technische Universität Berlin** Prof. Michael Scheutzow (Berlin, Germany)

Bachelor Thesis

Title	*Laws of Large numbers under Sublinear Expectations*
Supervisor	Prof. Dr. Xiangxchan Zhu
Description	This thesis studies laws of large numbers under the framework of sublinear expectation introduced by Peng Shige. The main results in this paper include weak law of large numbers and convergence rate laws of large numbers under sublinear expectations.

Phd Thesis

Title	*Stochastic Differential Equations with Singular Drifts and Multiplicative Noises*
Supervisor	Prof. Dr. Michael Röckner
Link	https://pub.uni-bielefeld.de/download/2941478/2941479/thesis.pdf

Tutorial

2017 Summer semester	**Introduction to Stochastic Partial Differential Equations**, Lecture for master student in Bielefeld University, given by Prof. Dr. Michael Röckner
2019 Summer semester	**Probability theory III-Stochastic differential equations**, Lecture for master student in Bielefeld University, given by Dr. Michael Hinz
2023 Summer semester	**Numerics of PDEs**, Lecture for master student in TU Wien, given by Asst. Prof. Dr. Máté Gerencsér

Talks

2018 19.10	**BGTS Doctoral Day** SDEs with singular coefficients (Bielefeld, Germany)
2018 29.10	**IRTG Seminar** SDEs with singular coefficients and Partial differential equations (Bielefeld, Germany)
2019 15.01	**IRTG Seminar** SDEs with distributional valued drift driven by α-stable processes (Bielefeld, Germany)
2019 15.11	**Cluster Group Stochastic Analysis** Strong well-posedness for stochastic differential equations with coefficients in mixed-norm spaces (Bielefeld, Germany)
2019 16.12	**Cluster Group Stochastic Analysis** Stochastic differential equations with singular drifts and multiplicative noises (Bielefeld, Germany)
2020 24.01	**Cluster Group Stochastic Analysis** SDEs with singular drifts and multiplicative noise on general space-time domains (I) (Bielefeld, Germany)
2020 31.01	**Cluster Group Stochastic Analysis** SDEs with singular drifts and multiplicative noise on general space-time domains (II) (Bielefeld, Germany)
2020 13.02	**Young researchers between geometry and stochastic analysis** SDEs with singular drifts and multiplicative noise on general space-time domains (Bergen, Norway)
2020 26.02	**DFG-NRF on-site review** Regularity versus irregularity in PDEs and diffusions (Bielefeld, Germany)

2020 14.09   **DMV Annual Meeting 2020**
Well-posedness of stochastic differential equations with singular drifts and Lévy noise (Technische Universität Chemnitz, Germany) (online)

2020 01.12   **Oberseminar: Stochastische Analysis**
Well-posedness of stochastic differential equations with singular drifts and Lévy noise (Technische Universität Berlin, Germany)

2021 29.04   **SPDE seminar**
Wong-Zakai approximation for singualr SDEs with unbounded drift (Technische Universität Berlin, Germany)

2021 06.10   **Workshop: Junior Female Researchers in Probability**
Approximation for singualr SDEs with unbounded drift (Harnack-Haus, Berlin, Germany)

2021 01.12   **Seminar: Stochastic Analysis**
Taming singular SDEs: A numerical method (Tianjin University, China)(online)

2022 17.02   **Workshop: Regularization by Noise: Theoretical Foundations, Numerical Methods and Applications**
Regularization by noise: a numerical (Wong-Zakai approximation) viewpoint (Oberwolfach, Germany)

2022 04.05   **IRS Seminar**
Singular SDEs and PDEs (WIAS, Germany)

2022   **CSH WORKSHOP: "Stochastic Dynamics for Complex Systems"**
01.06-03.06   Random dynamical systems generated by the solution to singular SDEs (Vienna, Austria)

2022   **Stochastic Seminar**
21.06-23.06   Regularization by noise-PDEs and Rough path theory (Padernborn, Germany)

2022   **2022 IMS Annual Meeting in Probability and Statistics**
27.06-30.06   Taming singular SDEs: A numerical method (London, UK)

2022   **42nd Conference of Stochastic Processes and their Applications (SPA) 2022**
27.06-01.07   Taming singular SDEs: A numerical method (Wuhan, China)(online)

2022   **15th International Conference on Monte Carlo and Quasi-Monte Carlo**
17.07-22.07   **Methods in Scientific Computing**
Taming singular SDEs: A numerical method (Linz, Austria)

2022   **Workshop: The SPDEvent**
07.09-09.09   Martingale problem for rough stochastic differential equations (Bielefeld, Germany)

2022 07.12   **Webinar on stochastic analysis 2022**
Regularization by Noise for Singular SDEs–PDEs and Rough Path Theory (Beijing, China) (online)

2023 21.02   **Tenth Bielefeld-SNU joint Workshop in Mathematics 2023**
Numerical analysis on regularization by noise for singular SDEs (Bielefeld, Germany)

2023   **Seminar**
19.04-21.04   Regularization by noise on singular SDEs (Augsburg, Germany)

2023   **17th Berlin-Oxford meeting**
27.04-29.04   Numerical analysis for singular SDEs (Berlin, Germany)

2023	**The SPDEvent 2023**
17.07-19.07	Path-by-path uniqueness for stochastic differential equations under Krylov-Röckner condition (Bielefeld, Germany)

Research interests

Stochastic analysis, Singular stochastic (partial) differential equations, Regularization by noise, Rough path, Random dynamical systems, Stochastic numerical analysis, Application of stochastic analysis and PDEs (e.g. machine learning)

Preprints

1. SDEs with singular drifts and multiplicative noise on general space-time domains, C. Ling, M. Röckner, X. Zhu, https://arxiv.org/pdf/1910.03989.pdf. (*Selected as one of the 'top ten representative papers from IRTG 2235'*)

2. Taming singular stochastic differential equations: A numerical method, K. Lê, C. Ling, https://arxiv.org/pdf/2110.01343.pdf

3. Expansion and attraction of RDS: long time behavior of the solution to singular SDE, C. Ling, M. Scheutzow. https://arxiv.org/pdf/2211.14202.pdf

4. Path-by-path uniqueness for stochastic differential equations under Krylov-Röckner condition, L. Anzeletti, K. Lê, C. Ling. https://arxiv.org/abs/2304.06802

5. The Milstein scheme for singular SDEs with Hölder continuous drift, M. Gerencsér, G. Lampl, C. Ling. https://arxiv.org/pdf/2305.16004.pdf

Publications

1. Stochastic Differential Equations with Singular Drifts and Multiplicative Noises, C. Ling, (PhD thesis (2019)) https://pub.uni-bielefeld.de/record/2941478

2. Strong well-posedness for stochastic differential equations with coefficients in mixed-norm spaces, C. Ling, L. Xie https://arxiv.org/pdf/2002.07097.pdf. (*Potential Analysis*)

3. Regularity of Local times associated to Volterra-Lévy processes and path-wise regularization of stochastic differential equations, F.A. Harang, C. Ling https://arxiv.org/pdf/2007.01093.pdf. (*Journal of Theoretical Probability*)

4. Nonlocal elliptic equation in Hölder space and the martingale problem, C. Ling, G. Zhao, https://arxiv.org/pdf/1907.00588v1.pdf (*Journal of Differential Equations*)

5. The perfection of local semi-flows and local random dynamical systems with applications to SDEs, C. Ling, M. Scheutzow, I. Vorkastner https://arxiv.org/pdf/2109.00206.pdf (*Stochastics and Dynamics*)

6. A Wong-Zakai theorem for SDEs with singular drift, C. Ling, S. Riedel, M. Scheutzow https://arxiv.org/pdf/2109.12158.pdf (*Journal of Differential Equations*)

7. Stability estimates for singular SDEs and applications, L. Galeati, C. Ling, https://arxiv.org/pdf/2208.03670.pdf (*Electronic Journal of Probability*)

Others

Oberwolfach Regularization by noise: from a numerical (Wong-Zakai approximation) viewpoint,
Reports C. Ling (based on the joint work with S. Riedel, M. Scheutzow), *Regularization by Noise: Theoretical Foundations, Numerical Methods and Applications.* DOI 10.4171/OWR/2022/9

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