# Marie-Christine Düker

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## Education

2016–2020 *Ruhr-University Bochum*, Faculty of Mathematics
Ph.D. Mathematics
*Summa Cum Laude*
Advisor: Dr. Herold Dehling

2018–2019 *University of North Carolina at Chapel Hill*, Department of Statistics and Operations Research
Visiting Scholar
Advisor: Dr. Vladas Pipiras

2014–2016 *Ruhr-University Bochum*, Faculty of Mathematics
MS Mathematics with Minor Economics
*Summa Cum Laude*

2011–2014 *Ruhr-University Bochum*, Faculty of Mathematics
BS Mathematics with Minor Economics

## Employment

2020– *Postdoctoral Associate* Department of Statistics and Data Science at Cornell University

2016–2020 *Research Assistant* Faculty of Mathematics in Research Training Group 2131 *High-dimensional Phenomena in Probability - Fluctuations and Discontinuity* at Ruhr-University Bochum

2015–2016 *Student research Assistant* Faculty of Mathematics in Collaborative Research Center (CRC) 823 *Statistical modeling of nonlinear dynamic processes* at Ruhr-University Bochum

2015–2016 *Student teaching Assistant* Faculty of Mathematics at Ruhr-University Bochum

2014–2015 *Student research Assistant* Institute of Hydrology, Water Resources Management and Environmental Engineering at Ruhr-University Bochum

## Fellowships

2016–2019 Ph.D. Fellowship, DFG (German Research Foundation) funded, Research Training Group 2131 *High-dimensional Phenomena in Probability - Fluctuations and Discontinuity* at Ruhr-University Bochum

## Research

Published Papers

[1] M.-C. Düker . Limit theorems in the context of multivariate long-range dependence. *Stochastic Processes and their Applications*, 130(9):5394–5425, 2020.

[2] M.-C. Düker and V. Pipiras. Asymptotic results for multivariate local Whittle estimation with applications. *8th IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, pages 1–5, 2019.

[3] M.-C. Düker . Limit theorems for Hilbert space-valued linear processes under long-range dependence. *Stochastic Processes and their Applications*, 128(5):1439 – 1465, 2018.

Preprints

[1] C. Baek, M.-C. Düker, and V. Pipiras. Graphical and thresholding local Whittle estimation. *Preprint, Submitted to The Annals of Statistics*, 2021.

[2] Y. Xu, M.-C. Düker, D. S. Matteson. Testing Simultaneous Diagonalizability. *Preprint*, 2021.

[3] M.-C. Düker, V. Pipiras, and R. R. Sundararajan. Cotrending: testing for common deterministic trends in varying means model. *Submitted to Journal of Multivariate Analysis*, 2020.

[4] M.-C. Düker. Sample autocovariance operators of long-range dependent Hilbert space-valued linear processes. *Preprint*, 2020.

Collaborative Papers

[1] C. Goolsby, J. Losey, Y. Xu, M.-C. Düker, M. Sherman Getmansky, D. S. Matteson, M. Moradi. Clustering Future Scenarios Based on Predicted Range Maps. *Preprint*, 2021.

[2] M. Davidow, M. Cory, J. Che-Castaldo, T. Schafer, M.-C. Düker, D. Corcoran, D. S. Matteson. Addressing the embeddability problem in transition rate estimation. *Preprint*, 2021.

## Presentations

1. "Common deterministic trends in varying means model." Graduate Seminar, Department of Statistics and Operations Research, UNC Chapel Hill, September 2019.
2. "Sample autocovariances of long-range dependent Hilbert space-valued linear process.", 40th Conference on Stochastic Processes and their Applications, Gothenburg, 11–15th of June 2018.
3. "Limit theorems for multivariate long-range dependent processes.", 13th German Probability and Statistics Days, Freiburg, 27th February–02nd March 2018.
4. "Limit theorems for multivariate long-range dependent time series in context of change-point analysis.", 10th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, 16–18th December 2017.
5. "Limit theorems for multivariate long-range dependent processes." Graduate Seminar, Department of Statistics and Operations Research, TU Dortmund, November 2017.
6. "Limit theorems for Hilbert space-valued linear processes under long range dependence.". 31st European Meeting of Statisticians, Helsinki, 24–28th July 2017.

## Teaching

Teaching Assistant Financial Mathematics (Summer term 2020)

Teaching Assistant Analysis III (Winter term 2017)

Teaching Assistant Analysis I (Winter term 2016)

Co-advisor for the seminar "Statistics in everyday life" (Winter term 2015)

## Workshops and Summer schools

1. "High dimensional phenomena in probability - Fluctuations and discontinuity", RTG 2131 Summer school, Lingen (2017)
2. "High dimensional phenomena in probability - Fluctuations and discontinuity", RTG 2131 Summer school, Bonn (2016)

## Other Activities

Co-organizer KDD 2021 Workshop *Risk identification and quantification in complex human-natural systems via convergent data intensive research.*

Reviewer: Stochastic Processes and their Applications, The American Statistician, Journal of the Korean Statistical Society, Applications of Mathematics, BandE student paper award 2021.

Equal opportunities representative, Faculty of Mathematics, *Ruhr-University Bochum* (2017)

Internship, Data analytics, *Ruhr-University Bochum* (2014)

## Languages and Computer skills

German, English

R, MATLAB, Python, C, VBA

Last updated: May 19, 2021