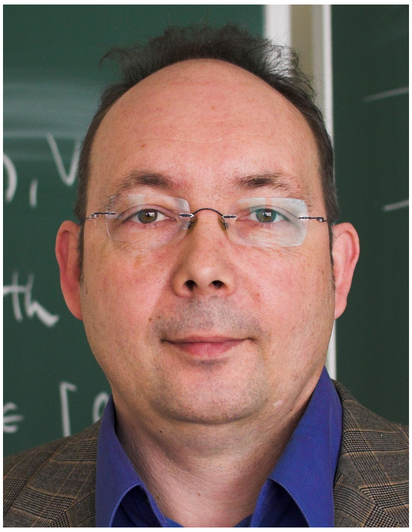

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## Educational Curriculum

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|---|---|---|
| 1985 | Dipl.-Math. | LMU München |
| 1990 | Dr. rer. nat. | Universität Oldenburg |
| 1995 | Habilitation | Universität Frankfurt |

## Professional Experience

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|---|---|
| 1990 – 1991 | Wissenschaftlicher Mitarbeiter, Universität Oldenburg |
| 1991 – 1996 | Wissenschaftlicher Mitarbeiter, Universität Frankfurt |
| 10/1996 – 9/2000 | Hochschuldozent (C2), Universität Frankfurt |
| Seit Oktober 2000 | Universitätsprofessor (C4) für Analysis, TU Chemnitz |

## Current Research Interests

- Spectral geometry on graphs.
- Spectral geometry on manifolds.
- Random models.

## Research methods

Operator theory, semigroup theory, spectral theory, probability theory.

## Publications

D. Lenz, M. Schmidt and P. Stollmann: Topological Poincaré type inequalities and lower bounds on the infimum of the spectrum for graphs. arXiv: 1801.09279

D. Lenz, P. Stollmann and Gunter Stolz: An uncertainty principle and lower bounds for the Dirichlet Laplacian on graphs. arXiv: 1606.07476

A. Boutet de Monvel, D. Lenz and P. Stollmann: AN UNCERTAINTY PRINCIPLE, WEGNER ESTIMATES AND LOCALIZATION NEAR FLUCTUATION BOUNDARIES. arXiv: 0905.2845 Math. Z. online first, DOI 10.1007/s00209-010-0756-8

**Quantitative uncertainty principles and the first non-zero eigenvalue on graphs**

We present recent results that show that eigenfunctions of graph laplacians are spread out in space provided the energy is low enough. This result is somewhat surprising, since it has been known for quite a while that unique continuation of eigenfunctions fails for graphs. However, a spectral uncertainty principle can still be applied and gives explicit and uniform estimates that exhibit "the right" geometric features.

One important input of independent interest is the spectral geometry on general weighted graphs, in particular universal estimates for the first non–zero eigenvalue of the Laplacian on such graphs. This quantity, also known as the spectral gap is connected to a variety of geometric concepts. Our analysis shows that the spectral bounds obtained are optimal in a certain sense.

We expect that the geometric features of these discrete graphs can also be applied to more complex dynamics of the evolution of coupled ode's on metric graphs.