



Tim van Beeck

PHD STUDENT · NUMERICAL MATHEMATICS

📅 01.03.1999

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🎓 Education

University of Göttingen

Göttingen, Germany

PH.D. IN MATHEMATICAL SCIENCES

Since April 2024

Preliminary topic: Computational Helioseismology

👤 Supervisor: Christoph Lehrenfeld

University of Göttingen

Göttingen, Germany

M.SC. MATHEMATICS, GPA: 1.0 (WITH DISTINCTION), MASTERTHESIS: 1.0

2021-2023

- Specialization: Numerical and Applied Mathematics, Minor: Business Administration
- Thesis: On stable discontinuous Galerkin discretizations for Galbrun's equation.

University of Göttingen

Göttingen, Germany

B.SC. MATHEMATICS, GPA: 2.3, BACHELORTHESIS: 1.0

2017-2021

- Specialization: Numerical and Applied Mathematics, Minor: Business Administration
- Thesis: On a Discontinuous Galerkin discretization for a degenerate diffusion equation.

Gymnasium Corvinianum

Northeim, Germany

ABITUR, GPA: 1.3

2009-2017

- Core subjects: Mathematics, History, Chemistry, English and Computer Science

🏛 Experience

Georg-August Universität Göttingen

Göttingen, Germany

RESEARCH ASSISTANT AT THE INSTITUTE FOR NUMERICAL AND APPLIED MATHEMATICS

Since Jan. 2024

- Member of the working group "Computational PDEs", Research in Computational Helioseismology
- Research stay in London with Erik Burman (Jan. 24 - Mar. 24), Project: "Unique continuation for the wave eq. in heterogeneous media"

University of Göttingen

Göttingen, Germany

STUDENT WORKER AT THE INSTITUTE FOR NUMERICAL AND APPLIED MATHEMATICS

Nov. 2021 - Dez. 2023

- Contribution to a research project on "Unfitted mixed finite element methods" with Christoph Lehrenfeld and Igor Voulis
- Tutor for the Lecture "Partial Differential Equations" (WiSe 2022/2023)
- Contribution to research in Computational Helioseismology

🖋 Publications

Peer-review articles:

C. Lehrenfeld, **T. vB.**, I. Voulis. Analysis of divergence-preserving unfitted finite element methods for the mixed Poisson problem. In: Math. Comp. (2025). DOI: 10.1090/mcom/4027

Preprints:

M. Halla, C. Lehrenfeld, **T. vB.**, Hybrid discontinuous Galerkin discretizations for the damped time-harmonic Galbrun's equation. In: arXiv (2025). DOI: 10.48550/arXiv.2504.09547

P. E. Farrell, **T. vB.**, U. Zerbinati. Analysis and numerical analysis of the Helmholtz–Korteweg equation. In: arXiv (2025). DOI: 10.48550/arXiv.2503.10771

T. vB., U. Zerbinati. An adaptive mesh refinement strategy to ensure quasi-optimality of finite element methods for self-adjoint Helmholtz problems. In: arXiv (2024). DOI: 10.48550/arXiv.2403.06266

Conferences & Talks

- Feb. 2025** Wave Phenomena 2025, **Role:** Speaker, **Title:** *LIE for the vector-valued time-harmonic Galbrun's eq.*, Karlsruhe, Germany.
- Dec. 2024** Seminar on Appl. Math., **Role:** Speaker, **Title:** *Analysis & approx. of the nematic Helmholtz–Korteweg eq.*, Pavia, Italy.
- Nov. 2024** GAMM Workshop on Numerical Analysis 2024, **Role:** Speaker, **Title:** *Hybrid dG discr. of Galbrun's eq.*, Augsburg, Germany.
- Sep. 2024** GAMM Workshop on Applied and Numerical Linear Algebra 2024, **Role:** Participant, Göttingen, Germany.
- Sep. 2024** Chemnitz FEM Symp. 2024, **Role:** Speaker, **Title:** *Div.-preserving unfitted FEM for the mixed Poisson eq.*, Chemnitz, Germany.
- Jul. 2024** WCCM 2024, **Role:** Speaker, **Title:** *Divergence-preserving unfitted FEM for the mixed Poisson problem*, Vancouver, Canada.
- Jun. 2024** WAVES 2024, **Role:** Speaker, **Title:** *Stable (hybrid) discontinuous Galerkin discr. for Galbrun's equation*, Berlin, Germany.
- Jun. 2024** European Finite Element Fair 2024, **Role:** Speaker, **Title:** *Ensuring quasi-optimality for the Helmholtz problem*, London, UK.
- Jun. 2024** 5th NGSolve User Meeting, **Role:** Participant, Vienna, Austria.
- Jul. 2023** 4th NGSolve User Meeting, **Role:** Participant, Portland, USA.
- May 2023** European Finite Element Fair 2023, **Role:** Speaker, **Title:** *Unfitted Mixed Finite Element Methods*, Enschede, Netherlands.
- Jun. 2022** 41th NoKo, **Role:** Speaker, **Title:** *Unfitted Mixed Finite Element Methods*, Hannover, Germany.

Skills

- Languages** German (Native), English (C1)
- Programming** Python (e.g. NumPy, SciPy, FEM software: NGSolve, Firedrake), R, Basics in: C/C++, HTML