

ASTRID HERREMANS

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RESEARCH INTERESTS

Numerical analysis at the intersection of approximation theory and numerical linear algebra (non-orthogonal expansions, sampling theory, rational approximation), using tools from computational harmonic analysis, applied functional analysis and random matrix theory.

EDUCATION

PhD in Engineering Science 2022-2026

KU Leuven, Department of Computer Science

- Advisor: Daan Huybrechs
- Expected date of defense: August 2026
- Teaching assistant for Linear Algebra, Analysis, Fundamentals of Computer Science, Numerical Analysis
- Ombudsperson for the Master in Mathematical Engineering

Master in Mathematical Engineering 2020-2022

KU Leuven

- Grade: summa cum laude with the congratulations of the examination committee
- Thesis: *Robust and efficient approximation of functions with singular behaviour*, advised by Daan Huybrechs
- Teaching assistant for Linear Algebra and Analysis

Bachelor in Engineering Science 2017-2020

KU Leuven

- Grade: summa cum laude

PUBLICATIONS AND PREPRINTS

A. HERREMANS AND D. HUYBRECHS. *Sampling theory for function approximation with numerical redundancy*. arXiv:2501.07470 (2025).

A. HERREMANS AND D. HUYBRECHS. *Efficient function approximation in enriched approximation spaces*. IMA J. Numer. Anal. 45.2 (2025), 673-695.

N. BOULLÉ, A. HERREMANS AND D. HUYBRECHS. *Multivariate rational approximation of functions with curves of singularities*. SIAM J. Sci. Comput. 46 (2024), A3401-A3426.

A. HERREMANS, D. HUYBRECHS AND L.N. TREFETHEN *Resolution of singularities by rational functions*. SIAM J. Numer. Anal. 61.1 (2023), 2580-2600.

TALKS AND SEMINARS

The 30th Biennial Numerical Analysis Conference June 2025
at the University of Strathclyde, invited by Marcus Webb and Timon Gutleb

Numerical Analysis Group Internal Seminar June 2025
at the University of Oxford, invited by Yuji Nakatsukasa

Challenges, Opportunities, and New Horizons in Rational Approximation April 2025
plenary talk at the Banff International Research Station (BIRS)
invited by Heather Wilber, Anil Damle and Serkan Gugercin

PIMS MOCAD seminar March 2025
at Simon Fraser University, invited by Ben Adcock

Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing at the University of Waterloo (contributed talk)	August 2024
More on Harmonic Analysis in Strobl (poster session)	June 2024
SIAM Conference on Applied Linear Algebra at Sorbonne University, invited by Nadiia Derevianko and Heather Wilber	May 2024
Workshop and Summer School on Applied Analysis at TU Chemnitz (contributed talk)	September 2023
Numerical Analysis in the 21st Century in honour of Nick Trefethen's retirement from Oxford at the University of Oxford (contributed talk)	August 2023
Classical Analysis Seminar at the department of Mathematics at KU Leuven, invited by Arno Kuijlaars	March 2023
SIAM Conference on Computational Science and Engineering in Amsterdam (contributed talk)	February 2023
Numerical Analysis Group Internal Seminar at the University of Oxford, invited by Lloyd Nick Trefethen	November 2022

AWARDS AND GRANTS

SIAM UKIE prize for best Student Talk by SIAM UKIE <i>Awarded at the 30th Biennial Numerical Analysis Conference</i>	2025
Travel grant for a long stay abroad by Research Foundation Flanders (FWO) <i>Covers a three-month research stay at Simon Fraser University, hosted by Ben Adcock</i>	2025
SIAM Student Travel Grant by SIAM <i>Covers travel and accommodation costs for the SIAM Conference on Applied Linear Algebra</i>	2024
PhD fellowship by Research Foundation Flanders (FWO) <i>Awarded a fully funded four-year PhD fellowship for fundamental research</i>	2023
Best contributed talk by the Faculty of Mathematics at TU Chemnitz <i>Awarded at the Workshop and Summer School on Applied Analysis</i>	2023
Best Student Award by KU Leuven <i>Awarded to the top ten students in the first year of the Bachelor of Engineering Science</i>	2018