

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 harmonic analysis, 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: June 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 B. ADCOCK. *Refinement-based Christoffel sampling for least squares approximation in non-orthogonal bases*. arXiv:2510.08461 (2025).

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

AWARDS AND GRANTS

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