

# ASTRID HERREMANS

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## RESEARCH INTERESTS

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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

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**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

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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

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**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

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**SIAM UKIE prize for best Student Talk**

2025

by SIAM UKIE

*Awarded at the 30th Biennial Numerical Analysis Conference*

**Travel grant for a long stay abroad**

2025

by Research Foundation Flanders (FWO)

*Covers a three-month research stay at Simon Fraser University, hosted by Ben Adcock*

**SIAM Student Travel Grant**

2024

by SIAM

*Covers travel and accommodation costs for the SIAM Conference on Applied Linear Algebra*

**PhD fellowship**

2023

by Research Foundation Flanders (FWO)

*Awarded a fully funded four-year PhD fellowship for fundamental research*

**Best contributed talk**

2023

by the Faculty of Mathematics at TU Chemnitz

*Awarded at the Workshop and Summer School on Applied Analysis*

**Best Student Award**

2018

by KU Leuven

*Awarded to the top ten students in the first year of the Bachelor of Engineering Science*