

## Personal Information

Surname: Van Bockstal  
Given name: Karel  
Nationality: Belgian

## Education

- 2010-2015: Doctor of Philosophy (PhD), Mathematical Engineering (Ghent University)
  - Dissertation title: Numerical techniques for partial differential equations in superconductivity and thermoelasticity (issued in Ghent, December 17th 2015)
  - Supervisor: Marián Slodička
  - Doctoral Training Programme Ghent University
- 2009-2010: Specific Teacher Training Programme in Mathematics (Ghent University, cum laude)
- 2008-2010: Master of Science in Mathematics: Applied Mathematics, Minor Economics and Business Administration (Ghent University, magna cum laude)
  - Student thesis: Determination of an unknown diffusion coefficient in a parabolic initial boundary value problem (2010, summa cum laude)
- 2004-2008: Bachelor of Science in Mathematics, Minor Economics (Ghent University, cum laude)

## Work Experience

### EMPLOYMENT

- 01/10/2022-now: postdoctoral researcher at the Analysis & PDE Centre of Ghent University, Department of Mathematics: Analysis, Logic and Discrete Mathematics (Faculty of Sciences), Belgium
- 01/10/2018-30/09/2022: postdoctoral fellow (FWO Research Foundation-Flanders) at the research group of Numerical Analysis and Mathematical Modelling of Ghent University, Department of Mathematical Analysis, Belgium (Grant number: 12P2919N, supervisor: Marián Slodička)  
From 01/07/2019: Department of Electronics and Information systems (Faculty of Engineering and Architecture)
- 01/09/2016-30/09/2018: postdoctoral assistant at the research group of Numerical Analysis and Mathematical Modelling of Ghent University, Department of Mathematical Analysis, Belgium
- 01/09/2012-31/08/2016: junior assistant at the research group of Numerical Analysis and Mathematical Modelling of Ghent University, Department of Mathematical Analysis, Belgium (supervisor: Marián Slodička)
- 01/09/2010-31/08/2012: PhD researcher (doctoral fellow) at the research group of Numerical Analysis and Mathematical Modelling of Ghent University, Department of Mathematical Analysis (Faculty of Engineering and Architecture), Belgium (supervisor: Marián Slodička)

### AWARDS

- 2016: EAIP Young Scientist Award (received from the Eurasian Association on Inverse Problems during the IPMS 2016 conference)

### PUBLICATIONS

- 39 publications (18 as first author, 29 as corresponding author, 20 without my PhD mentor) included in ISI Web of Science (28 publications in Q1 journals), see <https://orcid.org/0000-0002-1898-7611>
- I was co-editor of a special issue of *Computers & Mathematics with Applications* (77(6):1423-1798, 2019, ISSN: 0898-1221), and edited with M. Slodička the *ACOMEN* (Seventh international conference on advanced computational methods in engineering, Ghent University, Belgium, 18-22 September 2017) book of abstracts (ISBN: 978-94-6197-560-7)

- I was co-editor of the books “Extended Abstracts 2021/2022 Ghent Analysis and PDE Seminar” (Birkhäuser Cham, ISBN: 978-3-031-42538-7, 2024) and “Summer school “Modern Problems in PDEs and Applications Ghent Analysis and PDE Center” (Birkhäuser Cham), which are part of the book series “Trends in Mathematics” (ISSN: 2297-0215) and part of the book subseries “Research Perspectives Ghent Analysis and PDE Center”

#### SCHOLARLY SERVICE

- 2022 and 2024: Member of the International Organizing Committee of the International Conference “Inverse Problems: Modeling and Simulation” (IPMS)
- Member of the Organising Committee of the Summer Schools “Singularities in Science and Engineering” (August 22-31, 2022, Ghent Analysis & PDE Center, Ghent University, Belgium), “Modern Problems in PDEs and Applications” (August 23 - September 2, 2023, Ghent Analysis & PDE Center, Ghent University, Belgium) and “Direct and Inverse Problems with Applications, and Related Topics” (August 19 - August 24, 2024, Ghent Analysis & PDE Center, Ghent University, Belgium)
- Member of the Organising Committee of the Methusalem Workshop on Classical Analysis and Partial Differential Equations (February 27-March 1, 2023, Ghent Analysis & PDE Center, Ghent University, Belgium)
- Co-organiser and secretary of ACOMEN2017 (7th International Conference on Advanced Computational Methods in ENgineering, September 18-22, 2017, Ghent, Belgium). Member of the Scientific Committee of ACOMEN2022 (August 31 - September 2, 2022, Liege, Belgium). Co-organizer of ACOMEN2025 (9th International Conference on Advanced Computational Methods in ENgineering, September 15-19, 2025, Ghent, Belgium).
- Organiser of the IP2018 (Ghent, Belgium) and IP2021 (online) workshops on inverse problems
- Co-organiser of mini-symposia at international conferences: “Inverse Problems in Science and Engineering” at the IPMS2018 conference, “Inverse Problems in Science and Engineering” at the IPMS2022 conference, “Inverse Modelling with Application” at AIP2023 conference, “Applied Inverse Problems and Partial Differential Equations” at the IPMS2024 conference
- 2023-now: editorial board member of book series entitled “Research Perspectives Ghent Analysis and PDE Center” in Birkhäuser/Springer (located within Birkhäuser’s Trends in Mathematics series)
- 2021-now: associate editor for the Journal of the Egyptian Mathematical Society
- 2016-now: Member of the PhD examination board of Mr Lukas Seliga (Ghent University, 2016), Mr Jaroslav Chovan (Ghent University, 2017), Mr Michal Galba (Ghent University, 2017), Ms Katarina Šišková (Ghent University, 2018), Mr Boelens Thomas (Ghent University, 2020), Mr Le Van Chien (Ghent University, 2022), Mr Bakhodirjon Toshtemirov (V.I. Romanovskiy Institute of Mathematics and Ghent University, 2022), Ms Aishabibi Dukenbayeva (Al-Farabi Kazakh National University and Ghent University, 2022), Ms Zoë Gromotka (Ghent University, 2023), Mr Daurenbek Serikbaev (Al-Farabi Kazakh National University and Ghent University, 2023) and Mr Bayan Bekbolat (Al-Farabi Kazakh National University and Ghent University, 2024)
- 2015-now: peer reviewer for international journals included in Web of Science (90 reviews up to now), see <https://www.webofscience.com/wos/author/record/1017928>

#### SERVICE TO THE COMMUNITY

- 2023-2025: co-supervisor project “Begeleiding practica vakgroep wiskunde en organisatie seminarie analyse en partiële differentiaalvergelijkingen” in Honours Programme Education
- 2023-now: member of the Department Council of Mathematics: Analysis, Logic and Discrete Mathematics (WE16, Ghent University)
- 2019-2022: member of the Department Council of Electronics and Information Systems
- 2018-2022: member of the study Programme Committee Engineering Physics (Ghent University)
- 2010-2019: member of the Department Council of Mathematical Analysis (Ghent University)

- 2008-2010, 2014-2016: member of the study Programme Committee Mathematics (Ghent University)

#### TEACHING EXPERIENCE (GHENT UNIVERSITY)

- 2023-2024: Partial Differential Equations, Master of Science in Mathematics (co-lecturer)
- 2012-2023: Partial Differential Equations, Master of Science in Mathematics (assistant)
- 2019-2022: Mathematical Techniques for Engineers: Advanced Topics, Master of Science in Engineering Physics (co-lecturer)
- 2018-2019: Mathematical Techniques for Engineers and Physicists II, Master of Science in Engineering Physics (lecturer-in-charge)
- 2010-2018: Basis Mathematics Tools, 1st year Bachelor of Engineering (assistant)
- 2010-2018: Applied Functional Analysis, Master of Science in Mathematics (assistant)
- 2014-2018: Mathematical analysis, 2nd year Bachelor of Engineering: architecture (assistant)
- 2011-2012, 2015-2016: Approximation Methods for Boundary Value Problems, Master of Science in Mathematics (assistant)
- 2012-2016: Mathematic Models, Bridging Programme Master of Science in Engineering (assistant)
- 2014-2015: Mathematical analysis I: functions of one variable, 1st year Bachelor of Engineering (assistant)
- 2013-2014: Mathematics 3, 2nd year Bachelor of Engineering: architecture (assistant)
- 2012-2014: Mathematical Analysis II: Functions of Several Variables, 1st year Bachelor of Engineering (assistant)
- 2012-2013: Geometry and Linear Algebra, 1st year Bachelor of Engineering (assistant)

#### CO-SUPERVISION OF PHD-STUDENTS

- Van Chien Le (Oct. 2018 - May 2022) entitled “Advanced mathematical and numerical analysis of induction hardening of steel” (Doctor of Science: Mathematics);
- Frederick Maes (position: assistant; start date 16/09/2019): “Direct and inverse problems in PDEs”.

#### SUPERVISION OF MASTER DISSERTATIONS

- Lieven De Roeck (AY 2021-2022, Master of Science in Mathematics) entitled “Numerieke methoden voor het oplossen van fractionele diffusievergelijkingen”
- Bjarne Dewilde (AY 2018-2019, Master of Science in Information Engineering Technology) entitled “De implementatie en vergelijking van wiskundige modellen in het kader van beeldverwerking”
- Serge Vereecken (AY 2016-2017, Master of Science in Mathematics) entitled “Numerieke methoden voor het bepalen van een plaatsafhankelijke warmtebron”
- Arnaud Devos (AY 2016-2017, Master of Science in Mathematics) entitled “Digitale beeldverwerking met behulp van partiële differentiaalvergelijkingen”
- Fien Gistelincx (AY 2014-2015, Master of Science in Mathematics) entitled “De reconstructie van een tijdsafhankelijke convolutiekern in een semilineaire parabolische integraal-differentiaal vergelijking”

#### SUPERVISION OF BACHELOR PROJECT

- Thomas Deneve (AY 2022-2023, Bachelor of Science in Mathematics) entitled “Het oplossen van fractionele differentiaalvergelijkingen”

#### Skills

##### IT SKILLS

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Advanced knowledge of Linux, Mac OS X, Word, Excel, Powerpoint, LaTeX, Maple, Matlab, Geogebra, FreeFem++, FEniCS, Python

#### LANGUAGE SKILLS

- Dutch: native speaker
- English: academic writing, reading, speaking and listening skills (CEFR level C1)
- French: intermediate skills
- German: basic academic reading skills

#### References

- B. Tomas Johansson, Lecturer at Linköping University, Sweden, email address: tomas.johansson@liu.se
- Prof. Michael Klivanov, Professor of Mathematics at University of North Carolina at Charlotte, email address: mklibanv@uncc.edu
- Daniel Lesnic, Professor in Applied Mathematics at University of Leeds, UK, email address: D.Lesnic@leeds.ac.uk
- Michael Ruzhansky, Senior Full Professor of Mathematics at Ghent University, Belgium, email address: michael.ruzhansky@ugent.be