Curriculum Vitae Geert-Jan Graulus

Career narrative

Geert-Jan Graulus was recently (August 2023) appointed as assistant professor biochemistry and biomaterials at Hasselt University in the framework of a tenure track position in the department of materials chemistry. Geert-Jan Graulus received his **PhD in Chemistry** from Ghent University In **2018** under the supervision of prof. dr. Peter Dubruel and prof. dr. Sandra Van Vlierberghe for his thesis "*Towards degradable photonic biosensors for the microbiological screening of water samples"* prepared in close collaboration with prof. dr. ir. Hugo Thienpont and prof. dr. ir. Heidi Ottevaere (Brussels Photonics, Vrije Universiteit Brussel).

Currently, professor Graulus leads the **Biomolecule Design Group** at Hasselt University. After joining the group in 2018, professor Graulus initiated a **new line of research**, combining the group's track record in protein engineering with his own interest in biomaterials. Currently, prof. Graulus **(co)supervises 12 PhD students**. He is ambitious to **establish the research group** as one of the key players in the field of responsive biomaterials, relying mainly on recombinant proteins.

Geert-Jan Graulus has co-authored **22 peer-reviewed papers and 3 book chapters**. Eleven of these publications have received over 25 citations. Over the past years, Geert-Jan Graulus has delivered 14 oral talks and poster presentations at various (inter)national symposia. In 2014, he was the runner-up for best poster focussing on materials chemistry at ChemCYS 2014. In 2023, he presented his research to a broader audience during the Nerdland Science Festival (Wachtebeke, Belgium).

OUTPUT METRICS	TOTAL	OF WHICH AS FIRST/LAST AUTHOR
PEER-REVIEWED PAPERS	22	6
BOOK CHAPTERS	3	2
CONFERENCE (POSTER) PRESENTATIONS	37	(14 as presenting author)

CITATION METRICS	H-INDEX	I10-INDEX	CITATIONS (EXCLUDING SELF-CITATIONS)
WEB OF SCIENCE	12	13	857 (845)
GOOGLE SCHOLAR	13	17	1302 (/)

Education

2013-2018: PhD in Chemistry, Ghent University
Thesis: "*Towards degradable photonic biosensors for the microbiological screening of water samples"*

Promotors: prof. dr. Peter Dubruel, prof. dr. Sandra Van Vlierberghe, prof. dr. ir. Heidi Ottevaere and prof. dr. ir. Hugo Thienpont

2010-2012: Master of Sciences: Chemistry, Ghent University
Magna Cum Laude
Thesis: "*Ontwikkeling van biopolymeren voor toepassing in de bioreactortechnologie*" *("Development of biopolymers for bioreactor applications")*

Promotors: prof. dr. Peter Dubruel, prof. dr. José C. Martins

Membership of scientific organisations

- Royal Flemish Chemical Society
- Belgian Society on Tissue Engineering
- Belgian Society for Biochemistry and Molecular Biology
- American Chemical Society
- European Society for Biomaterials
- Tissue Engineering and Regenerative Medicine International Society

Awards and fellowships:

2025: Promotor of Niels Geysmans, Frontiers in Bioengineering & Biotechnology award for best oral talk, ESB 2025

2022: Appointed delegate of the Royal Flemish Chemical Society to the Chemistry Europe Early Career Researchers Meeting, Weinheim, Germany

2022: Copromotor of Milan Den Haese, Best poster award in Chemical Processes & Reactor Technologies, CRF-ChemCYS 2022

2014: Runner-up best poster in materials chemistry, ChemCYS 2014

Other scientific output and impact

2025-present: Member of the local organising committee of the **10th European Chemistry Conference**, Antwerp (Belgium)

Co-organiser of the **Belgian Polymer Group meeting** 2026, Blankenberge (Belgium)

2023-present: Delegate of the **Belgian Society for Biochemistry and Molecular Biology** to the educational committee of the **European Federation of Biochemical Soieties (FEBS)**

2019-present: Board member at the **Belgian Society for Biochemistry and Molecular Biology**, representing Hasselt University

2019-present: Member of **6 Doctoral committees** (Hasselt University, excluding memberships as (co)promotor) and **8 PhD juries** (Maastricht University, Ghent University and KU Leuven)

2014-present: Involved in the **formation of junior researchers** via the supervision of 13 PhD students (of which 6 as main promotor), 11 master's theses and 28 bachelor's theses.

2019: Co-organiser of the **Belgian Symposium on Tissue Engineering** 2019, Hasselt (Belgium). The conference welcomed participants from (Belgian) Research groups active in the field of regenerative medicine and tissue engineering.

2014-2016: President of the **Chemistry Conference for Young Scientists** 2016, Blankenberge (Belgium). This edition of the biennial conference organised by the Royal Flemish Chemical Society youth division welcomed 341 participants from 39 countries.

Reviewing duties

Reviewer for *Biomacromolecules*, *Carbohydrate Polymers*, *European Polymer Journal, Frontiers in bioengineering and biotechnology*, *Journal of the American Chemical Society*.

External expert for the PRELUDIUM and OPUS funding schemes (National Science Center, Poland)

External expert for the project funding scheme (Swiss National Science Fund, Switserland)

Institutional responsibilities (Hasselt University)

2022-present Member of the educational management team, Bachelor of Sciences: Chemistry

2020-present Member of the biosafety committee, Hasselt University

2021-2022 Member of the educational management team, Master of Sciences: Materiomics preparing the NVAO dossier of the new master's programme in Materiomics

Teaching activities

Coordinating lecturer

- *Master in materiomics (**3**): Capita Selecta: developments in materials research; Materials for advanced health care; Protein-based biomaterials*
- *Bachelor in chemistry (**3**): Biochemical pathways; Introduction to biochemistry; Basic and practical skills in Chemistry*

Co-lecturer

- *Master in materiomics (**1**): Sustainable development goals: materials and their management*
- *Master in biomedical sciences (**1**): Experimental Design in Bioelectronics & Nanotechnology*
- *Bachelor in chemistry (**1**): Research internship (biochemistry)*
- *Bachelor in biomedical sciences (**2**): Metabolism; Laboratory skills*

Five main publications and/or achievements

1. Driesen S., Atella V., Kiick K., Pitet L., Graulus G.-J., RSC Applied Polymers **2025**, 3 (2). (peer-reviewed, IF pending)

   In his first experimental paper, Sander describes the sulfation of alginate to obtain a mimic of chondroitin sulphate and its application in though hydrogels for cartilage repair. Our results show this modification increases resilience without negatively affecting the overall mechanical properties.

2. Jacobs, B.; Van Nieuwenhove,I.; Driesen, S.; Reyes, P.; D'hooge, D. R.; Graulus, G.-J.; Bernaerts, K. V.; Verberckmoes, A.; Eur. Polym. J. **2025**, 228, 113846. (peer-reviewed, IF 5.8)

   In this experimental paper, Bram describes the synthesis of lignin-based organogels via dynamic covalent cross-linking. This manuscript is the first paper to rely on our custom-built injectability tool used to assess the influence of hydrogel stoichiometry on the viscosity observed for the studied injectable materials.

3. Princen, K.; Marien, N.; Guedens, W.; Graulus, G.-J.; Adriaensens, P. Hydrogels with Reversible Crosslinks for Improved Localised Stem Cell Retention: A Review. ChemBioChem **2023**, 24 (20), e202300149. (peer-reviewed, IF 3.2)

   I serve as co-promotor in the FWO scholarship of Ken Princen focussed on the development of dynamic hydrogels for cardiovascular applications. In this context, Ken wrote this review article in collaboration with Neeve Marien (another PhD student from my group).

4. Jacobs, B.; Yao, Y.; Van Nieuwenhove, I.; Sharma, D.; Graulus, G.-J.; Bernaerts, K.; Verberckmoes, A. Sustainable lignin modifications and processing methods: green chemistry as the way forward. *Green Chemistry* **2023**. (peer-reviewed, IF 9.8)

   I serve as co-promotor in the FWO scholarship of Bram Jacobs focussed on the development of lignin-based hydrogels. In this context, Bram wrote this review article in close collaboration with Yawen Yao (Maastricht University).

5. Tran, L.-H.; Graulus, G.-J.; Vincke, C.; Smiejkowska, N.; Kindt, A.; Devoogdt, N.; Muyldermans, S.; Adriaensens, P.; Guedens, W. Nanobodies for the Early Detection of Ovarian Cancer. International Journal of Molecular Sciences **2022**, 23 (22), 13687. (peer-reviewed, IF 6.208)

   First authorship is shared by Huong Tran and myself and important since this paper nicely summarised the results of Huong's PhD journey. It was also a pleasure to collaborate with our partners at VUB (Muyldermans lab).

Comprehensive overview available on www.uhasselt.be/BDG

List the representative and substantial fellowships, projects and any other kind of research grants you obtained within the last five years

Small research project - special research fund Hasselt University (BOF-UHasselt) (1)

2022 *Fundamental development of continuous flow technology toward photomediated polymerization of diverse building blocks* (**Milan Denhaese**, involved as **co-promotor**, project number R-12788)

Involvement as (co)promotor in granted FWO scholarships (5)

2024 **Amelien Vanaenrode** *Amphiphilic proteins for the Efficient Recovery of microalgae biomass using metal-free flotation Technology* (strategic basic research, **co-promotor**, application number 1S26225N)

2023 **Katrijn Kelchtermans**: *Taming biodegradation in protease-sensitive hydrogels using dissociative bioorthogonal chemistry* (fundamental research, **promotor**, application number 11P4M24N)

2022 **Neeve Marien**: *Programming protein-based hydrogels: towards on-demand biodegradation (Degradati-on/off)* (fundamental research, **promotor**, application number 1133323N)

Sander Driesen: *Combining hybrid hydrogels with peptide conjugation for targeted cartilage tissue engineering* (strategic basic research, **promotor**, application number 1S19023N)

2021 **Bram Jacobs:** *Self-healing oligomeric lignin-based hydrogels with added functionality* (strategic basic research, **co-promotor**, application number 1S75822N)

Involvement as (co)promotor in granted BOF mandates (Hasselt University) (4)

2024 **Brent Van Ballaer** *Amphiphilic proteins for the Efficient Recovery of microalgae biomass using metal-free flotation Technology* (BOF mandate Hasselt University, **promotor**, project number to be assigned)

Katrien Derkoningen *Amphiphilic proteins for the Efficient Recovery of microalgae biomass using metal-free flotation Technology* (BOF mandate Hasselt University, **promotor**, project number to be assigned)

2023 **Amelien Vanaenrode** *Amphiphilic proteins for the Efficient Recovery of microalgae biomass using metal-free flotation Technology* (BOF mandate Hasselt University, **co-promotor**; this project has been replaced by Amelien's FWO fellowship)

2022 **Niels Geysmans** *Design of dynamic hydrogel carriers for stem cell delivery to the heart* (BOF mandate Hasselt University, **promotor**, project number R-13370)