Personal Information

Date of birth: 28th September 1978 **Nationality:** Belgian
Languages: Dutch (Flemish), English, French **Website:** https://www.uhasselt.be/dsos
ORCID: 0000-0001-7883-3393 **ResearcherID:** A-7525-2009
Google scholar: https://scholar.google.com/citations?user=I1njvvEAAAAJ&hl=nl
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Education

05/2005 **Ph.D. degree in Chemistry**
Chemistry Department, Katholieke Universiteit Leuven, Belgium (promoter: Prof. Wim Dehaen)

07/2000 **Master's Degree in Chemistry** (highest honors)
Katholieke Universiteit Leuven, Belgium

07/1998 **Bachelor's Degree in Chemistry**
LUC Diepenbeek, Belgium

Employment History

2021- **Full Professor ('Gewoon Hoogleraar')**
Department of Chemistry, Hasselt University, Belgium
Guest Professor (10%)
IMEC (Interuniversitair Micro-Elektronica Centrum) vzw, Leuven, Belgium

2018-2020 **Professor ('Hoogleraar')**
Department of Chemistry, Hasselt University, Belgium

2014-2017 **Associate Professor ('Hoofddocent')**
Department of Chemistry, Hasselt University, Belgium

2012-2013 **Assistant Professor ('Docent')**
Department of Chemistry, Hasselt University, Belgium

2009-2012 **Assistant Professor ('Docent') – 20% / Postdoctoral Fellow Research Foundation Flanders (FWO Vlaanderen) – 80%**
Department of Chemistry, Hasselt University, Belgium

2006-2009 **Postdoctoral Fellow Research Foundation Flanders (FWO Vlaanderen)**
Chemistry Department, Katholieke Universiteit Leuven, Belgium (promoter: Prof. Wim Dehaen)
Postdoctoral research stays in the groups of Prof. Harry Anderson (Oxford University, UK – 2009) and Prof. Eric Rose (Université Pierre et Marie Curie, Paris – 2007)

2005-2006 **Postdoctoral Fellow KU Leuven**
Chemistry Department, Katholieke Universiteit Leuven, Belgium (promoter: Prof. Wim Dehaen)

Institutional Responsibilities

2022- **President of the Chemistry Department** (Hasselt University)

2022- **Member 'Statutaire Commissie van Advies'** (Hasselt University)

2022- **Vice-President of the Examination Committee for the Master Materiomics** (Hasselt University)

2022- **Member of the Executive Committee of the Institute for Materials Research (IMO-IMOMEC)** (Hasselt University)

2019- **Vice-President of the Educational Management Team (OMT) Bachelor Chemistry** (Hasselt University)

2019- **Member Research Infrastructure Advisory Board Institute for Materials Research** (Hasselt University)

2018- **President of the Examination Committee for the Bachelor Chemistry** (Hasselt University)

2018- **Member of the Laboratory Safety Commission** (Hasselt University)

2019-2021 **Vice-President of the Chemistry Department** (Hasselt University)

2013-2019 **Member of the Council for Student Facilities** (Hasselt University)

2009- **Member of the Faculty Board of the Faculty of Sciences** (Hasselt University)

2009- **Member of the Board of the Chemistry Department** (Hasselt University)

Teaching Activities

2023-2024 **Hasselt University**

Ba Chemistry: Structuur en reactiviteit van organische verbindingen (7 ECTS), Synthesemethoden en -strategie voor organische verbindingen (5 ECTS), Structuuranalyse en onderzoeksproject in de organische chemie (6 ECTS), Spectroscopie: verdieping (4 ECTS) - Ba Biomedical Sciences: Biomoleculen (7 ECTS) - Ma

Materiomics: Geavanceerde functionele organische en polymere materialen (3 ECTS), Materialen voor organische elektronica (3 ECTS)

Approved Research Projects (last 5 years)*

2022-2025 **FWO WEAVE Research Project: 570'000 €** (UHasselt; partner N. Banerji, UBern – Project leader K. Vandewal - UHasselt)
'Understanding electronic-ionic interactions for high-performance and stable organic electrochemical transistors'

2021-2024 **HORIZON2020 FET-OPEN Project: 539'000 €** (imo-imomec; coordinator L. Lutsen)
'Mixed Ionic and electronic Transport In Conjugated polymers for bioelectronicS' (MITICS)

2021-2024 **FWO Research Project: 540'000 €** (UHasselt – Project leader W. Maes)
'Challenging the limits of near-infrared emission by all-organic fluorophores'

2020-2023 **FWO Medium-Size Research Infrastructure: 369'990 €** (UHasselt – Project leader W. Maes)
'MALDI-ToF mass spectrometer for advanced polymer analysis'

2018-2021 **FWO Research Project: 440'000 €** (UHasselt – Project leader W. Maes)
'Unraveling and stretching the fundamental limits of near-infrared photodetection based on organic semiconductors'

2018-2021 **FWO Research Project: 240'000 €** (UHasselt; partner G. Van Assche, VUB – Project leader W. Maes)
'Solution-processed bulk heterojunction organic cavities for near-infrared photodetection'

Supervision of Ph.D. Researchers

2009- 25 graduated Ph.D.'s (1st promotership only, graduation year in brackets): Sarah Van Mierloo (2012), Lidia Marin (2012), Toon Ghoos (2013), Süleyman Kudret (2013), Jurgen Kesters (2015), Pieter Verstappen (2015), Julija Kudrjasova (2015), Mirco Tomassetti (2015), Sanne Govaerts (2017), Geert Pirotte (2017), Yasmine Braeken (2017), Jeroen Brebels (2017), Ruben Lenaerts (2019), Dries Devisscher (2019), Gaël Heintges (2019), Jorne Raymakers (2019), Frederik Verstraeten (2020), Tom Cardeynaels (2020), Sam Gielen (2021), Jasper Deckers (2021), Omar Beckers (2021), Tom Vandermeeren (2022), Simon Paredis (2023), Jochen Vanderspikken (2023), Sander Smeets (2023)
10 ongoing Ph.D. projects: Mathias Kelchtermans (2024), Kaat Valkeneers (2024), Sonny Brebels (2024), Dries Theunissen (2024), Mathias Fraiponts (2024), Lize Bynens (2025), Nele Theysmans (2026), Adrian Lathouwers (2027), Louis Jackers (2027), Daan Coenen (2027)

Panels - Boards - Reviewing

2022-2023 **President of the Recruitment Committee to appoint Professors in Computational Materials Chemistry, Electrochemistry and Catalysis, Hybrid Organic/Inorganic Materials Chemistry, Biochemistry and Biopolymer Materials, Hasselt University**

2020 **External reviewer promotion committee, College of Science at the National Chiao Tung University, Taiwan**

2018 **Committee Tenure Track Professorship 'Materials engineering: polymers', Vrije Universiteit Brussel**

2017 **Commission Member Habilitation à Diriger des Recherches – Université d'Aix-Marseille**

2017 **Member Assessment Committee Researcher Position at DTU Energy (Technical University of Denmark)**

2016 **Expert Evaluator FNP Prize - Chemistry and Materials Science, Foundation for Polish Science (50 k€)**

2015-2019 **Editorial Board Member 'International Journal of Photoenergy'**

Refereeing **Scientific Journals:** Advanced Materials, Advanced Functional Materials, Advanced Energy Materials, Organic Electronics, Journal of the American Chemical Society, Journal of Physical Chemistry, Journal of Materials Chemistry, ACS Applied Materials & Interfaces, Chemistry of Materials, Angewandte Chemie International Edition, Chemical Reviews, Chemical Communications, Chemistry – A European Journal, European Polymer Journal, Polymer Chemistry, Materials Today, Dyes and Pigments, …

Projects: ERC Advanced Grant, ERC Starting Grant, Agence Nationale de la Recherche (ANR, France), Deutsche Forschungsgemeinschaft (DFG), RSC Leverhulme – Royal Society Africa Award, Swedish Research Council (Vetenskapsrådet), Competitive Research Grants (CRG) program at KAUST (Saudi Arabia), …

Active Memberships

Royal Flemish Chemical Society (**KVCV**, since 2017), **Society of Porphyrins and Phthalocyanines** (**SPP**, since 2008), **Belgian Polymer Group** (**BPG**, since 2010)

* Excluding numerous individual Ph.D. and postdoc fellowships as a main promoter.

Organization of Conferences (last 5 years)

2024 **SPIE Photonics Europe – Organic Electronics and Photonics: Fundamentals and Devices IV - Co-chair**
Strasbourg, France

2022 **15th Japan-Belgium Symposium on Polymer Science – Co-chair**
Yokohama, Japan

2022 **SPIE Photonics Europe – Organic Electronics and Photonics: Fundamentals and Devices III - Co-chair**
Strasbourg, France

2020 **SPIE Photonics Europe – Organic Electronics and Photonics: Fundamentals and Devices II - Co-chair**
Strasbourg, France (online edition)

2020 **ChemCYS 2020 – Chemistry Conference for Young Scientists – Member of the Scientific Committee**
Blankenberge, Belgium

2019 **15th International Conference on Organic Electronics (ICOE2019) - Co-organizer**
Hasselt University, Belgium
Hasselt University, Belgium

Oral Contributions to International Conferences (last 5 years)

2024 **38th Australian Polymer Symposium** (Auckland, New Zealand)
On the importance of chemical precision in organic electronics

2022 **15th Japan-Belgium Symposium on Polymer Science** (Yokohama, Japan)
A chemist's view on structural defects in push-pull conjugated polymers and their impact on organic electronics

2022 **CRF-ChemCYS 2022** (Blankenberge, Belgium)
Tailored molecular design of organic chromophores – From thermally activated delayed fluorescence to dual-functioning photosensitizers

2019 **NanoGe Fall Meeting** (Berlin, Germany)
Understanding Batch-to-Batch Variations of Push-Pull Type Conjugated Polymers for Organic Photovoltaics

2018 **International Workshop on Photochemistry of Organic Molecules** (Minsk, Belarus)
Porphyrinoid Materials for Organic Electronics and Advanced Healthcare

2018 **World Polymer Congress MACRO2018** (Cairns, Australia)
On the True Structure of Push-Pull Type Low Bandgap Polymers for Organic Electronics

Prizes and Awards

2013 2013 recipient (Belgium) Young Investigator for the Organic Division of EuCheMs

Major Scientific Achievements

- **Independent research since 2010**
- **206 peer-reviewed journal articles**
- **H-index = 41, 4342 citations** (excluding self-citations, *Web of Science*; H-index = 45 in *Google Scholar*)

I'm currently heading the research group 'Design & Synthesis of Organic Semiconductors' (DSOS) at the Chemistry Department of Hasselt University. The group was founded in 2010, soon after my appointment at Hasselt University. Its key competences relate to the synthesis and characterization of organic semiconducting materials – conjugated polymers as well as small molecule chromophores – and their integration in optoelectronic devices and advanced healthcare applications. These activities are strongly embedded in the 'Institute for Materials Research' (IMO) of Hasselt University, facilitating interactions with materials and device physics experts and providing access to state of the art infrastructure for advanced materials research. We conduct both fundamental and more applied research and have a strong focus on Ph.D. training. Over the years, I have built a strong network and we have collaborated with numerous leading groups in the field of organic electronics.

Conjugated Polymer Synthesis

Since my arrival at Hasselt University in 2009, conjugated polymer synthesis and characterization has been at the centre of my research activities. We evolved from controlled (block co)polythiophene synthesis to state-of-the-art push-pull copolymers and have always put a strong emphasis on material quality and the elucidation of structure-property relationships. In recent years, our work on the development of continuous flow polymerization protocols for the large-scale production of high-quality donor-acceptor copolymers and the elucidation of the importance of structural (notably homocoupling) defects on the performance of such polymers in devices have gained quite some attention from our peers. Some relevant publications: *Chem. Mater.* **2023**, *35*, 8158 (DOI:10.1021/acs.chemmater.3c01646), *Adv. Funct. Mater.* **2023**, 2309403 (DOI:10.1002/adfm.202309403), *J. Mater. Chem. C* **2022**, *10*, 1606 (DOI:10.1039/D1TC04635G), *Adv. Electron. Mater.* **2018**, 1700481 (DOI:10.1002/aelm.201700481).

Organic Solar Cells

Over the past 12 years, my group has mainly worked on the development of photoactive materials for organic/polymer solar cells. Organic thin-film photovoltaics have strong potential as an innovative source of renewable energy, adding appealing features to classical solar cell technology, in particular in terms of architectural freedom (flexibility, reduced weight, colour, semitransparency), low-light performance, and low-cost (high-throughput) large-area production. Despite the impressive recent progress in the field, especially in terms of device efficiency (nowadays exceeding 19%), further dedicated research efforts are still required to enable successful market entrance. Over the years, we have addressed all three parts of the photovoltaic triangle, i.e. efficiency, stability, and cost, with dedicated (Ph.D.) research projects, pursuing the rationalization of structure-property relations. Some key publications: *Chem. Mater.* **2023**, *35*, 8158 (DOI:10.1021/acs.chemmater.3c01646), *Joule* **2021**, *5*, 2365 (DOI:10.1016/j.joule.2021.06.010), *Adv. Energy Mater.* **2020**, 2002095 (DOI:10.1002/aenm.202002095), *J. Mater. Chem. C* **2018**, *6*, 500 (DOI:10.1039/C7TC05264B), *Chem. Mater.* **2015**, *27*, 1332 (DOI:10.1021/cm504391k), *Adv. Energy Mater.* **2013**, *3*, 1180 (DOI:10.1002/aenm.201300049).

Organic Photodetectors

Over the years, our group has also engaged in a number of projects directed towards near-infrared organic photodetectors (NIR-OPDs). For UV-visible light detection, OPDs can match and even surpass the performance of state of the art inorganic photodetectors. Unfortunately, organic materials generally show limited absorption in the NIR part of the spectrum. For this reason, we target novel NIR-absorbing materials for regular bulk heterojunction NIR-OPDs as well as organic cavity enhanced photodetectors, with the aim to elucidate the limitations of NIR photodetection based on organic semiconductors. Representative publications: *Mater. Horizons* **2023**, *10*, 5704 (DOI:10.1039/D3MH01010D), *Nat. Photon.* **2023**, *17*, 368 (DOI:10.1038/s41566-023-01173-5), *Adv. Funct. Mater.* **2021**, *31*, 2108146 (DOI:10.1002/adfm.202108146), *Adv. Mater.* **2020**, 2003818 (DOI:10.1002/adma.202003818), *J. Mater. Chem. C* **2020**, *8*, 10098 (DOI:10.1039/D0TC01435D), *J. Mater. Chem. C* **2018**, *6*, 11645 (DOI:10.1039/C8TC04164D).

Thermally Activated Delayed Fluorescence (TADF)

The TADF light emission principle enables to realize unique optical and electronic properties arising from the efficient thermal equilibration of the lowest singlet (S_1) and triplet (T_1) excited states of organic fluorophores. As a result, TADF-based organic light-emitting diodes show significantly upgraded device performances, comparable to those provided by traditional rare metal complexes. To realize efficient TADF, organic emitters require a very small energy difference (ΔE_{ST}) between their S_1 and T_1 excited states, which enhances the T_1->S_1 reverse intersystem crossing rate. Such excited state equilibration is attainable by intramolecular charge transfer within systems containing spatially separated donor and acceptor moieties. The critical point of this molecular design is the combination of a small ΔE_{ST} (≤ 100 meV) with a

reasonable radiative decay rate (>10^6 s^{-1}) to overcome competitive non-radiative pathways, leading to highly luminescent materials. In the DSOS group, advanced TADF materials are nowadays designed, synthesized, and characterized by a rational approach combining complementary computational and synthetic materials expertise. For the quantum-chemical calculations, we have a close collaboration with Prof. Benoît Champagne (University of Namur). Thorough photophysical understanding is pursued in collaboration with the group of Andy Monkman at Durham University. Representative publications: *Phys. Chem. Chem. Phys.* **2023**, *25*, 29842 (DOI:10.1039/d3cp03695b), *J. Mater. Chem. C* **2022**, *10*, 5840 (DOI:10.1039/d1tc04913e), *J. Mater. Chem. C* **2022**, *10*, 4775 (DOI:10.1039/D1TC04885F), *Dyes & Pigm.* **2021**, *190*, 109301 (DOI:10.1016/j.dyepig.2021.109301), *Phys.Chem.Chem.Phys.* **2020**, *22*, 16387 (DOI:10.1039/D0CP02409K).

Bio-Imaging and Theranostics

We have recently broadened our scope of activities to organic semiconducting materials for advanced healthcare. Towards this goal, we have started an internal collaboration with the groups of Anitha Ethirajan and Marcel Ameloot. The initial focus was on (luminescent) conjugated polymer nanoparticles for bio-imaging, but this has now been extended to fluorescence-guided photodynamic therapy. Representative publications: *J. Mater. Chem. C* **2022**, *10*, 9344 (DOI: 10.1039/D2TC01526A), *ChemPhysChem* **2021**, *22*, 1488–1496 (DOI:10.1002/cphc.202100269), *Chem. Eur. J.* **2020**, *26*, 15212–15225 (DOI:10.1002/chem.202002549), *J. Colloid Interface Sci.* **2017**, *504*, 527 (DOI:10.1016/j.jcis.2017.05.072).

Other Research Activities

Beyond these main lines of research, I also have a strong interest in the synthesis, basic spectroscopic properties, and applications of porphyrinoid materials (notably corrole macrocycles), specifically in relation to the organic electronics and advanced healthcare applications listed above. Detailed photophysical characterization of these materials is conducted in close collaboration with spectroscopists and theoretical chemists. My group has also worked on the decoration of boron-doped diamond films with organic chromophores and the elucidation of the charge-collection mechanism upon applying such functionalized diamond electrodes.

Peer-Reviewed Publications (since 2018)

206. "Single-component organic solar cells – Perspective on the importance of chemical precision in conjugated block copolymers": Theunissen, D.; Smeets, S.; **Maes, W.***, *Front. Sol. Energy* **2023**, *1*, 1326131 – DOI: 10.3389/fsoln.2023.1326131
205. "Intramolecular Locking and Coumarin Insertion: A Stepwise Approach for TADF Design": Paredis, S.; Cardeynaels, T.; Brebels, S.; Deckers, J.; Kuila, S.; Lathouwers, A.; Van Landeghem, M.; Vandewal, K.; Danos, A.; Monkman, A. P.; Champagne, B.; **Maes, W.***, *Phys. Chem. Chem. Phys.* **2023**, *25*, 29842–29849 (IF_{2022} 3.3) – DOI: 10.1039/d3cp03695b
204. "Exploring the High-Temperature Window of Operation for Organic Photovoltaics: a Combined Experimental and Simulations Study": Negash, A.; Hustings, J.; Robert, A.; Genene, Z.; Yilma, D.; Schreurs, D.; Mathijs, M.; Liesenborgs, J.; Van Reeth, F.; Vandewal, K.; Mammo, W.; Admassie, S.; **Maes, W.**; Manca, J. V., *Adv. Funct. Mater.* **2023**, 2308666 (IF_{2022} 19) – DOI: 10.1002/adfm.202308666
203. "A Tetrathienopyrrole-Based Ladder-Type Donor Polymer for High-Performance Organic Near-Infrared Cavity Detectors": Valkeneers, K.; Raymakers, J.; Liu, Q.; Vanderspikken, J.; Wang, Y.; Kesters, J.; Quill, T. J.; Liu, Z.; Van den Brande, N.; Lutsen, L.; Vandewal, K.; **Maes, W.***, *Mater. Horizons* **2023**, *10*, 5704–5711 (IF_{2022} 13.3) – DOI: 10.1039/D3MH01010D
202. "Structurally pure and reproducible polymer materials for high-performance organic solar cells": Smeets, S.; Liu, Q.; Vanderspikken, J.; Quill, T. J.; Gielen, S.; Lutsen, L.; Vandewal, K.; **Maes, W.***, *Chem. Mater.* **2023**, *35*, 8158–8169 (IF_{2022} 8.6) – DOI: 10.1021/acs.chemmater.3c01646
201. "On the importance of chemical precision in organic electronics: Fullerene intercalation in perfectly alternating conjugated polymers": Vanderspikken, J.; Liu, Z.; Wu, X.; Beckers, O.; Moro, S.; Quill, T. J.; Liu, Q.; Goossens, A.; Marks, A.; Weaver, K.; Hamid, M.; Goderis, B.; Nies, E.; Lemaur, V.; Beljonne, D.; Salleo, A.; Lutsen, L.; Vandewal, K.; Van Mele, B.; Costantini, G.; Van den Brande, N.; **Maes, W.***, *Adv. Funct. Mater.* **2023**, 2309403 (IF_{2022} 19) – DOI: 10.1002/adfm.202309403
200. "Photoexcitation energy deactivation in a solution of 10-phenyl-5,15-di-(4,6-dichloropyrimidinyl)-corrole at 77 K": Knyukshto, V. N.; Gladkov, L. L.; **Maes, W.**; Kruk, M. M., *J. Appl. Spectrosc.* **2023**, *90*, 507–514 (IF_{2022} 0.7) – DOI: 10.1007/s10812-023-01560-4
199. "Balanced Energy Gaps as a Key Design Rule for Solution-Phase Organic Room Temperature Phosphorescence": Paredis, S.; Cardeynaels, T.; Kuila, S.; Deckers, J.; Van Landeghem, M.; Vandewal, K.; Danos, A.; Monkman, A. P.; Champagne, B.; **Maes, W.***, *Chem. Eur. J.* **2023**, e202301369 (IF_{2022} 4.3) – DOI: 10.1002/chem.202301369

198. "Mid-gap Trap State Mediated Dark Current in Organic Photodiodes": Sandberg, O. J.; Kaiser, C.; Zeiske, S.; Zarrabi, N.; Gielen, S.; **Maes, W.**; Vandewal, K.; Meredith, P.; Armin, A., *Nat. Photon.* **2023**, *17*, 368–374 (IF_{2022} 35.0) – DOI: 10.1038/s41566-023-01173-5
197. "Benzothiadiazole-based push-pull copolymers – balancing synthetic complexity against organic solar cell efficiency": Valkeneers, K.; Vandewal, K.; **Maes, W.***, *Org. Electron.* **2022**, *111*, 106667 (IF_{2022} 3.2) – DOI: 10.1016/j.orgel.2022.106667
196. "Effect of oligothiophene spacer length on photogenerated charge transfer from perylene diimide to boron-doped diamond electrodes": López-Carballeira, D.; Raymakers, J.; Artemenko, A.; Lenaerts, R.; Čermák, J.; Kuliček, J.; Nicley, S. S.; Kromka, A.; Haenen, K.; **Maes, W.***; Rezek, B., *Sol. Energy Mater. Sol. Cells* **2022**, *248*, 111984 (IF_{2022} 6.9) – DOI: 10.1016/j.solmat.2022.111984
195. "*meso*-Ethynyl-extended push-pull type porphyrins for near-infrared organic photodetectors": Gielen, S.; Cuesta, V.; Brebels, S.; Quill, T. J.; Vanderspikken, J.; Lutsen, L.; de la Cruz, P.; Vandewal, K.; Langa, F.; **Maes, W.***, *J. Mater. Chem. C* **2022**, *10*, 10853–10859 (IF_{2022} 6.4) – DOI: 10.1039/D2TC00588C
194. "Inversion of aromaticity of NH-tautomers of free-bas corroles in the lowest triplet T1-state": Gladkov, L. L.; Klenitsky, D. V.; Vershilovskaya, I. V.; **Maes, W.**; Kruk, M. M., *J. Appl. Spectrosc.* **2022**, *89*, 426–432 (in English) (IF_{2022} 0.7) – DOI: 10.1007/s10812-022-01374-w
193. "Balancing fluorescence and singlet oxygen formation in push-pull type near-infrared BODIPY photosensitizers": Deckers, J.; Cardeynaels, T.; Doria, S.; Tumanov, N.; Lapini, A.; Ethirajan, A.; Ameloot, M.; Wouters, J.; Di Donato, M.; Champagne, B.; **Maes, W.***, *J. Mater. Chem. C* **2022**, *10*, 9344–9355 (IF_{2022} 6.4) – DOI: 10.1039/D2TC01526A
192. "Dominant dimer emission provides colour stability for red thermally activated delayed fluorescence emitter": Cardeynaels, T.; Etherington, M. K.; Paredis, S.; Batsanov, A. S.; Deckers, J.; Stavrou, K.; Vanderzande, D.; Monkman, A. P.; Champagne, B.; **Maes, W.***, *J. Mater. Chem. C* **2022**, *10*, 5840–5848 (IF_{2022} 6.4) – DOI: 10.1039/d1tc04913e
191. "Bridge control of photophysical properties in benzothiazole-phenoxazine emitters – from thermally activated delayed fluorescence to room temperature phosphorescence": Paredis, S.; Cardeynaels, T.; Deckers, J.; Danos, A.; Vanderzande, D.; Monkman, A. P.; Champagne, B.; **Maes, W.***, *J. Mater. Chem. C* **2022**, *10*, 4775–4784 (IF_{2022} 6.4) – DOI: 10.1039/D1TC04885F
190. "A PDTPQx:$PC_{61}BM$ Blend with Pronounced Charge-Transfer Absorption for Organic Resonant Cavity Photodetectors – Direct Arylation Polymerization vs. Stille Polycondensation": Vandermeeren, T.; Liu, Q.; Gielen, S.; Theunissen, D.; Frederix, S.; Van Landeghem, M.; Liu, Z.; Van den Brande, N.; D'Haen, J.; Vanderspikken, J.; Lutsen, L.; Vandewal, K.; **Maes, W.***, *Dyes & Pigm.* **2022**, *200*, 110130 (IF_{2022} 4.5) – DOI: 10.1016/j.dyepig.2022.110130
189. "Perspective on the application of continuous flow chemistry for polymer-based organic electronics": Beckers, O.; Smeets, S.; Lutsen, L.; **Maes, W.***, *J. Mater. Chem. C* **2022**, *10*, 1606–1616 (IF_{2022} 6.4) – DOI: 10.1039/D1TC04635G
188. "Quantum-chemical calculation and spectroscopic study of π-conjugation pathway in NH-tautomers of corrole free bases": Klenitsky, D. V.; Gladkov, L. V.; Vershilovskaya, I. V.; Petrova, D. V.; Semeikin, A. S.; **Maes, W.**; Kruk, M. M., *J. Appl. Spectrosc.* **2022**, *88*, 1111–1118 (in English) (IF_{2022} 0.7) – DOI 10.1007/s10812-022-01287-8
187. "Tuning electronic and morphological properties for high performance, wavelength-selective organic near-infrared cavity devices": Vanderspikken, J.; Liu, Q.; Liu, Z.; Vandermeeren, T.; Cardeynaels, T.; Gielen, S.; Van Mele, B.; Van den Brande, N.; Champagne, B.; Vandewal, K.; **Maes, W.***, *Adv. Funct. Mater.* **2021**, *31*, 2108146 (IF_{2020} 18.808) – DOI: 10.1002/adfm.202108146
186. "Wavelength-selective organic photodetectors": Vanderspikken, J.; **Maes, W.***; Vandewal, K., *Adv. Funct. Mater.* **2021**, *31*, 2104060 (IF_{2020} 18.808) – DOI: 10.1002/adfm.202104060
185. "Narrow electroluminescence linewidths for reduced non-radiative recombination in organic photovoltaics and near-infrared light-emitting diodes": Liu, Q.; Smeets, S.; Mertens, S.; Xia, Y.; **Maes, W.**; Vandewal, K., *Joule* **2021**, *5*, 2365–2379 (IF_{2020} 41.248) – DOI: 10.1016/j.joule.2021.06.010
184. "Heavy-atom-free bay-substituted perylene diimide donor-acceptor photosensitizers": Deckers, J.; Cardeynaels, T.; Champagne, B.; **Maes, W.***, *ChemPhysChem* **2021**, *22*, 1488–1496 (IF_{2020} 3.102) – DOI: 10.1002/cphc.202100269
183. "Difluorodithieno[3,2-*a*:2',3'-*c*]phenazine as a strong acceptor for materials displaying thermally activated delayed fluorescence or room temperature phosphorescence": Cardeynaels, T.; Paredis, S.; Danos, A.; Harrison, A.; Deckers, J.; Brebels, S.; Lutsen, L.; Vanderzande, D.; Monkman, A. P.; Champagne, B.; **Maes, W.***, *Dyes & Pigm.* **2021**, *190*, 109301 (IF_{2020} 4.889) – DOI: 10.1016/j.dyepig.2021.109301
182. "Benzo[1,2-*b*:4,5-*b*']dithiophene as a weak donor component for push-pull materials displaying thermally activated delayed fluorescence or room temperature phosphorescence": Cardeynaels, T.; Paredis, S.; Danos, A.; Vanderzande, D.; Monkman, A. P.; Champagne, B.; **Maes, W.***, *Dyes & Pigm.* **2021**, *186*, 109022 (IF_{2020} 4.889) – DOI: 10.1016/j.dyepig.2020.109022
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