

# Curriculum Vitae

Marcel Swart

Professor Dr. FYAE FRSC MAE

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## 1 Personal details

IQCC Institute and Department of Chemistry, University of Girona (UdG)

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## 2 Appointments

xx/2026 – present	<i>Part-time Honorary Full Professor at Zernike Institute, University of Groningen</i>
12/2024 – present	Part-time Full Professor at IQCC Institute, University of Girona 10% dedication
09/2009 – present	ICREA Professor at IQCC Institute, University of Girona 90% dedication since 12/2024, 100% dedication before
07/2015 – 06/2023	Director of IQCC Institute, University of Girona
06/2006 – 09/2009	ICREA Júnior Fellow at IQCC Institute, University of Girona
05/2004 – 05/2006	VICI Postdoctoral fellow Prof. Bickelhaupt, VU University Amsterdam
05/2002 – 05/2004	Chemistry of Complex Molecules Postdoctoral fellow Prof. Lammertsma, Dr. Ehlers, VU University Amsterdam

## 3 Education

03/1998 – 09/2002	PhD Theoretical Chemistry, University of Groningen (Netherlands) “Density Functional Theory Applied to Copper Proteins” Supervisors: Prof HJC Berendsen, Prof GW Canters, Prof JG Snijders Reading committee: Prof BW Dijkstra, Prof K Lammertsma, Prof AE Mark
08/1996	MSc Organic Chemistry, University of Groningen (Netherlands)

## 4 Honours and awards

06/2025	Horizon Award by Royal Society of Chemistry
06/2019	Elected member of Academia Europaea
09/2017	Special award in honour of continuous support for advancing chemical sciences in Serbia (120 years anniversary of Serbian Chemical Society), as first and only foreigner
06/2017	Award for Best Paper in 2016 at the University of Belgrade (Serbia) with Maja Gruden
11/2015	Elected Fellow of the Royal Society of Chemistry
10/2014	Elected Fellow of the Young Academy of Europe
06/2012	Silver Jubilee Prize from Molecular Graphics and Modelling Society
06/2010	Premi Extraordinari for best PhD thesis under my supervision: Dr. Sílvia Osuna
06/2009	Premi Extraordinari for best PhD thesis under my supervision: Dr. Mireia Güell
09/2005	Young Scientist Excellent Award, <i>International Conference of Computational Methods in Science and Engineering</i> (ICCMSE), Loutraki, Greece

## 5 List of selected invited presentations

Since 2001 I have presented more than 40 invited talks, more than 25 contributed talks and over 40 posters at national and international conferences

(selected Invited \* / Keynote \*\* / Plenary \*\*\* talks)

- 12/2026 \* 12<sup>th</sup> Asian Bioinorganic Chemistry Conference (AsBIC), Jaipur (IN)
- 06/2026 \*\* 46<sup>th</sup> International Conference on Coordination Chemistry (ICCC), Odense (DK)
- 09/2025 \*\* 7<sup>th</sup> EuChemS Inorganic Chemistry Conference (EICC7), Belgrade (RS)
- 07/2025 \* International Conference on Biological Inorganic Chemistry (ICBIC), Long Beach (USA)
- 08/2024 \* 20<sup>th</sup> International conference on DFT (DFT2024), Paris (FR)
- 08/2024 \*\* 17<sup>th</sup> European Biological Inorganic Chemistry (EuroBic) conference, Münster (DE)
- 07/2024 \* 45<sup>th</sup> International Conference on Coordination Chemistry (ICCC), Ft. Collins (USA)
- 06/2024 \* Contemporary Coordination Chemistry Copenhagen (C4), Copenhagen (DK)
- 06/2024 \* Chemistry@Sete: Challenges in Computational Homogeneous Catalysis, Sète (FR)
- 09/2023 \* 6<sup>th</sup> EuChemS Inorganic Chemistry Conference (EICC6), Vienna (AT)
- 08/2023 \* 6<sup>th</sup> Quantum Bio-Inorganic Chemistry meeting (QBIC-VI), Warsaw (PL)
- 07/2023 \* Larry Que Fest (40 Years of Fun with Iron Chemistry), Minnesota (USA)
- 08/2022 \* 44<sup>th</sup> International Conference on Coordination Chemistry (ICCC), Rimini (IT)
- 01/2020 \* Metals in Biology Gordon Research Conference (GRC-2020, Late Breaking talk), Ventura (CA, USA)
- 12/2019 \* 35<sup>th</sup> Winter School in Theoretical Chemistry 2019: Inorganic Chemistry, Helsinki (FI)
- 08/2019 \* 19<sup>th</sup> International Conference on Biological Inorganic Chemistry (ICBIC), Interlaken (CH)
- 05/2019 \* 7<sup>th</sup> international conference on Biological Inorganic Chemistry (CANBIC7), Parry Sound (CAN)
- 11/2018 \* Annual Joint Meeting Academia Euopaea and Young Academy of Europe (Building Bridges), Barcelona (ES)
- 09/2018 \* Quantum Bio-Inorganic Chemistry meeting (QBIC-IV), Bath (UK)
- 07/2018 \* 11<sup>th</sup> Congress on Electronic Structure and Principle (ESPA2018), Toledo (ES)
- 07/2018 \* International Conference on Porphyrins and Phthalocyanines (ICPP10), Munich (DE)
- 06/2018 \* 16<sup>th</sup> International Conference on Quantum Chemistry (ICQC), Menton (FR)
- 08/2017 \* Congress of World Association of Theoretical/Computational Chemists (WATOC), Munich (DE)
- 06/2017 \*\* FemEx 2017. Promoting female excellence in theoretical chemistry, Putten (NL)
- 03/2017 \*\* The Netherlands Catalysis and Chemistry Conference (N3C), Noordwijkerhout (NL)
- 03/2017 \*\*\* PAC Symposium, Utrecht (NL)
- 10/2016 \* Joint-Symposium on Theoretical and Computational Science of Complex Systems, Kyoto (JP)
- 09/2016 \*\*\* VII Current Trends in Theoretical Chemistry, Kraków (PL)
- 06/2016 \*\*\* 53<sup>rd</sup> Annual meeting of Serbian Chemical Society, Kragujevac (RS)

Furthermore, I have given more than 20 invited talks at institutions and research labs (selection):

Univ. Brussels (2024) – Hylleraas Center, Univ. Oslo (2023) – SDU Odense (2023) – IIT Roorkee (2021<sup>online</sup>) – LMU Munich (2021<sup>online</sup>) – Univ. Oxford (2020<sup>online</sup>) – Univ. Sheffield (2020<sup>online</sup>) – Univ. Bayreuth (2020) – Univ. Helsinki (2019) – Univ. Leuven (2019) – SD Univ. Odense (2019) – UvA Amsterdam (2018) – Max Planck Institute Stuttgart (2018) – Univ. Padova (2018) – Ewha Univ. Korea (2016) – KTH Stockholm (2016) – Univ. Groningen (2015) – Univ. Uppsala (2013) – Univ. Dublin (2013) – Techn. Univ. Berlin (2013) – Houk group, UCLA (2012) – Univ. Belgrade (2012) – Univ. Tromsø (2011)

## 6 List of selected public engagement of science and science policy activities

05/2023	Pint of Science, Girona
02/2022	COST Academy event Sustainability of COST Actions, COST Association, (online)
02/2021	QBtopIC discussion panel (session leader), QBIC Society, (online)
02/2021	COST Action Chairs Forum, COST Association, (online)
10/2019	Discussion meeting Young Science and Engineering Network, Groningen (NL)
05/2019	Promotor Doctor Honoris Causa Prof. EJ Baerends, Girona (ES)
09/2018	Validation workshop for 'Study on career impacts of ERC funding', Brussels (BE)
04/2018	Annual meeting EuroDoc, Tampere (FI)
04/2018	Panel member Foster Open Science (H2020), Barcelona (ES)
01/2018	Panel member ALLEA Workshop "Ethical aspects of Open Access", Brussels (BE)
10/2017	<i>Panel SAPEA Workshop, Tallinn (EE) (cancelled, family circumstances)</i>
09/2017	Panel member SAPEA Workshop, Madrid (ES)
09/2017	Panel member AE/ALLEA/YAE meeting, Budapest (HU)
04/2015	EC Workshop "A vision on Open Science in 2030", Brussels (BE)
05/2012	TEDxUdG, "I'm a Chemist....."

## 7 Research funding

I have secured ca. 10m EUR for science, outreach and equipment from Spanish and Catalan Governments, the European Union (FP7, H2020) and Industry. Currently active are:

- MCIU/AEI R&D Project "QC4All", 137.500€ + FPI (PI), 2024-2027
- Postdoc Fellowship: JdC M. Ansari, 2024-2026
- PhD Fellowships: Z. Mushtaq, 2025-2028 (FI); F. Fariha, 2025-2029 (FPI); R. Sharma, 2025-2028 (IFUdG); A. Bhaskaran, 2023-2026 (IFUdG); R. Mollfullada, 2022-2027 (FPI); F. Ahsan, 2022-2026 (FI)
- Unlimited site license ADF program package (developer, SCM), 2002-present

Furthermore, I'm official collaborator in a NSF project (I. Garcia-Bosch).

Previously funded grants include a SWAFS grant, a FetOpen grant, COST Action, Marie Curie Fellowships x2, Juan de la Cierva Fellowships x2, Europa Excelencia, *Proyectos de Excelencia I+D* (including FPI fellowships), MICINN Infrastructure grants, H2020 exchange projects (HPC-Europa3), industry grants (Repsol, Lucta), UdG grants for research and personnel, and FP7 grants (CIG, IRSES). Furthermore, I've been official collaborator in NSF and NIH grants (I. Garcia-Bosch), ERC-StG grant (A. McDonald) and BSC-RES data storage projects of collaborators.

One Beatriu de Pinós (V. Elumalai) and one FI PhD fellowship (Y. Balmohammadi) were cancelled due to personal circumstances of the candidates.

## 8 Supervision, examinations, evaluation, and promotion panels

I have engaged with different forms of supervision ranging from tutoring secondary-school scholars, to Erasmus, Bachelor, Master, PhD students and postgrads. Since 2009 I supervised more than 15 postdocs and 30 PhD, Master, undergraduate, and summer students. I frequently act as external PhD examiner in Spain and abroad, both as reading committee and tribunal member. I form(ed) part of DFG Panels, FWO Evaluation Panel for Chemistry (Flanders), LaCaixa panels for PhD and postdoc fellowships, Spanish national evaluation agency (ANEP) for postdoctoral fellowships and short-term visits of staff members. I have been member of the BSC/RES Users Committee, expert for evaluations of research proposals of AEI, ANEP, DFG, ERC, FWO, FWF, GACR, LaCaixa, MSCA, NWO, PRACE, Royal Society, SARA, SNF, and member of staff promotion committees for Austria, Czech Republic, France, Ireland, Norway, Spain, UK, and USA.

## 9 Selected administrative duties and committee work

04/2023 – present	Member of Steering Committee for Academia Europaea Barcelona Knowledge Hub
04/2018 – present	Founding Member and Vice-President <i>Grupo Especializado Química y Computación</i> (GEQC) of Spanish Chemical Society (RSEQ)
06/2023 – 12/2025	Member of the SAPEA Working Group related to the work package on 'Early and mid-career researchers' (WP6)
06/2024 – 11/2024	Member of Access Committee of BSC-CNS/RES
10/2019 – 08/2024	Member of Advisory Council of Young Academy of Europe
06/2019 – 02/2024	Member of UdG committee for Communication
04/2018 – 08/2023	Founding Member and Vice-President Quantum-Bio-Inorganic Chemistry (QBIC) Society
03/2012 – 06/2023	Member of UdG Claustre (equivalent to Senate)
09/2019 – 06/2023	Member of UdG Steering Committee for HRS4R
05/2017 – 12/2022	Member Higher Education, Research and Culture in European Societies (HERCuLES) group
01/2018 – 09/2020	Member of UdG committees for Quality Control, International Policy
03/2016 – 07/2020	Member Management Board, Catalanian Research Network XRQTC
11/2018 – 10/2019	Outgoing Chair Young Academy of Europe
04/2014 – 09/2019	Member of <i>Comité de Usuarios de la Red Española de Supercomputación</i>
03/2018 – 09/2019	External Scientific Advisory Board, Foster Plus, <a href="http://www.fosteropenscience.eu">www.fosteropenscience.eu</a>
01/2017 – 11/2018	Chair of the Young Academy of Europe (YAE) and YAE representative at Academia Europaea Board of Trustees, and at Academia Europaea Communications Group
07/2015 – 12/2017	Member of UdG University Council, UdG Committees for Research and Doctorate Studies; Personnel; International Policy

## 10 Editorial responsibilities

06/2022 – present	Collection Advisor Computational Chemistry, Open Research Europe (EC)
04/2022 – present	Community Gateway Advisor Inorganic Chemistry, ORE (EC)
05/2021 – present	Member Editorial College <i>SciPost Chemistry</i>
07/2020 – present	Editor <i>Inorganica Chimica Acta</i>
09/2015 – present	Member Editorial Board <i>Journal of Molecular Graphics and Modelling</i>
03/2014 – present	Member Editorial Board <i>Journal of the Serbian Chemical Society</i>
03/2016 – 06/2020	Member Editorial Board <i>Inorganica Chimica Acta</i>
10/2015 – 10/2016	Associate Editor <i>RSC Advances</i>
06/2013 – 12/2015	Editor first text-book on spin states, "Spin states in biochemistry and inorganic chemistry: Influence on Structure and Reactivity" (Wiley, 2015)
06/2012 – 06/2013	Guest editor special issues <i>Current Organic Chemistry</i> and <i>Current Inorganic Chemistry</i>
Reviewer activity	See: <a href="https://publons.com/a/1212468/">https://publons.com/a/1212468/</a> and <a href="http://www.bit.ly/MSwartORCID">www.bit.ly/MSwartORCID</a>

## 11 Links with industry

Since 1998 I am developer of the Amsterdam Density Functional program, maintained by SCM (Software for Chemistry & Materials, Amsterdam), with developer (unlimited) site license. Apart from SCM I had projects with industry regarding food taste receptors (Lucta) and catalysis (Repsol).

## 12 Academic leadership

Selected Conference, Seminar, and Colloquium organisation:

07/2026	Coordinator of compchem sessions at 18 <sup>th</sup> European Bioinorganic Chemistry Conference (Groningen, NL)
06/2026	"Electronic and molecular structure – methods and modelling" Symposium at 46 <sup>th</sup> International Coordination Chemistry Conference (Odense, DK)
07/2024	"Coordination Chemistry of High-Valent Oxidants" Symposium at 45 <sup>th</sup> International Coordination Chemistry Conference (Fort Collins, CO, USA)
06/2023	"Chemical Reactivity: Computational Methods and Applications" Symposium at XXXIX Reunión Bienal RSEQ (Zaragoza, ES)
05/2023	International Symposium on "Publishing in Academia: Digital Challenges", Academia Europaea and Wenner-Gren Foundations (Stockholm, SE)
04/2023	"30 years IQC(C)" (Girona, ES)
04/2018	Girona Seminar on Predictive Catalysis: Transition-Metal Reactivity by Design (gender-balanced invited speaker list); including support for Young Researchers Symposium (Girona, ES)
06/2017	"Progress in Theoretical Chemistry: Biomolecules and Materials" Symposium at XXXVI Reunión Bienal RSEQ (Sitges, ES)
07/2016	Summer Training School COST Action CM1305 (ECOSTBio) (Groningen, NL)
04/2016	Girona Seminar on Predictive Catalysis: Transition-Metal Reactivity by Design, with gender-balanced invited speaker list, (Girona, ES)
07/2015	Summer Training School COST Action CM1305 (ECOSTBio) (Groningen, NL)
06/2015	XXXI Meeting of the XRQTC Research Network (Girona, ES)
09/2012	CECAM/ESF Workshop on "Spin states in biochemistry and inorganic chemistry", highlighted in Nature Chem. 2013, 5, 7-9 (Zaragoza, ES)
06/2010 – present	Annual DFT Popularity Poll, see guest post on guest post on Nature Chemistry's Sceptical Chymist blog, <a href="https://bit.ly/5yearsDFTPoll">https://bit.ly/5yearsDFTPoll</a>

International scientific committee:

06/2026	46th International Conference on Coordination Chemistry (Odense, DK)
04/2023	2023 FrenchBIC annual meeting (Logonna-Daoulas, FR)
10/2021	HPC-Europa3 Transnational Access Meeting (Amsterdam, NL)
04/2014 – 04/2018	Chair of COST Action CM1305 (ECOSTBio); Supervision of activities and co-organization of meetings in Girona (09/2014), Marseille (01/2015), Warwick (04/2015), Belgrade (08/2015), Prague (04/2016), Brest (07/2016), Kraków (09/2016), Lisbon (03/2017), Dublin (12/2017), Berlin (04/2018)

## 13 Main collaborations

<u>Transition-metals:</u>	Wesley Browne (Groningen), Isaac Garcia-Bosch (Carnegie Mellon), Maja Gruden (Belgrade), Aidan McDonald (Trinity Dublin), Christine McKenzie (SDU Odense), Larry Que (Minnesota), Moniek Tromp (Groningen)
<u>Nanomaterials:</u>	Nicole Grobert (Oxford), Sílvia Osuna (Girona)
<u>Solid state:</u>	Pier Philipsen (SCM), Jörg Wagler (Freiberg)

#### 14 Academic accreditations for Full Professor

01/2023	Certificado I3 del Programa de Incentivación de la Incorporación e Intensificación de la Actividad Investigadora, Ministerio de Universidades
10/2021	Acreditació de Recerca Avançada de l'Àmbit de Ciències, Agència per a la Qualitat del Sistema Universitari de Catalunya

#### 15 Supervision of PhD, Master and TFG theses

PhD theses:

06/2029	Fiza Fariha – "Chiral confined spaces for applications in asymmetric catalysis and chiroptical materials"
09/2028	Zanira Mushtaq – "A computational study on chiral confined spaces in host-guest complexes"
03/2028	Rupal Sharma – "Computational design of metalloenzymes"
07/2027	Jonnely Luizaga – "QM/MM simulations for enzyme design"
04/2027	Rosa Mollfulleda – "Organometallic and oxidation chemistry, (re)design of methods and ligands"
10/2026	Athul Santha Bhaskaran – "Boron Nitride Nanomaterials and Density Functional methods"
07/2026	Faiza Ahsan – " Functionalization of inert C-H bonds by transition metal complexes: a computational chemistry study"
10/2023	Frederico Martins – "Density functional theory to the rescue of transition-metal chemistry" ( <a href="http://hdl.handle.net/10803/689726">http://hdl.handle.net/10803/689726</a> )
12/2021	Lorenzo D'Amore – "Enzymatic and bioinspired iron oxidation chemistry: a computational study" ( <a href="http://hdl.handle.net/10803/674109">http://hdl.handle.net/10803/674109</a> )
02/2021	Miguel Angel María-Solano – "Computational studies of the conformational landscape of allosteric and enantioselective enzymes" ( <a href="http://hdl.handle.net/10803/671771">http://hdl.handle.net/10803/671771</a> )
08/2020	Filip Vlahovic – "Application of methods based on Density Functional Theory, for studying electronic states of aqua- and oxo- first row transition metal complexes" ( <a href="https://www.chem.bg.ac.rs/pz/rfile.py?s=3&amp;q=2553&amp;n=disertacija.pdf">https://www.chem.bg.ac.rs/pz/rfile.py?s=3&amp;q=2553&amp;n=disertacija.pdf</a> )
12/2018	Adrià Romero-Rivera – "Computational studies of enzymatic and biomimetic catalysts" ( <a href="http://hdl.handle.net/10803/666175">http://hdl.handle.net/10803/666175</a> )
05/2018	Stepan Stepanovic – "Density functional approximations for spin state energetics in transition-metal complexes" ( <a href="http://www.chem.bg.ac.rs/vesti/1875/disertacija.pdf">http://www.chem.bg.ac.rs/vesti/1875/disertacija.pdf</a> )
11/2017	Abril Castro – "Computational study of nuclear magnetic resonance shielding constants" ( <a href="http://hdl.handle.net/10803/565597">http://hdl.handle.net/10803/565597</a> )
03/2010	Sílvia Osuna – "Theoretical studies of the exohedral reactivity of fullerene compounds" ( <a href="http://hdl.handle.net/10803/7944">http://hdl.handle.net/10803/7944</a> )
07/2009	Mireia Güell – "Theoretical studies of systems of biochemical interest containing Fe and Cu transition metals" ( <a href="http://hdl.handle.net/10803/7941">http://hdl.handle.net/10803/7941</a> )

Master theses:

- 07/2023 Jonnelly Luizaga – "Resolving the controversy between machine learning and experiment"
- 07/2022 Rosa Mollfulleda – "Mechanism of catalytic thioetherification from nickel complex with N-heterocyclic ligand"
- 07/2014 Adrià Romero-Rivera – "Mechanism of action of Salen-Manganese antioxidant complexes: The Catalase reaction to neutralize reactive oxygen species"
- 09/2008 Lluís Armangué – "Estudi teòric sobre la caracterització de Citocroms C utilitzant NMR"
- 06/2007 Sílvia Osuna – "Study of the Diels-Alder reaction on endohedral fullerenes" (*Diploma d'estudis avançats*)
- 04/2005 Tushar van der Wijst – "Proper descriptions of the interaction between stacked DNA bases and Watson-Crick base pairs using density functional theory"

TFG Final degree theses:

- 07/2024 Josep Arbusà – "Oxidation chemistry of model complexes"
- 07/2023 Dani Romero – "Reactivity of endohedral C<sub>36</sub> fullerenes"
- 07/2022 Joan Manel Maneu-Garcia – "NMR study of cyclic imino ether isomers"
- 07/2021 Jonnelly Luizaga – "DFT study of the mechanism of an aldol reaction followed by [5+1] annulation to afford tetralines"
- 07/2021 Rosa Mollfulleda – "Punts de creuament de mínima energia dels hidrurs de ferro, cobalt i níquel iònics amb metà"
- 07/2021 Soufyane El Baizi – "Palladium(II)/Lewis Acid-Catalyzed Oxidative Olefination/ Annulation of N-Methoxybenzamides: Identifying the Active Intermediates through NMR Characterizations"
- 07/2020 Nadina Fradera – "Entenent el gust Umami a nivell biomolecular"
- 07/2017 Jaume Puigdefàbregas – "Un Estudi Computacional i teòric sobre els Complexos Ferro-Oxo"
- 06/2017 Laura Timonet – "Estructura del receptor humà umami i l'optimització dels seus substrats"
- 06/2016 Eudald Gubert – "Dinàmica molecular de complexos de ferro de spin-crossover"
- 06/2013 Adrià Romero-Rivera – "Study of reactivity on endohedral fullerene C<sub>36</sub> through theoretical chemistry"

## 16 Teaching

ICREA Research Professors are not allowed to do teaching, unless the university offers an additional contract, which I had since 2018 as Associate Professor (annually renewed) until Dec. 2024. In Dec. 2024, this was transformed into a permanent part-time (10%) full professor position, in addition to my permanent ICREA position.

Courses taught (yearly between 3 and 3.5 credits):

- Open Science for Researchers (Grad School, 1.0 credits)
  - 2025-present
- Open Science (Grad School, 0.5 credits)
  - 2018-2024
- Biomolecular design (4<sup>th</sup> year Chemistry/Biotechnology degrees, 2 credits)
  - 2018-present
- Science Communication (MSc course MACMoM, 0.5 credits)
  - 2018-2019; 2019-2020; 2020-2021
- Density Functional Theory principles and applications (summer school ECOSTBio COST Action)
  - 2016, Groningen; 2017, Groningen
- Density Functional Theory and ADF (International Intensive Course of European Master in Theoretical Chemistry and Computational Modelling)
  - 2013, Madrid; 2015, Groningen

Additionally, I organized ADF workshops at CESCO Supercomputing Center Barcelona (2008), QUITEL conference Riviera Maya, México (2011) and contributed to SurfSara workshops (2021, 2022) with a course on multi-level QM/MM and QM/QM methods. In January 2026 I organized a one-month mini-course on “Use of Python in chemistry” for my research group.

## Additional appointment

Starting in Spring 2026 I will be appointed Honorary Full Professor at the Zernike Institute for Advanced Materials of the University of Groningen. This appointment will be focused on teaching Theoretical Chemistry in BSc, MSc and PhD courses.

## Papers

DOIs, #OpenAccess and #OpenData: [www.marcelswart.eu/publ/](http://www.marcelswart.eu/publ/)

- [185] P.M. Crossland, B. Chandra, S. Banerjee, C. Abelson, Y. Guo, M. Swart\* and L. Que\*  
"Mimicking sMOMH Chemistry: Trapping the Sc<sup>3+</sup>-bound Nonheme Fe<sup>III</sup>-O-O-Fe<sup>III</sup> Adduct Prior to Its Conversion into an Fe<sup>IV</sup>(μ-O)<sub>2</sub> Core"  
*Chem. Sci.* **2025**, *16*, 19608-19613 [+back-cover]
- [184] D.R. Duijnste, M. Di Berto Mancini, C.M. de Roo, D. Unjaroen, M. Tromp, R. Hage, W.R. Browne\* and M. Swart\*  
"Ligand Driven Heterolytic O-O Bond Cleavage in a non-haem Phenolato-Fe(III)-OOH Complex to Yield a Formal Fe(V)=O intermediate"  
*Dalton Trans.* **2025**, *54*, 14566-14577
- [183] A. Inchausti, R. Mollfulleda, M. Swart, J. Perles, S. Herrero, V.G. Baonza, M. Taravillo and A. Lobato\*  
"Chemical tuning of the electronic structure in diruthenium compounds"  
*J. Phys. Chem. Lett.* **2025**, *16*, 10000-10008
- [182] P.-Y. Lee, B.M. Maciejewska, M.J. Cross, C.M. van Beek, C.N. Brodie, A.S. Bhaskaran, G.T. Tebbutt, R.M. Schofield, S.J. Page, E. Darnbrough, M. Swart, A.S. Weller\* and N. Grobert\*  
"A straightforward route to hexagonal-boron nitride fibers"  
*Adv. Compos. Hybrid Mater.* **2025**, *8*, 392
- [181] B. Chandra, C. Li, M. Ansari, J. Xiong, A. Lovstedt, Y. Guo, M. Swart\* and L. Que\*  
"Million-Fold Activation of C-H Bonds by Fluorinated Non-heme Fe<sup>IV</sup>=O Complexes via Second Sphere Equatorial Substitution and Catalytic Epoxidation to Boot"  
*ACS Catal.* **2025**, *15*, 17361-17372 [+supplementary cover]
- [180] A. Santha Bhaskaran, S. Osuna\* and M. Swart\*  
"Computational exploration of Xe dimers inside fullerene cages"  
*J. Phys. Chem. A* **2025**, *129*, 7609-7616
- [179] O.R. Kelly, B. Twamley, M. Swart and A.R. McDonald\*  
"Electrostatic Fields Induce Accelerated Proton Coupled Electron Transfer Rates in Chlorophyll Model Compounds"  
*J. Am. Chem. Soc.* **2025**, *147*, 29399-29412
- [178] F. Ahsan, M. Ansari, J.E.M.N. Klein and M. Swart\*  
"Characterization of σ and π Reaction Channels in Hydrogen Atom Transfer Reactions"  
*J. Inorg. Biochem.* **2025**, *272*, 112989
- [177] D. Hebert, A. Puri, D. Ye, A. McAninch, A. Chisholm, M. Siegler, M. Swart\* and I. Garcia-Bosch\*  
"Synthesis and Characterization of Copper Complexes Featuring a Redox-Active ONO Ligand in Three Molecular Oxidation States"  
*Inorg. Chem.* **2025**, *64*, 11204-11218
- [176] M. Swart\* and I. Garcia-Bosch\*  
"Characterization of Three Intermediates in an Unusual Copper-Dependent Enzyme"  
*ACS Cent. Sci.* **2025**, *11*, 656-658
- [175] J. Chen, A.S. Sardjan, C.M. De Roo, M. Di Berto Mancini, A. Draksharapu, D. Angelone, R. Hage, M. Swart\* and W.R. Browne\*  
"Generation of [(N4Py)Fe(IV)=O]<sup>2+</sup> through Heterolytic O-O Bond Cleavage in [(N4Py)Fe(II)(OOH)]<sup>+</sup>"  
*Inorg. Chem.* **2025**, *64*, 9408-9417
- [174] M. Di Berto Mancini,\* C.M. De Roo, A.S. Sardjan, R. Hage, G. Olivo, O. Lanzalunga, M. Swart and W.R. Browne\*  
"A transient highly reactive Fe(IV)=O species revealed through the interference by O<sub>2</sub> in the activation of organic peracids by [(N4Py)Fe(II)]<sup>2+</sup>"  
*ACS Catal.* **2025**, *15*, 7482-7495
- [173] E.J. Baerends,\* N.F. Aguirre, N.D. Austin, J. Autschbach, F.M. Bickelhaupt, R. Bulo, C. Cappelli, A.C.T. van Duin, F. Egidi, C. Fonseca Guerra, A. Förster, M. Franchini, F.T.P.M. Goumans, T. Heine, M. Hellström, C.R. Jacob, L. Jensen, M. Krykunov, E. van Lenthe, A. Michalak, M.M. Mitoraj, J. Neugebauer, V.P. Nicu, P. Philipsen, H. Ramanantoanina, R. Rüger, G. Schreckenbach, M. Stener, M. Swart, J.M. Thijssen, T. Trnka, L. Visscher, A. Yakovlev, and S.J.A. van Gisbergen\*  
"The Amsterdam Modeling Suite"  
*J. Chem. Phys.* **2025**, *162*, 162501
- [172] G.J. Linker, M. Swart\* and P.Th. van Duijnen  
"Atomic radii derived from the expectation value ⟨r<sup>4</sup>⟩"  
*Int. J. Quant. Chem.* **2025**, *46*, e70032 [+cover]
- [171] N. Pal, J. Xiong, M. Jahja, S. Mahri, V.G. Young, Y. Guo,\* M. Swart,\* L. Que\*  
"A 5000-fold Increase in the HAT Reactivity of a Nonheme Fe<sup>IV</sup>=O Complex Simply by Replacing Two Pyridines of N4Py Ligand with Pyrazoles"  
*Proc. Natl. Acad. Sci. USA* **2025**, *122*, e241496212
- [170] E. O'Sullivan, N. Grobert, M. Swart\*  
"Density Functional Theory Investigation of 2D Phase Separated Graphene / Hexagonal Boron Nitride Monolayers; Bandgap, Band Edge Positions and Photo-Activity"  
*J. Phys. Chem. C* **2025**, *129*, 638-647 [+supporting cover]
- [169] A. Das, N. Pal, J. Xiong, V.G. Young, Y. Guo,\* M. Swart,\* L. Que\*  
"10-Fold Increase in Hydrogen Atom Transfer Reactivity for a Series of S = 1 Fe<sup>IV</sup>=O Complexes Over the S = 2 [(TQA)Fe<sup>IV</sup>=O]<sup>2+</sup> Complex via Entropic Lowering of Reaction Barriers by Secondary Sphere Cycloalkyl Substitution"  
*J. Am. Chem. Soc.* **2025**, *147*, 292-304
- [168] L. Pagès, G. Kurpik, R. Mollfulleda, R. Abed Ali Abdine, A. Walczak, F. Monnier, M. Swart,\* A.R. Stefankiewicz,\* M. Taillefer\*  
"Copper-Catalysed Synthesis of (E)-Allylic Organophosphorus Derivatives: A Low Toxic, Mild, Economical, and Ligand-Free Method"  
*ChemSusChem* **2025**, *17*, e202401450
- [167] D. Ye, T. Wu, A. Puri, D. Hebert, M. Siegler, M. Hendrich,\* M. Swart,\* I. Garcia-Bosch\*  
"Enhanced PCET Reactivity by a Mononuclear Nickel(II)-Hydroxide Radical Complex"  
*Inorg. Chem.* **2024**, *63*, 24453-24465
- [166] S. Goswami, K. Gill, X. Yin, M. Swart,\* I. Garcia-Bosch\*  
"Cu-promoted ipso-hydroxylation of sp<sup>2</sup> bonds with concomitant aromatic 1,2-rearrangement involving a Cu-oxyl-hydroxo species"  
*Inorg. Chem.* **2024**, *63*, 20675-20688

- [165] D. Unjaroen, D.R. Duijnste, M. Di Berto Mancini, J. Chen, R. Hage, M. Swart,\* W.R. Browne\*  
"Role of Non-Redox Innocent Ligand Units in the Oxidation of Alcohols with H<sub>2</sub>O<sub>2</sub> Catalyzed by  $\mu$ -Oxido-diiron(III) bis-Phenolato Polypyridyl Complexes"  
*J. Inorg. Biochem.* **2024**, *260*, 112698
- [164] A. Santha Bhaskaran, D. Romero del Blanco, A. Romero-Rivera, S. Osuna,\* M. Swart\*  
"Exohedral Diels-Alder Reactivity of Endohedral Metallofullerene C<sub>36</sub>"  
*Chem. Eur. J.* **2024**, *30*, e202401568 [+cover]
- [163] M. Swart,\* M. Reimann  
"A benchmark study of dioxygen complexes based on coupled cluster and density functional theory"  
*SciPost Chem.* **2024**, *3*, 001
- [162] T. Wu, A. Puri, Y.L. Qiu, D. Ye, R. Sarma, Y. Wang, T. Kowalewski, M. Siegler, M. Swart,\* I. Garcia-Bosch\*  
"Tuning the Thermochemistry and Reactivity of a Series of Cu-based 4H<sup>+</sup>/4e<sup>-</sup> Electron-Coupled-Proton Buffers"  
*Inorg. Chem.* **2024**, *63*, 9014-9025
- [161] M. Jirasek, A. Sharma, J.R. Bame, S.H.M. Mehr, N. Bell, S.M. Marshall, C. Mathis, A. MacLeod, G.J.T. Cooper, M. Swart, R. Mollfullada, L. Cronin\*  
"Investigating and Quantifying Molecular Complexity Using Assembly Theory and Spectroscopy"  
*ACS Cent. Sci.* **2024**, *10*, 1054-1064
- [160] A. Inchausti, R. Mollfullada, M. Swart, J. Perles, S. Herrero, V.G. Baonza, M. Taravillo, A. Lobato\*  
"Torsion effects beyond the  $\delta$  bond and the role of  $\pi$  metal-ligand interactions"  
*Adv. Sci.* **2024**, *11*, 2401293
- [159] B. Chandra, F. Ahsan, Y. Sheng, M. Swart,\* L. Que, Jr.\*  
"A Tale of Two Topological Isomers: Uptuning [Fe<sup>2+</sup>(O)(Me<sub>4</sub>cyclam)]<sup>2+</sup> for Olefin Epoxidation"  
*Proc. Natl. Acad. Sci. USA* **2024**, *121*, e2319799121
- [158] C.M. de Roo, A.S. Sardjan, R. Postmus, M. Swart, R. Hage,\* W.R. Browne\*  
"Reaction of (N4Py)Fe with H<sub>2</sub>O<sub>2</sub> and the relevance of its Fe(IV)=O species during and after H<sub>2</sub>O<sub>2</sub> disproportionation"  
*ChemCatChem* **2024**, *16*, e202301594
- [157] A. Puri, A. McAninch, S. Shu, K. Rajabimoghadam, M.A. Siegler, M. Swart,\* I. Garcia-Bosch\*  
"Geometric Control of Cu, Ni and Pd Complexes in the Solid State via Intramolecular H-Bonding Interactions"  
*Inorg. Chim. Acta* **2024**, *561*, 121844
- [156] R. Kumar, F. Ahsan, A. Awasthi, M. Swart,\* A. Draksharapu\*  
"Generation of Ru(III)-hypochlorite with resemblance to heme dependent haloperoxidase enzyme"  
*Dalton Trans.* **2023**, *52*, 12552-12559
- [155] E. Jaimes-Romano, H. Valdés,\* S. Hernández-Ortega, R. Mollfullada, M. Swart,\* D. Morales-Morales\*  
"C-S Couplings Catalyzed by Ni(II) Complexes of the Type [(NHC)Ni(Cp)(Br)]"  
*J. Catal.* **2023**, *426*, 247-256
- [154] .F. Martins and M. Swart\*  
"Electronic properties and redox chemistry of N confused metalloporphyrins"  
*J. Porphyr. Phthalocya.* **2023**, *27*, 1320-1329
- [153] E. Díaz-Cervantes, J. Robles, M. Solà and M. Swart\*  
"The peptide bond rupture mechanism in the serine proteases: an in silico sequential scale models study"  
*Phys. Chem. Chem. Phys.* **2023**, *25*, 8043-8049
- [152] M. Bhadra\*, T. Albert, A. Franke, V. Josef, I. Ivanović-Burmazović, M. Swart, P. Moënné-Loccoz\*, K. Karlin\*  
"Reductive Coupling of Nitric Oxide by Cu(I): Stepwise Formation of Mono and Dinitrosyl Species en route to a Cupric Hyponitrite Intermediate"  
*J. Am. Chem. Soc.* **2023**, *145*, 2230-2242
- [151] T. Wu, K. Rajabimoghadam, A. Puri, D.D. Hebert, Y.L. Qiu, S. Eichelberger, M.A. Siegler, M. Swart\*, M.P. Hendrich\* and I. Garcia-Bosch\*  
"A 4H<sup>+</sup>/4e<sup>-</sup> Electron-Coupled-Proton Buffer Based on a Mononuclear Cu Complex"  
*J. Am. Chem. Soc.* **2022**, *144*, 16905-16915
- [150] C. Souilah, S.A.V. Jannuzzi, D. Demirbas, S. Ivlev, M. Swart, S. DeBeer and A. Casitas\*  
"Synthesis of Fe(III) and Fe(IV) Cyanide Complexes Using Hypervalent Iodine Reagents as Cyano-Transfer One-Electron Oxidants"  
*Angew. Chem. Int. Ed.* **2022**, *61*, e202201699
- [149] A. Brinkmeier, K.E. Dalle, L. D'Amore, R.A. Schulz, S. Dechert, S. Demeshko, M. Swart\*, and F. Meyer\*  
"Modulation of a  $\mu$ -1,2-Peroxo Dicopper(II) Intermediate by Strong Interaction with Alkali Metal Ions"  
*J. Am. Chem. Soc.* **2021**, *143*, 17751-17760
- [148] K. Warm, I. Monte Pérez, U. Kuhlmann, P. Hildebrandt, E. Farquhar, M. Swart\*, and K. Ray\*  
"Stable, but still reactive - investigations on the effects of Lewis acid binding on copper nitrene intermediates"  
*Z. Anorg. Allg. Chem.* **2021**, *647*, 1495-1502
- [147] K. Warm, A. Paskin, U. Kuhlmann, E. Bill, M. Swart, M. Haumann, H. Dau, P. Hildebrandt and K. Ray\*  
"A Pseudotetrahedral Terminal Oxidation(IV) Complex: Mechanistic Promiscuity in C-H bond Oxidation Reactions"  
*Angew. Chem. Int. Ed.* **2021**, *60*, 6752-6756
- [146] P. Vermeeren, T. Hansen, P. Jansen, M. Swart, T.A. Hamlin\*, and F.M. Bickelhaupt\*  
"A Unified Framework for Understanding Nucleophilicity and Protophilicity in the Sn<sub>2</sub>/E2 Competition"  
*Chem. Eur. J.* **2020**, *26*, 15538-15548 [+cover]
- [145] L. D'Amore, L. Belpassi, J.E.M.N. Klein and M. Swart\*  
"Spin-Resolved Charge Displacement Analysis as Intuitive Tool for the Evaluation of cPCET and HAT Scenarios"  
*Chem. Commun.* **2020**, *56*, 12146-12149
- [144] M. Swart\*  
"Bond orders in metalloporphyrins"  
*Theor. Chem. Acc.* **2020**, *139*, 160
- [143] O.A. Stasyuk\*, M. Solà, M. Swart, C. Fonseca Guerra, T.M. Krygowski, H. Szatyłowicz\*  
"Effect of alkali metal cations on length and strength of hydrogen bonds in DNA base pairs"  
*ChemPhysChem* **2020**, *21*, 2112-2126

- [142] E. Apra, E.J. Bylaska, W.A. De Jong, N. Govind, K. Kowalski\*, T.P. Straatsma, M. Valiev, H.J.J. van Dam, Y. Alexeev, J.L. Anshell, V. Anisimov, F. Aquino, R. Atta-Fynn, J. Autschbach, N.P. Bauman, J.C. Becca, D.E. Bernholdt, K. Bhaskaran-Nair, S. Bogatko, P. Borowski, J. Boschen, J. Brabec, A. Bruner, E. Cauet, Y. Chen, G.N. Chuev, C. Cramer, J. Daily, M.J.O. Deegan, T.H. Dunning, M. Dupuis, K.G. Dyall, G. Fann, S.A. Fischer, A. Fonari, H. Fruchtl, L. Gagliardi, J. Garza, N. Gawande, S. Ghosh, K. Glaesemann, A.W. Goetz, J. Hammond, V. Helms, E.D. Hermes, K. Hirao, S. Hirata, M. Jacquelin, L. Jensen, B.G. Johnson, H. Jonsson, R.A. Kendall, M. Klemm, R. Kobayashi, V. Konkov, S. Krishnamoorthy, M. Krishnan, Z. Lin, R.D. Lins, R.J. Littlefield, A.J. Logsdail, K. Lopata, W. Ma, A.V. Marenich, J.M. del Campo, D. Mejia-Rodriguez, J.E. Moore, J.M. Mullin, T. Nakajima, D.R. Nascimento, J.A. Nichols, P.J. Nichols, J. Nieplocha, A. Otero-de-la-Roza, B.J. Palmer, A. Panyala, T. Pirojsirikul, B. Peng, R. Peverati, J. Pittner, L. Pollack, R.M. Richard, P. Sadayappan, G.C. Schatz, W.A. Shelton, D. William Silverstein, D.M. Smith, T.A. Soares, D. Song, M. Swart, H.L. Taylor, G. Thomas, V. Tipparaju, D.G. Truhlar, K. Tsemekman, T. Van Voorhis, A. Vazquez-Mayagoitia, P. Verma, O. Villa, A. Vishnu, K. Vogiatzis, D. Wang, J. Weare, M.J. Williamson, T. Windus, K. Wolinski, A.T. Wong, Q. Wu, C. Yang, Q. Yu, M. Zacharias, Z. Zhang, Y. Zhao, R. Harrison  
"NWChem: Past, Present, and Future"  
*J. Chem. Phys.* **2020**, *152*, 184102
- [141] M. Bortoli, M. Bruschi, M. Swart\*, and L. Orian\*  
"Sequential oxidations of phenylchalcogenides by H<sub>2</sub>O<sub>2</sub>: insights in the redox behavior of selenium from a DFT analysis"  
*New J. Chem.* **2020**, *44*, 6724-6731
- [140] D. Kass, T. Corona, K. Warm, B. Braun-Cula, U. Kuhlmann, E. Bill, S. Mebs, M. Swart, H. Dau, M. Haumann, P. Hildebrandt, and K. Ray\*  
"Stoichiometric formation of an oxoiron(IV) complex by a soluble methane monooxygenase type activation of O<sub>2</sub> at an iron(II)-cyclam centre"  
*J. Am. Chem. Soc.* **2020**, *142*, 5924-5928
- [139] S. Banerjee, A. Draksharapu, P.M. Crossland, R. Fan, Y. Guo\*, M. Swart\*, and L. Que, Jr.\*  
"Sc<sup>3+</sup>-promoted O-O bond cleavage of a (μ-1,2-peroxo)diiron(III) species formed from an iron(II) precursor and O<sub>2</sub> to generate a complex with an Fe<sup>IV</sup>(μ-O)<sub>2</sub> core"  
*J. Am. Chem. Soc.* **2020**, *142*, 4285-4297
- [138] A.C. Castro, A. Romero-Rivera, S. Osuna, K.N. Houk, and M. Swart\*  
"Computational NMR spectra of o-benzyne and stable guests and their hemicarceplexes"  
*Chem. Eur. J.* **2020**, *26*, 2626-2634 [+cover]
- [137] F. Vlahovic, M. Gruden, S. Stepanovic, and M. Swart\*  
"Density functional approximations for consistent spin and oxidation states of oxoiron complexes"  
*Int. J. Quant. Chem.* **2020**, *120*, e26121 [+cover]
- [136] J.D. Steen, S. Stepanovic, M. Parvzian, J.W. de Boer, R. Hage, J. Chen, M. Swart, M. Gruden\*, and W.R. Browne\*  
"Lewis vs Brønsted Acid Activation of a Mn(IV) Catalyst for Alkene Oxidation"  
*Inorg. Chem.* **2019**, *58*, 14294-14930
- [135] R. Trammell, L. D'Amore, A. Cordova, P. Polunin, N. Xie, M.A. Siegler, P. Belanzoni, M. Swart\*, and I. Garcia-Bosch\*  
"Directed Hydroxylation of sp<sup>2</sup> and sp<sup>3</sup> C-H Bonds Using Stoichiometric Amounts of Cu and H<sub>2</sub>O<sub>2</sub>"  
*Inorg. Chem.* **2019**, *58*, 7584-7592
- [134] A.C. Castro, H. Fliegl, M. Cascella, T. Helgaker, M. Repisky, S. Komorovsky, M.A. Medrano, A. Gomez Quiroga, and M. Swart\*  
"Four-Component Relativistic <sup>31</sup>P NMR Calculations for trans Platinum(II) Complexes: Importance of the Solvent and Dynamics in Spectral Simulations"  
*Dalton Trans.* **2019**, *48*, 8076-8083 [+back-cover]
- [133] S. Stepanovic, M. Zlatar, M. Swart and M. Gruden\*  
"The irony of manganocene - an interplay between the Jahn-Teller effect and close lying electronic and spin states"  
*J. Chem. Inf. Model.* **2019**, *59*, 1806-1810 [+supporting cover]
- [132] X. Engelmann, D.D. Malik, T. Corona, K. Warm, E.R. Farquhar, M. Swart, W. Nam\*, and K. Ray\*  
"Trapping of a Highly Reactive Oxoiron(IV) Complex in the Catalytic Epoxidation of Olefins by Hydrogen Peroxide"  
*Angew. Chem. Int. Ed.* **2019**, *58*, 4012-4016
- [131] K. Rajabimoghadam, Y. Darwish, U. Bashir, D. Pitman, S. Eichelberger, M. Siegler, M. Swart\*, I. Garcia-Bosch\*  
"Catalytic Aerobic Oxidation of Alcohols by Copper Complexes Bearing Redox-Active Ligands with Tunable H-bonding Groups"  
*J. Am. Chem. Soc.* **2018**, *140*, 16625-16634
- [130] J. Chen, A. Draksharapu, D. Angelone, D. Unjaroen, S.K. Padamati, R. Hage, M. Swart, C. Duboc, W.R. Browne\*  
"H<sub>2</sub>O<sub>2</sub> Oxidation by Fe<sup>III</sup>-OOH Intermediates and its Impact on Catalytic Efficiency"  
*ACS Catal.* **2018**, *8*, 9665-9674
- [129] T. Hamlin, M. Swart\*, and F.M. Bickelhaupt\*  
"Nucleophilic Substitution (S<sub>N</sub>2): Dependence on Nucleophile, Leaving Group, Central Atom, Substituents, and Solvent"  
*ChemPhysChem* **2018**, *19*, 1315-1330 [+cover]
- [128] D.F. Dourado, M. Swart and A.T. Pires Carvalho\*  
"Why the flavin dinucleotide cofactor needs to be covalently linked to Complex II of the electron transport chain for conversion of FADH<sub>2</sub> to FAD"  
*Chem. Eur. J.* **2018**, *24*, 5246-5252
- [127] F. Vlahovic, M. Gruden and M. Swart\*  
"Rotating iron and titanium sandwich complexes"  
*Chem. Eur. J.* **2018**, *24*, 5070-5073
- [126] M.L. Merlini, G.J.P. Britovsek, M. Swart\*, and P. Belanzoni\*  
"Understanding the catalase-like activity of a bio-inspired manganese(II) complex with a pentadentate NSNSN ligand framework. A computational insight into the mechanism"  
*ACS Catal.* **2018**, *8*, 2944-2958
- [125] P. Pirovano, A.R. Berry, M. Swart and A.R. McDonald\*  
"Indirect evidence for a Ni<sup>III</sup>-oxyl oxidant in the reaction of a Ni<sup>II</sup> complex with peracid"  
*Dalton Trans.* **2018**, *47*, 246-250
- [124] I. Monte Pérez, X. Engelmann, Y.-M. Lee, M. Yoo, K. Elumalai, E.R. Farquhar, E. Bill, J. England, W. Nam\*, M. Swart\*, and K. Ray\*  
"A Highly Reactive Oxoiron(IV) Complex Supported by a Bioinspired N<sub>3</sub>O Macrocylic Ligand"  
*Angew. Chem. Int. Ed.* **2017**, *56*, 14384-14388 [+frontispiece]
- [123] S. Stepanovic, D. Angelone, M. Gruden\*, and M. Swart\*  
"The role of spin states in the catalytic mechanism of the intra- and extradiol cleavage of catechols by O<sub>2</sub>"  
*Org. Biomol. Chem.* **2017**, *15*, 7860-7868

- [122] S.K. Padamati, D. Angelone, A. Draksharapu, G. Primi, D.J. Martin, M. Tromp, M. Swart\*, and W.R. Browne\*  
"Transient Formation and Reactivity of a High Valent Nickel(IV) Oxido Complex"  
*J. Am. Chem. Soc.* **2017**, *139*, 8718-8724
- [121] A.C. Castro, M. Swart and C. Fonseca Guerra\*  
"Influence of Substituents and Environment on NMR Shielding Constants of Supramolecular Complexes based on A-T and A-U Base Pairs"  
*Phys. Chem. Chem. Phys.* **2017**, *19*, 13496-13502 [+back-cover]
- [120] D. Unjaroen, M. Swart and W.R. Browne\*  
"Electrochemical Polymerization of Iron(III) Polypyridyl Complexes through C-C Coupling of Redox Non-Innocent Phenolato Ligands"  
*Inorg. Chem.* **2017**, *56*, 470-479
- [119] M. Swart\* and M. Gruden  
"Spinning around in transition-metal chemistry"  
*Acc. Chem. Res.* **2016**, *49*, 2690-2697
- [118] P. Pirovano, E. Farquhar, M. Swart, and A.R. McDonald\*  
"Tuning the reactivity of terminal nickel(III)-oxygen adducts for C-H bond activation"  
*J. Am. Chem. Soc.* **2016**, *138*, 14362-14370
- [117] E.A. Hill, A.C. Weitz, E. Onderko, A. Romero-Rivera, Y. Guo\*, M. Swart\*, E.L. Bominaar\*, M.T. Green\*, M.P. Hendrich\*, D.C. Lacy\*, and A.S. Borovik\*  
"Reactivity of an Fe<sup>IV</sup>-Oxo Complex with Protons and Oxidants"  
*J. Am. Chem. Soc.* **2016**, *138*, 13143-13146
- [116] J. Adhikary, A. Chakraborty, S. Dasgupta, S.K. Chattopadhyay, R. Kruszynski, A. Trzesowska-Kruszynska, S. Stepanovic, M. Gruden-Pavlovic, M. Swart, and D. Das\*  
"Unique mononuclear Mn<sup>II</sup> complexes of end-off compartmental Schiff base ligand: experimental and theoretical study on their bio-relevant catalytic promiscuity"  
*Dalton Trans.* **2016**, *45*, 12409-12422
- [115] M. Gruden, S. Stepanovic, and M. Swart\*  
"Spin state relaxation of iron complexes: The case for OPBE and S12g"  
*J. Serb. Chem. Soc.* **2015**, *80*, 1399-1410
- [114] B. Cobeljic, A. Pevec, S. Stepanovic, V. Spasojevic, M. Milenkovic, I. Turel, M. Swart, M. Gruden-Pavlovic, K. Adaila and K. Andelkovic\*  
"Experimental and theoretical investigation of octahedral and square-planar isothiocyanato complexes of Ni(II) with acylhydrazones of 2-(diphenylphosphino)benzaldehyde"  
*Polyhedron* **2015**, *89*, 271-279
- [113] P. Pirovano, E. Farquhar, M. Swart, A.J. Fitzpatrick, G.G. Morgan and A.R. McDonald\*  
"Characterization and Reactivity of a Terminal Nickel(III)-Oxygen Adduct"  
*Chem. Eur. J.* **2015**, *21*, 3785-3790
- [112] M. Swart\* and P.Th. van Duijnen\*  
"Rapid determination of polarizability exaltation in fullerene-based nanostructures"  
*J. Mater. Chem. C* **2015**, *3*, 23-25
- [111] K. Adaila, M. Milenkovic, A. Bacchi, G. Cantoni, M. Swart, M. Gruden-Pavlovic, M. Milenkovic, B. Cobeljic, T. Todorovic and K. Andelkovic\*  
"Synthesis, characterization, DFT calculations and antimicrobial activity of Pd(II) and Co(III) complexes with condensation derivative of 2-(diphenylphosphino)benzaldehyde and Girard's T reagent"  
*J. Coord. Chem.* **2014**, *67*, 3633-3648
- [110] M. Milenkovic, A. Pevec, I. Turel, M. Vujcic, M. Milenkovic, K. Jovanovic, N. Gligorijevic, S. Radulovic, M. Swart, M. Gruden-Pavlovic, B. Cobeljic and K. Andelkovic\*  
"Synthesis, characterization, DFT calculation and biological activity of square-planar Ni(II) complexes with tridentate PNO ligands and monodentate pseudohalogenides. Part II"  
*Eur. J. Med. Chem.* **2014**, *87*, 284-297
- [109] Y. Horbatenko, J.P. Perez, P. Hernández, M. Swart\*, and M. Solà\*  
"Reaction Mechanisms of the Hydrolysis of Mono- and Dipropylene Oxide to 1,2-Propanediol over ZSM-5 Zeolite"  
*J. Phys. Chem. C* **2014**, *118*, 21952-21962
- [108] P. Chakraborty, J. Adhikary, S. Samanta, D. Escudero, A.C. Castro, M. Swart, S. Ghosh, A. Bauza, A. Frontera\*, E. Zangrando\*, and D. Das\*  
"A Combined Experimental and Theoretical Investigation on Ligand and Anion Controlled Complex Formation with Unprecedented Structural Features and Photoluminescence Property of Zinc(II) Complexes"  
*Cryst. Growth Des.* **2014**, *14*, 4111-4123
- [107] M. Gruden-Pavlovic\*, S. Stepanovic, M. Peric, M. Güell and M. Swart\*  
"Density functional study of the spin state energetics of polypyrazolylborato complexes of first-row transition metals"  
*Phys. Chem. Chem. Phys.* **2014**, *16*, 14514-14522
- [106] M. Garcia-Borràs, S. Osuna\*, J.M. Luis\*, M. Swart and M. Solà\*  
"The role of aromaticity in determining the molecular structure and reactivity of (endohedral metallo)fullerenes"  
*Chem. Soc. Rev.* **2014**, *43*, 5089-5105
- [105] J. Poater, M. Swart, F.M. Bickelhaupt and C. Fonseca Guerra\*  
"B-DNA Structure and Stability: The Role of Hydrogen Bonding,  $\pi$ - $\pi$  Stacking Interactions, Twist-Angle, and Solvation"  
*Org. Biomol. Chem.* **2014**, *12*, 4691-4700
- [104] A.C. Castro, E. Osorio, J.L. Cabellos, E. Cerpa, E. Matito, M. Solà, M. Swart\*, and G. Merino\*  
"Exploring the Potential Energy Surface of E<sub>2</sub>P<sub>4</sub> clusters (E = Group 13 Element): The quest of inverse carbon-free sandwiches"  
*Chem. Eur. J.* **2014**, *20*, 4583-4590 [+cover]
- [103] N. Gorczak, M. Swart and F.C. Grozema\*  
"Energetics of charges in organic semiconductors and at organic donor-acceptor interfaces"  
*J. Mater. Chem. C* **2014**, *2*, 3467-3475
- [102] A.T.P. Carvalho and M. Swart\*  
"Electronic structure investigation and parameterization of biologically relevant iron-sulfur clusters"  
*J. Chem. Inf. Model.* **2014**, *54*, 613-620

- [101] L. Orian\*, M. Swart and F.M. Bickelhaupt\*  
"Indenyl Effect Due to Metal Slippage? In Silico Exploration of Rhodium-Catalyzed Acetylene [2+2+2] Cyclotrimerization"  
*ChemPhysChem* **2014**, *15*, 219-228
- [100] S. Stepanovic, L. Andjelkovic, M. Zlatar, K. Andjelkovic, M. Gruden-Pavlovic\*, and M. Swart\*  
"Role of Spin-State and Ligand-Charge in Coordination Patterns in Complexes of 2,6-Diacetylpyridinebis(semioxamazine) with 3d-Block Metal Ions: A Density Functional Theory Study"  
*Inorg. Chem.* **2013**, *52*, 13415-13423
- [99] M. Garcia-Borràs, S. Osuna, J.M. Luis\*, M. Swart\*, and M. Solà\*  
"A Complete Guide on the Influence of Metal Clusters in the Diels-Alder Regioselectivity of  $I_h$ - $C_{80}$  Endohedral Metallofullerenes"  
*Chem. Eur. J.* **2013**, *19*, 14931-14940
- [98] E. Díaz-Cervantes, J. Poater\*, J. Robles, M. Swart and M. Solà\*  
"Unraveling the origin of the relative stabilities of group 14  $M_2N_2^{2+}$  (M, N = C, Si, and Ge) isomer clusters"  
*J. Phys. Chem. A* **2013**, *117*, 10462-10469
- [97] M. Garcia-Borràs, S. Osuna, M. Swart, J.M. Luis, L. Echegoyen and M. Solà\*  
"Aromaticity as Driving Force for the Stability of non-IPR Endohedral Metallofullerene Bingel-Hirsch Adducts"  
*Chem. Commun.* **2013**, *49*, 8767-8769
- [96] M. Garcia-Borràs, S. Osuna, M. Swart, J.M. Luis\*, and M. Solà\*  
"Maximum aromaticity as guiding principle for the most suitable hosting cages in endohedral metallofullerenes"  
*Angew. Chem. Int. Ed.* **2013**, *125*, 9445-9448 [+back-cover]
- [95] Ll. Armangué, M. Solà and M. Swart\*  
"Nuclear magnetic resonance shieldings of water clusters: Is it possible to reach the complete basis set limit by extrapolation?"  
*Mol. Phys.* **2013**, *111*, 1332-1344
- [94] M. Swart\*  
"A new family of hybrid density functionals"  
*Chem. Phys. Lett.* **2013**, *580*, 166-171
- [93] M. Swart\* and F.M. Bickelhaupt  
"Benchmark Study on the Smallest Bimolecular Nucleophilic Substitution Reaction:  $H^- + CH_4 \rightarrow CH_4 + H^-$ "  
*Molecules* **2013**, *18*, 7726-7728
- [92] M. Swart\*  
"A change in oxidation state of iron: scandium is not innocent"  
*Chem. Commun.* **2013**, *49*, 6650-6652 (see Que, Münck, et al.: [www.dx.doi.org/10.1021/jacs.5b00535](http://www.dx.doi.org/10.1021/jacs.5b00535))
- [91] M.P. Johansson\* and M. Swart\*  
"Intramolecular Halogen-Halogen Bonds"  
*Phys. Chem. Chem. Phys.* **2013**, *15*, 11543-11553
- [90] B. Cobeljic, A. Pevec, I. Turel, M. Swart, D. Mitic, M. Milenkovic, I. Markovic, M. Jovanovic, D. Sladic, M. Jeremic and K. Andelkovic\*  
"Synthesis, characterization, DFT calculations and biological activity of derivatives of 3-acetylpyridine and the zinc(II) complex with the condensation product of 3-acetylpyridine and semicarbazide"  
*Inorg. Chim. Acta* **2013**, *404*, 5-12
- [89] M. Zlatar, M. Gruden-Pavlovic\*, M. Güell and M. Swart\*  
"Computational study of the spin-state energies and UV-VIS spectra of bis(1,4,7-triazacyclononane) complexes of some first-row transition metal cations"  
*Phys. Chem. Chem. Phys.* **2013**, *15*, 6631-6639
- [88] M. Garcia-Borràs, J.M. Luis\*, M. Swart\*, and M. Solà\*  
"Diels-Alder and Retro-Diels-Alder Cycloaddition of (1,2,3,4,5-Pentamethyl)Cyclopentadiene to  $La@C_{2v}-C_{82}$ : Regioselectivity and Product Stability"  
*Chem. Eur. J.* **2013**, *19*, 4468-4479
- [87] C. Garcia-Simón, M. Garcia-Borràs, L. Gómez, I. Garcia-Bosch, S. Osuna, M. Swart, J.M. Luis, C. Rovira, M. Almeida, I. Imaz, D. Maspocho, M. Costas\*, and X. Ribas\*  
"Self-assembled tetragonal prismatic molecular cage highly selective for anionic  $\pi$ -guests"  
*Chem. Eur. J.* **2013**, *19*, 1445-1456
- [86] M. Garcia-Borràs, S. Osuna, M. Swart, J.M. Luis and M. Solà\*  
"Electrochemical control of the regioselectivity in the exohedral functionalization of  $C_{60}$ . The role of aromaticity"  
*Chem. Commun.* **2013**, *49*, 1220-1222
- [85] M. Swart\*  
"Spin states of (bio)inorganic systems: successes and pitfalls"  
*Int. J. Quant. Chem.* **2013**, *113*, 2-7 [+cover]
- [84] A.C. Castro, M.P. Johansson, G. Merino and M. Swart\*  
"Chemical bonding in supermolecular flowers"  
*Phys. Chem. Chem. Phys.* **2012**, *14*, 14905-14910
- [83] J. Poater, M. Swart, C. Fonseca Guerra and F.M. Bickelhaupt\*  
"Solvent Effects on Hydrogen Bonds in Watson-Crick, Mismatched, and Modified DNA Base Pairs"  
*Comp. Theor. Chem.* **2012**, *998*, 57-63
- [82] J. Poater, M. Swart and M. Solà\*  
"An Assessment of the Validity of the Maximum Hardness Principle in Chemical Reactions"  
*J. Mex. Chem. Soc.* **2012**, *56*, 311-315
- [81] J.M. Fonville, M. Swart, Z. Vokacova, V. Sychrovsky, J.E. Sponer, J. Sponer, C.W. Hilbers, F.M. Bickelhaupt\* and S.S. Wijmenga\*  
"Chemical Shifts in Nucleic Acids studied with Density Functional Theory Calculations and Comparison with Experiment"  
*Chem. Eur. J.* **2012**, *18*, 12372-12387
- [80] M. Swart\* and M.P. Johansson  
"Density Functional Study on UV-Vis Spectra of Copper-Protein Active Sites: the Effect of Mutations"  
*Chem. Biodivers.* **2012**, *9*, 1728-1738

- [79] S. Osuna, R. Valencia, A. Rodríguez-Fortea\*, M. Swart\*, M. Solà\* and J.M. Poblet\*  
 "Full Exploration of the Diels-Alder Cycloaddition on Metallofullerenes  $M_3N@C_{80}$  (M = Sc, Lu, Gd):  $D_{5h}$  vs  $I_h$  Isomer, and Influence of the Metal Cluster"  
*Chem. Eur. J.* **2012**, *18*, 8944-8956 (VIP article) [+cover]
- [78] M. Garcia-Borràs, S. Osuna, J.M. Luis\*, M. Swart\*, and M. Solà\*  
 "The Exohedral Diels-Alder Reactivity of the Titanium Carbide Endohedral Metallofullerene  $Ti_2C_2@D_{3h}-C_{78}$ . Comparison with  $D_{3h}-C_{78}$  and  $M_3N@D_{3h}-C_{78}$  (M = Sc and Y) Reactivity"  
*Chem. Eur. J.* **2012**, *18*, 7141-7154
- [77] M. Garcia-Borràs, A. Romero-Rivera, S. Osuna, J.M. Luis\*, M. Swart\*, and M. Solà\*  
 "The Frozen Cage Model: a computationally low-cost tool for predicting the exohedral regioselectivity of cycloaddition reactions involving endohedral metallofullerenes"  
*J. Chem. Theory Comput.* **2012**, *8*, 1671-1683
- [76] A. Domingo\*, A. Rodríguez-Fortea, M. Swart, C. de Graaf\* and R. Broer  
 "Ab-initio absorption spectrum of NiO combining molecular dynamics with the embedded cluster approach in a discrete reaction field"  
*Phys. Rev. B* **2012**, *85*, 155143
- [75] S. Osuna, A. Rodríguez-Fortea, J.M. Poblet, M. Solà\* and M. Swart\*  
 "Product Formation in the Prato Reaction on  $Sc_3N@D_{3h}-C_{80}$ : Preference for [5,6]-Bonds, and not Pyracenylic Bonds"  
*Chem. Commun.* **2012**, *48*, 2486-2488 [+cover]
- [74] M.P. Johansson\* and M. Swart\*  
 "Subtle effects control the polymerisation mechanism in  $\alpha$ -diimine iron catalysts"  
*Dalton Trans.* **2011**, *40*, 8419-8428
- [73] E. Roura\*, B. Humphrey, K. Klasing and M. Swart  
 "Is the pig a good umami sensing model for humans? A comparative taste receptor study"  
*Flavour Frag. J.* **2011**, *26*, 282-285
- [72] J. Poater, M. Swart, C. Fonseca Guerra and F.M. Bickelhaupt\*  
 "Selectivity in DNA replication. Interplay of steric shape, hydrogen bonds,  $\pi$ -stacking and solvent effects"  
*Chem. Commun.* **2011**, *47*, 7326-7328
- [71] M. Swart\*, M. Güell and M. Solà  
 "A multi-scale approach to spin crossover in Fe(II) compounds"  
*Phys. Chem. Chem. Phys.* **2011**, *13*, 10449-10456
- [70] S. Osuna, M. Swart\*, and M. Solà\*  
 "Dispersion Corrections Essential for the Study of Chemical Reactivity in Fullerenes"  
*J. Phys. Chem. A* **2011**, *115*, 3491-3496
- [69] M. Swart\* and P.Th. van Duijnen  
 "Atomic radii in molecules for use in a polarizable force field"  
*Int. J. Quant. Chem.* **2011**, *111*, 1763-1772
- [68] M. Swart\*, M. Solà and F.M. Bickelhaupt  
 "Inter- and intramolecular dispersion energy"  
*J. Comput. Chem.* **2011**, *32*, 1117-1127
- [67] Ll. Armangué, M. Solà and M. Swart\*  
 "Nuclear shieldings with the SSB-D functional"  
*J. Phys. Chem. A* **2011**, *115*, 1250-1256
- [66] S. Osuna, M. Swart\*, and M. Solà\*  
 "The reactivity of endohedral fullerenes. What can be learnt from computational studies?"  
*Phys. Chem. Chem. Phys.* **2011**, *13*, 3585-3603 [+cover]
- [65] M. Swart\*  
 "The minimum polarizability principle for spin states"  
*J. Comp. Meth. Sci. Engin.* **2010**, *10*, 609-614
- [64] P.Th. van Duijnen\* and M. Swart  
 "On the 'Atomic' Polarizabilities in Small  $Si_n$  Clusters and the dielectric constant of 'bulk' silicon."  
*J. Phys. Chem. C* **2010**, *114*, 20547-20555
- [63] M.P. Johansson\* and M. Swart\*  
 "Magnetizabilities at self-interaction corrected density functional theory level"  
*J. Chem. Theory Comput.* **2010**, *6*, 3302-3311
- [62] M. Swart, M. Solà and F.M. Bickelhaupt\*  
 "Density Functional Calculations of E2 and  $S_N2$  Reactions: Effects of the Choice of Method, Algorithm and Numerical Accuracy"  
*J. Chem. Theory Comput.* **2010**, *6*, 3145-3152
- [61] M. Swart\*, M. Güell, J.M. Luis and M. Solà  
 "Spin-state corrected Gaussian-type orbital basis sets"  
*J. Phys. Chem. A* **2010**, *114*, 7191-7197
- [60] T. van der Wijst, B. Lippert\*, M. Swart, C. Fonseca Guerra and F.M. Bickelhaupt\*  
 "Differential stabilization of adenine quartets ( $A_4$ ) by anions and cations"  
*J. Biol. Inorg. Chem.* **2010**, *15*, 387-397
- [59] S. Osuna, M. Swart\*, and M. Solà\*  
 "On the mechanism of action of fullerene derivatives for superoxide dismutation"  
*Chem. Eur. J.* **2010**, *16*, 3207-3214
- [58] C. Fonseca Guerra\*, T. van der Wijst, J. Poater, M. Swart and F.M. Bickelhaupt\*  
 "Adenine versus Guanine Quartets in Aqueous Solution. Dispersion-Corrected DFT Study on the Differences in  $\pi$ -Stacking and Hydrogen-Bonding Behavior"  
*Theor. Chem. Acc.* **2010**, *125*, 245-252
- [57] M. Güell, M. Solà and M. Swart\*  
 "Spin-state splittings of iron(II) complexes with trispyrazolyl ligands"  
*Polyhedron* **2010**, *29*, 84-93

- [56] S. Osuna, M. Swart\*, and M. Solà\*  
"Reactivity and regioselectivity of noble gas endohedral fullerenes Ng@C<sub>60</sub> and Ng<sub>2</sub>@C<sub>60</sub> (Ng = He-Xe)"  
*Chem. Eur. J.* **2009**, *15*, 13111-13123
- [55] S. Osuna, M. Swart, E.J. Baerends, F.M. Bickelhaupt\* and M. Solà\*  
"Homolytic versus Heterolytic Dissociation of Alkalimetal Halides. The Effect of Microsolvation"  
*ChemPhysChem* **2009**, *10*, 2955-2965
- [54] M. Swart\*, M. Solà and F.M. Bickelhaupt  
"A new all-round DFT functional based on spin states and S<sub>N</sub>2 barriers"  
*J. Chem. Phys.* **2009**, *131*, 094103
- [53] M. Swart\*, M. Solà and F.M. Bickelhaupt  
"Switching between OPTX and PBE exchange functionals"  
*J. Comp. Meth. Sci. Engin.* **2009**, *9*, 69-77
- [52] F. Feixas, M. Solà and M. Swart\*  
"Chemical bonding and aromaticity in metalloporphyrins"  
*Can. J. Chem.* **2009**, *87*, 1063-1073
- [51] T. van der Wijst, C. Fonseca Guerra, M. Swart, F.M. Bickelhaupt\* and B. Lippert\*  
"Ditopic ion-pair receptors based on stacked nucleobase quartets"  
*Angew. Chem. Int. Ed.* **2009**, *48*, 3285-3287
- [50] A.T.P. Carvalho, P.A. Fernandes, M. Swart, J.N.P. van Stralen, F.M. Bickelhaupt\* and M.J. Ramos\*  
"Role of the variable active site residues in the function of thioredoxin family oxidoreductases"  
*J. Comput. Chem.* **2009**, *30*, 710-724
- [49] S. Osuna, M. Swart\*, and M. Solà\*  
"The Diels-Alder reaction on endohedral Y<sub>3</sub>NgC<sub>78</sub>: The importance of the fullerene strain energy"  
*J. Am. Chem. Soc.* **2009**, *131*, 129-139
- [48] M.A. van Bochove, M. Swart and F.M. Bickelhaupt\*  
"Stepwise Walden Inversion in Nucleophilic Substitution at Phosphorus"  
*Phys. Chem. Chem. Phys.* **2009**, *11*, 259-267
- [47] T. van der Wijst, C. Fonseca Guerra, M. Swart, F.M. Bickelhaupt\* and B. Lippert\*  
"Rare Tautomers of 1-Methyluracil and 1-Methylthymine: Tuning Relative Stabilities through Coordination to Pt<sup>II</sup> Complexes"  
*Chem. Eur. J.* **2009**, *15*, 209-218
- [46] M. Swart\*  
"Accurate spin-state energies for iron complexes"  
*J. Chem. Theory Comp.* **2008**, *4*, 2057-2066
- [45] M. Güell, J.M. Luis, M. Solà and M. Swart\*  
"Importance of the basis set for the spin-state energetics of iron complexes"  
*J. Phys. Chem. A* **2008**, *112*, 6384-6391
- [44] S. Osuna, M. Swart\*, J.M. Campanera, J.M. Poblet and M. Solà\*  
"Chemical Reactivity of D<sub>3h</sub> C<sub>78</sub> (Metallo)Fullerene: Regioselectivity Changes Induced by Sc<sub>3</sub>N Encapsulation"  
*J. Am. Chem. Soc.* **2008**, *130*, 6206-6214
- [43] M. Swart\* and F.M. Bickelhaupt\*  
"QUILD: QUantum-regions Interconnected by Local Descriptions"  
*J. Comput. Chem.* **2008**, *29*, 724-734
- [42] A.T.P. Carvalho, M. Swart, J.N.P. van Stralen, P.A. Fernandez, M.J. Ramos\* and F.M. Bickelhaupt\*  
"Mechanism of Thioredoxin-Catalyzed Disulfide Reduction. Activation of the Buried Thiol and Role of the Variable Active-Site Residues"  
*J. Phys. Chem. B* **2008**, *112*, 2511-2523
- [41] M.A. van Bochove, M. Swart and F.M. Bickelhaupt\*  
"Nucleophilic Substitution at Phosphorus Centers (S<sub>N</sub>2@P)"  
*ChemPhysChem* **2007**, *8*, 2452-2463
- [40] M. Swart, T. van der Wijst, C. Fonseca Guerra and F.M. Bickelhaupt\*  
"π-π stacking tackled with Density Functional Theory"  
*J. Mol. Model.* **2007**, *13*, 1245-1257
- [39] M. Swart, E. Rösler and F.M. Bickelhaupt\*  
"Proton Affinities in Water of Maingroup-Element Hydrides. Effects of Hydration and Methyl Substitution"  
*Eur. J. Inorg. Chem.* **2007**, 3646-3654
- [38] M. Swart, M. Solà and F.M. Bickelhaupt\*  
"Energy landscapes of nucleophilic substitution (S<sub>N</sub>2) reactions: A comparison of density functional theory and coupled cluster methods"  
*J. Comput. Chem.* **2007**, *28*, 1551-1560
- [37] M. Remko\*, M. Swart, and F.M. Bickelhaupt  
"Conformational behavior of basic monomeric building units of glycosaminoglycans: isolated systems and solvent effect"  
*J. Phys. Chem. B* **2007**, *111*, 2313-2321
- [36] M. Swart\*  
"Metal-ligand bonding in metallocenes: differentiation between spin state, electrostatic and covalent bonding"  
*Inorg. Chim. Acta* **2007**, *360*, 179-189
- [35] M.A. van Bochove, M. Swart and F.M. Bickelhaupt\*  
"Nucleophilic substitution at phosphorus (S<sub>N</sub>2@P): Disappearance and reappearance of reaction barriers"  
*J. Am. Chem. Soc.* **2006**, *128*, 10738-10744
- [34] M. Swart\* and P.Th. van Duijnen  
"DRF90: a Polarizable Force Field"  
*Molec. Simul.* **2006**, *32*, 471-484
- [33] T. van der Wijst, C. Fonseca Guerra, M. Swart and F.M. Bickelhaupt\*  
"Performance of various density functionals for the hydrogen bonds in DNA base pairs"  
*Chem. Phys. Lett.* **2006**, *426*, 415-421

- [32] M. Swart, E. Rösler and F.M. Bickelhaupt\*  
"Proton Affinities of Maingroup-Element Hydrides and Noble Gases: Trends Across the Periodic Table, Structural Effects and DFT Validation"  
*J. Comput. Chem.* **2006**, *27*, 1486-1493
- [31] L. Jensen\*, M. Swart, P.Th. van Duijnen, and J. Autschbach\*  
"The circular dichroism spectrum of [Co(en)<sub>3</sub>]<sup>3+</sup> in water: A Discrete Solvent Reaction Field study"  
*Int. J. Quant. Chem.* **2006**, *106*, 2479-2488
- [30] M. Swart\* and F.M. Bickelhaupt  
"Optimization of strong and weak coordinates"  
*Int. J. Quant. Chem.* **2006**, *106*, 2536-2544
- [29] M. Swart and F.M. Bickelhaupt\*  
"Proton Affinities of Anionic Bases: Trends Across the Periodic Table, Structural Effects, and DFT Validation"  
*J. Chem. Theory Comp.* **2006**, *2*, 281-287
- [28] M. Remko\*, M. Swart and F.M. Bickelhaupt  
"Theoretical study of structure, pKa, lipophilicity, solubility, absorption and polar surface area of some centrally acting antihypertensives"  
*Bioorg. Med. Chem.* **2006**, *14*, 1715-1728
- [27] M.L. McKee\* and M. Swart  
"Study of Hg<sub>2</sub><sup>2+</sup> and Complexes of NpO<sub>2</sub><sup>+</sup> and UO<sub>2</sub><sup>2+</sup> in Solution. Examples of Cation-Cation Interactions"  
*Inorg. Chem.* **2005**, *44*, 6975-6982
- [26] F.C. Grozema\*, M. Swart, R.W.J. Zijlstra, J.J. Piet, L.D.A. Siebbeles and P.Th. van Duijnen  
"QM/MM study of the role of the solvent in the formation of the charge separated excited state in 9,9'-bianthryl"  
*J. Am. Chem. Soc.* **2005**, *127*, 11019-11028
- [25] R.S. Bon, B. van Vliet, N.E. Sprenkels, R.F. Schmitz, F.J.J. de Kanter, C.V. Stevens, M. Swart, F.M. Bickelhaupt, M.B. Groen and R.V.A. Orru\*  
"Multicomponent synthesis of 2-imidazolines"  
*J. Org. Chem.* **2005**, *70*, 3542-3553
- [24] A.R. Groenhof, M. Swart, A.W. Ehlers and K. Lammertsma\*  
"The electronic ground states of iron porphyrin and of the first species in the catalytic reaction cycle of cytochrome P450s"  
*J. Phys. Chem. A* **2005**, *109*, 3411-3417
- [23] M. Swart\*, A.R. Groenhof, A.W. Ehlers and K. Lammertsma\*  
"Substrate binding in the active site of cytochrome P450cam"  
*Chem. Phys. Lett.* **2005**, *403*, 35-41
- [22] M. van den Bosch, M. Swart, J.G. Snijders, H.J.C. Berendsen, A.E. Mark, C. Oostenbrink, W.F. van Gunsteren and G.W. Canters\*  
"Calculation of the redox potential of the protein azurin and some mutants"  
*ChemBioChem* **2005**, *6*, 738-746
- [21] L. Jensen\*, M. Swart and P.Th. van Duijnen  
"Microscopic and macroscopic polarization within a combined quantum mechanics and molecular mechanics model"  
*J. Chem. Phys.* **2005**, *122*, 034103
- [20] M. Swart, C. Fonseca Guerra and F.M. Bickelhaupt\*  
"Hydrogen bonds of RNA are stronger than those of DNA, but NMR monitors only presence of methyl substituents in uracil/thymine"  
*J. Am. Chem. Soc.* **2004**, *126*, 16718-16719
- [19] M. van den Bosch, M. Swart, W.F. van Gunsteren and G.W. Canters\*  
"Simulation of the substrate cavity dynamics of quercetinase"  
*J. Mol. Biol.* **2004**, *344*, 725-738
- [18] M. Swart, A.W. Ehlers and K. Lammertsma\*  
"Performance of the OPBE exchange-correlation functional"  
*Mol. Phys.* **2004**, *102*, 2467-2474
- [17] M. Swart, A.R. Groenhof, A.W. Ehlers and K. Lammertsma\*  
"Validation of exchange-correlation functionals for spin states of iron-complexes"  
*J. Phys. Chem. A* **2004**, *108*, 5479-5483
- [16] B. Rizzuti, M. Swart, L. Sportelli and R. Guzzi\*  
"Active site modeling in copper azurin molecular dynamics simulations"  
*J. Molec. Model.* **2004**, *10*, 25-31
- [15] M. Swart\*, J.G. Snijders and P.Th. van Duijnen  
"Polarizabilities of amino acid residues"  
*J. Comp. Meth. Sci. Engin.* **2004**, *4*, 419-425
- [14] M. Swart\* and J.G. Snijders  
"Accuracy of geometries: Influence of basis set, exchange-correlation potential, inclusion of core electrons, and relativistic corrections"  
*Theor. Chem. Acc.* **2003**, *110*, 34-41
- [13] M. Remko\*, P.Th. van Duijnen and M. Swart  
"Theoretical study of molecular structure, tautomerism, and geometrical isomerism of N-methyl and N-phenyl substituted cyclic imidazolines, oxazolines and thiazolines"  
*Struct. Chem.* **2003**, *14*, 271-278
- [12] M. Swart\*  
"AddRemove: A new link model for use in QM/MM studies"  
*Int. J. Quant. Chem.* **2003**, *91*, 177-183
- [11] F.C. Grozema\*, L. Candeias, M. Swart, P.Th. van Duijnen, J. Wildeman, G. Hadziioanou, L.D.A. Siebbeles and J.M. Warman  
"Theoretical and experimental studies of the opto-electronic properties of positively charged oligo(phenylene vinylene)s. Effects of chain length and alkoxy substitution"  
*J. Chem. Phys.* **2002**, *117*, 11366-11378

- [10] P.Th. van Duijnen\*, A.H. de Vries, M. Swart and F.C. Grozema  
 "Polarizabilities in the condensed phase and the local fields problem. A Direct Reaction Field formulation"  
*J. Chem. Phys.* **2002**, *117*, 8442-8453
- [9] L. Jensen\*, M. Swart, P.Th. van Duijnen and J.G. Snijders  
 "Medium perturbations on the molecular polarizability calculated within a localized dipole interaction model"  
*J. Chem. Phys.* **2002**, *117*, 3316-3320
- [8] T. l.C. Jansen, M. Swart, L. Jensen, P.Th. van Duijnen, J.G. Snijders\* and K. Duppen\*  
 "Collision effects in the nonlinear Raman response of liquid carbon disulfide"  
*J. Chem. Phys.* **2002**, *116*, 3277-3285
- [7] R.W.J. Zijlstra, F.C. Grozema, M. Swart, B.L. Feringa and P.Th. van Duijnen\*  
 "Solvent induced charge separation in the excited states of symmetrical ethylene: A Direct Reaction Field study"  
*J. Phys. Chem. A* **2001**, *105*, 3583-3590
- [6] M. Swart\*, P.Th. van Duijnen and J.G. Snijders  
 "A charge analysis derived from an atomic multipole expansion"  
*J. Comput. Chem.* **2001**, *22*, 79-88
- [5] F.C. Grozema, R.W.J. Zijlstra, M. Swart and P.Th. van Duijnen\*  
 "On the Iodine-Benzene charge-transfer complex: Potential energy surface and transition probabilities studied at several levels of theory"  
*Int. J. Quant. Chem.* **1999**, *75*, 709-723
- [4] P.Th. van Duijnen\*, F.C. Grozema and M. Swart  
 "Some applications of the Direct Reaction Field approach"  
*J. Mol. Str. (THEOCHEM)* **1999**, *464*, 193-200
- [3] M. Swart\*, P.Th. van Duijnen and J.G. Snijders  
 "Mean polarizabilities of organic molecules. A comparison of Restricted Hartree Fock, Density Functional Theory and Direct Reaction Field results"  
*J. Mol. Str. (THEOCHEM)* **1999**, *458*, 11-17
- [2] P.Th. van Duijnen\* and M. Swart  
 "Molecular and atomic polarizabilities: Thole's model Revisited"  
*J. Phys. Chem. A* **1998**, *102*, 2399-2407
- [1] A.H. de Vries\*, P.Th. van Duijnen, R.W.J. Zijlstra and M. Swart  
 "Thole's interacting polarizability model in computational chemistry practice"  
*J. EL. Spectr. Rel. Phen.* **1997**, *86*, 49-56

## Books

M. Swart and M. Costas (Eds.)  
Spin states in biochemistry and inorganic chemistry: Influence on Structure and Reactivity, Wiley, 2015  
[www.marcelswart.eu/books/](http://www.marcelswart.eu/books/)

M. Swart  
"Density Functional Theory Applied To Copper Proteins"  
PhD-thesis, 2002, September 10, Rijksuniversiteit Groningen  
[www.marcelswart.eu/phd](http://www.marcelswart.eu/phd)

## Book chapters

M. Swart\*  
"Quantum-mechanics approaches in bioinorganic chemistry: targeting the oxidation state"  
In "Advances in Computational Bioinorganics: From Description to Prediction", J.D. Marechal (Ed.), Wiley, 2026; *in press*

A.C. Castro and M. Swart\*  
"Recent advances in computational NMR spectrum prediction"  
In "Computational Techniques for Analytical Chemistry and Bioanalysis", P.B. Wilson, M. Grootveld (Eds.), Royal Society of Chemistry, 2021; Ch. 2, p. 41-68

M. Swart\*  
"Dealing with spin states in computational organometallic catalysis"  
In "New Directions in the Modeling of Organometallic Reactions", A. Lledos, G. Ujaque (Eds.), Springer, 2020; (Topics in Organometallic Chemistry Vol. 67); p. 191-226

M. Gruden\*, W.R. Browne\*, M. Swart\*, C. Duboc\*  
"Computational vs. experimental spectroscopy for transition-metals"  
In "Transition metals in coordination environments: computational chemistry and catalysis viewpoints", E. Broclawik, T. Borowski, M. Radon (Eds.), Springer, 2019; Ch. 6, 161-183

C. Daul\*, M. Zlatar, M. Gruden-Pavlovic and M. Swart  
"Application of Density Functional and Density Functional Based Ligand Field Theory to Spin States"  
In "Spin states in biochemistry and inorganic chemistry: Influence on Structure and Reactivity", M. Swart, M. Costas (Eds.), Wiley, 2015; Ch. 2, 7-34

M. Garcia-Borràs\*, S. Osuna, J.M. Luis, M. Swart and M. Solà  
"Understanding the Exohedral Functionalization of Endohedral Metallofullerenes"  
In "Exotic Properties of Carbon Nanomatter", M.V. Putz, O. Ori (Eds.), Springer Verlag, Berlin-London-New York, 2015, Ch. 4, p. 67-99

S. Osuna\*, M. Swart and M. Solà\*  
"The Chemical Reactivity of Fullerenes and Endohedral Fullerenes: A Theoretical Perspective"  
Book chapter in "Carbon Bonding and Structures: Advances in Physics and Chemistry", Putz M.V. (Editor), Springer Verlag, Berlin-London-New York, 2011, ISBN: 978-94-007-1732-9, Ch. 4, pp. 57-78

M. Swart\*, M. Güell and M. Solà  
"Accurate description of spin states and its implications for catalysis"  
Book chapter in "Quantum Biochemistry: Electronic structure and biological activity"; Matta, C.F. (Ed.); Wiley, 2010, Vol. 2, Ch. 19, p. 551-583

M. Swart\*, M. Solà and F.M. Bickelhaupt  
"Constraining optimized exchange"  
Book chapter in "Handbook of Computational Chemistry Research"; C.T. Collett, C.D. Robson (Ed.); Nova Science, 2010, p. 97-125

P. Th. van Duijnen\*, M. Swart and L. Jensen  
"The Discrete Reaction Field approach for calculating solvent effects"  
Book chapter in "Solvation effects on molecules and biomolecules: Computational methods and applications", Springer series "Challenges and Advances in Computational Chemistry and Physics", Ed. S. Canuto, 2008, p. 39-102

P.Th. van Duijnen\*, M. Swart and F.C. Grozema  
"QM/MM calculation of (hyper-)polarizabilities with the Direct Reaction Field approach"  
ACS Symposium Series, 1999, 712, 220-232

## Popular science/dissemination articles

A. Kubas, R. Bjornsson, M. Swart  
"Introduction to Quantum bio-inorganic chemistry"  
*Phys. Chem. Chem. Phys.* 2025, 27, 18819-18820

F.F. Martins\* and M. Swart  
"Ferramentas Computacionais para o Estudo de Ativação C-H com Catalisadores Biomiméticos"  
*Química, Boletim da Sociedade Portuguesa de Química* 2022, 46, 64-69

M. Swart\*, S. Osuna, M. Garcia-Borràs, J.M. Luis and M. Solà\*  
"Regioselectividad en fullerenos, una visión computacional"  
*An. Quím* 2013, 109, 11-19

M. Swart\*, M. Solà, S. Osuna and J. Poater  
"Metales, disolventes, proteínas: la importancia del entorno químico"  
*LifeSciencesLab* 2009, 5, 50-53