

RESUME

May-2023

1. PERSONAL DETAILS

Full Name: **Charlotte Vogt**
Identity No: 890912660
Date of birth: 28/9/1991
Place of birth: Utrecht
Marital status: single
Phone numbers: 0524510446
E-mail: c.vogt@technion.ac.il
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2. ACADEMIC DEGREES

2020 PhD (cum laude), Faculty of Chemistry, Utrecht University, Netherlands
2015 MSc (cum laude), Faculty of Chemistry, Utrecht University, Netherlands
2013 BSc, Faculty of Chemistry, Utrecht University, Netherlands

3. ACADEMIC APPOINTMENTS

2021 - Present Assistant Professor, Faculty of Chemistry, Technion-Israel Institute of Technology, Haifa, Israel
2020 - 2021 Postdoctoral fellow, Faculty of Chemistry, Hebrew University of Jerusalem and Weizmann Institute of Science, Rehovot, Israel
2019 - 2020 Visiting Fellow, Faculty of Chemistry, Weizmann Institute of Science, Rehovot, Israel

4. PROFESSIONAL EXPERIENCE (OUTSIDE ACADEMIA)

2015 - 2015 Investor relations intern, Albemarle
2015 - 2017 Market analysis and consulting, Freelance

2014 - 2015 Young council member, Rabobank

5. RESEARCH INTERESTS (BRIEFLY)

- Catalysis
- Operando spectroscopy
- Nanotechnology/nanoparticles
- Energy transition

6. TEACHING EXPERIENCE

2016 - 2019	Catalysis, Teacher, 3rd year Bachelor course, Utrecht University
2017 - 2019	Biophysics, Instructor, 1st year Bachelor course, Utrecht University
2021 - Present	Technologies for Clean Energy, Lecturer, International Course, Technion-Israel Institute of Technology, Haifa
2022 - Present	General Chemistry Laboratory, Coordinator, Undergraduate lab course, Technion-Israel Institute of Technology, Haifa
2022 - Present	Heterogeneous Catalysis, Lecturer, Graduate course, Technion-Israel Institute of Technology, Haifa
2022 - Present	Introduction to Research in Chemistry, Coordinator, Undergraduate course, Technion-Israel Institute of Technology, Haifa

7. ACTIVITIES

2022 - Present	Executive Committee Catalysis Center
2023 - Present	Executive Committee Sustainability Frontier

8. DEPARTMENTAL ACTIVITIES

2022 - Present	Chemistry Faculty Representative - Interdepartmental Committee for Biotechnology, Technion-Israel Institute of Technology, Haifa
2022 - Present	Chemistry Faculty Representative - Biotechnology and Food Engineering, Technion-Israel Institute of Technology, Haifa

9. PUBLIC PROFESSIONAL ACTIVITIES

2019 - Present	Reviewer, Journal of Catalysis
2020 - Present	Reviewer, ACS Catalysis
2021 - Present	Reviewer, Nature Catalysis
2021 - Present	Reviewer, Nature Communications
2023 - Present	Early Career Editorial Board, Chemical Reviews

2023 - Present Early Career Editorial Board, Journal of Catalysis

2023 - Present Editorial Board, Catalysis Today

10. MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Member of the Royal Dutch Chemical Society
- Member of the American Chemical Society
- Member and Alumnus of the Netherlands Institute for Catalysis Research
- Member of the Israel Chemical Society

11. FELLOWSHIPS, AWARDS AND HONORS

2018 Best Lecture Award, Materials, Characterization, Catalysis conference, ETH Zurich

2019 Fellowship, VATAT Fellowship "for outstanding international students", Weizmann Institute of Science, Rehovot

2019 Outstanding Female Scientist prize, Israel Vacuum Society and Intel, Israel Vacuum Society and Intel

2020 Fellowship, Niels Stensen Fellow "for outstanding young scientists with exceptional social commitment", Stichting Benevolentia

2021 'Forbes 30 under 30', Europe, Forbes

2022 Clara Immerwahr Award, Berlin University Alliance, UniSysCat

2022 Henri Gutwirth Research Prize, Technion, Technion-Israel Institute of Technology, Haifa

2023 "Talented 12", Chemical and Engineering News, American Chemical Society

2023 Beilby Medal and Prize, Institute of Materials, Minerals and Mining (IOM3), the Royal Society of Chemistry, and the Society of Chemical Industry

12. GRADUATE STUDENTS

Completed PhD theses

Completed MSc Theses

2018 Ellen Sterk, Density functional theory and microkinetic modelling of structure sensitivity in carbon dioxide hydrogenation over nickel, (**Charlotte Vogt** Co-Supervisor with Bert Weckhuysen)

2019 Jelle Kranenborg, Structure sensitivity in steam and dry methane reforming, (**Charlotte Vogt** Co-Supervisor with Bert Weckhuysen)

PhD Theses in Progress

- 2025 Daniel Sinausia , Unravelling Cu nanoparticle size effects in electrocatalytic CO₂ reduction ,(Charlotte Vogt)
- 2025 Rutvija Dange , Support effects in plasmacatalytic ammonia synthesis ,(Charlotte Vogt)
- 2026 Noam Zyser , The effect of solvation in catalysis ,(Charlotte Vogt)
- 2026 Tal Rosner , Operando spectroscopic investigations of the Haber Bosch process ,(Charlotte Vogt)

MSc Theses in Progress

- 2023 Artiom Nesterenko , The active mechanistic pathway in the ammonia oxidation reaction over Pt/Ir catalysts ,(Charlotte Vogt)
- 2023 Deepraj Verma , Fe nanoparticles in electrocatalytic ammonia synthesis ,(Charlotte Vogt)
- 2023 Elias Haddas , Spectroscopy of polyoxometallate catalysts at work ,(Charlotte Vogt)
- 2024 Asaf Licht , Catalytic depolymerization pathways ,(Charlotte Vogt)
- 2024 Or Mayraz , Electrocatalytic precipitation of CaCO₃ ,(Charlotte Vogt)

13. SPONSORED LONG-TERM VISITORS AND POST-DOCTORAL ASSOCIATES

Dr. Pankaj Prajapati

14. RESEARCH GRANTS

Competitive

- 2022 - 2022 German Israeli Fund, Unravelling Nanoparticle Size Effects in CO₂ Electroreduction over Copper by Potential-Modulated Spectroscopy, 25000 EUR, Charlotte Vogt (PI)

Industrial and other sources

- 2022 - 2023 T-Start - Israel Innovation Authority, Scaling Up Highly Active Nanoengineered Solid Oxide Electrolyzer and Fuel Cell Electrodes, 100000, USD, Charlotte Vogt (PI)
- 2022 - 2025 Ministry of Energy, Innovative Ammonia Electrode Materials for Large Scale Energy Storage and Fuel Cells, 596200, NIS, Charlotte Vogt (PI)

15. PUBLICATIONS

15.1 Theses

Charlotte Vogt (2020) "Structure Sensitivity in Catalysis" Bert M. Weckhuysen, Utrecht University

15.2 Refereed papers in professional journals

Combined operando UV/Vis/IR spectroscopy reveals the role of methoxy and aromatic species during the methanol-to-olefins reaction over H-SAPO-34

Qingyun Qian, **Charlotte Vogt**, Mohamed Mokhtar, Abdullah M. Asiri, Javier Ruiz-Martinez and Bert M. Weckhuysen

ChemCatChem, 2014, 6, 3396-3408.

doi.org/10.1002/cctc.201402714

The effect of feedstock and catalyst impurities on the methanol-to-olefin reaction over H-SAPO-34 molecular sieves

Charlotte Vogt, Bert M. Weckhuysen, Javier Ruiz-Martínez

ChemCatChem, 2016, 9, 183-194

doi.org/10.1002/cctc.201600860

Unravelling structure sensitivity in CO₂ hydrogenation over nickel

Charlotte Vogt, Esther Groeneveld, Gerda Kamsma, Maarten Nachtegaal, Li Lu, Christopher J. Kiely, Peter H. Berben, Florian Meirer, Bert M. Weckhuysen

Nature Catalysis, 2018, 1, 127-134.

doi.org/10.1038/s41929-017-0016-y

- "Highly cited paper"

The renaissance of the Sabatier reaction and its applications on Earth and in space

Charlotte Vogt, Matteo Monai, Gert Jan Kramer and Bert M. Weckhuysen

Nature Catalysis, 2019, 2, 188-197.

doi.org/10.1038/s41929-019-0244-4

- "Highly cited paper"

Capturing the genesis of an active Fischer–Tropsch synthesis catalyst with operando X-ray nanospectroscopy

Ilse K. van Ravenhorst \$, **Charlotte Vogt** \$, Koen Bossers, José G. Moya-Cancino, David Vine, Frank M. F. de Groot, Florian Meirer and Bert M. Weckhuysen

\$Authors contributed equally to the work

Angewandte Chemie International Edition 2018, 57, 11957-11962.

doi.org/10.1002/anie.201806354

- “Hot paper”

Understanding carbon dioxide activation and carbon-carbon coupling over nickel

Charlotte Vogt, Matteo Monai, Ellen B. Sterk, Jonas Palle, Bart Zijlstra, Esther Groeneveld, Peter H. Berben, Jelle Boereboom, Emiel J. M. Hensen, Florian Meirer, Ivo A. W. Filot, Bert M. Weckhuysen

Nature Communications, 2019, 10, 5330.

doi.org/10.1038/s41467-019-12858-3

- Selected as “1 of the 50 most influential papers in the field of Chemistry and Materials Science”

Stable niobia-supported nickel catalysts for the hydrogenation of carbon monoxide to hydrocarbons

Carlos Hernández Mejía, **Charlotte Vogt**, Bert M. Weckhuysen, Krijn P. de Jong

Catalysis Today, 2020, 343, 56-62.,

doi.org/10.1016/j.cattod.2018.11.036

In Situ Shell-Isolated Nanoparticle-Enhanced Raman Spectroscopy of Nickel-Catalyzed Hydrogenation Reactions

Caterina S. Wondergem, Josepha J. G. Kromwijk, Mark Slagter, Wilbert L. Vrijburg, Emiel J. M. Hensen, Matteo Monai, **Charlotte Vogt**, Bert M. Weckhuysen

ChemPhysChem, 2020, 21, 625-632.

doi.org/10.1002/cphc.201901162

Structure sensitivity in steam and dry methane reforming over nickel: Activity and carbon formation

Charlotte Vogt, Jelle Kranenburg, Matteo Monai, Bert M. Weckhuysen

ACS Catalysis, 2020, 10, 1428-1438.

doi.org/10.1021/acscatal.9b04193

Alkali promotion in the formation of CH₄ from CO₂ and renewably produced H₂ over supported nickel catalysts

Charlotte Vogt, Jochem Wijten, Chantal Leal Madeira, Oscar Kerkenaar, Kangming Xu, Rupert Holzinger, Matteo Monai, Bert M. Weckhuysen

ChemCatChem, 2020, 12, 2792-2800.

doi.org/10.1002/cctc.202000327

Understanding the activation of ZSM-5 by Phosphorus: Localizing phosphate groups in the pores of phosphate-stabilized ZSM-5

Jaap N. Louwen, Lambert van Eijck, **Charlotte Vogt**, Eelco T.C. Vogt

Chem. Mater., 2020, 32, 9390–9403.

https://doi.org/10.1021/acs.chemmater.0c03411

On the Cobalt Carbide Formation in a Co/TiO₂ Fischer-Tropsch Synthesis Catalyst as Studied by High-Pressure, Long-Term Operando X-Ray Absorption Spectroscopy and Diffraction
Ilse K. van Ravenhorst \$, Adam S. Hoffman \$, **Charlotte Vogt** \$, Alexey Boubnov, Nirmalendu Patra, Ramon Oord, Cem Akatay, Florian Meirer, Simon R. Bare, Bert M. Weckhuysen
\$ Authors contributed equally to the work
ACS Catalysis, 2021, 11, 2956-2967.
<https://doi.org/10.1021/acscatal.0c04695>

Molecular Transition Metal Oxide Electrocatalysts for the Reversible Carbon Dioxide-Carbon Monoxide Transformation
Dima Azaiza-Dabbah, **Charlotte Vogt**, Fei Wang, Albert Masip-Sanchez, Coen de Graaf, Josep M. Poblet, Eynat Haviv, Ronny Neumann
Angewandte Chemie International Edition, 2022, 60, 2-10.
<https://doi.org/10.1002/anie.202112915>

Reactant-induced and size-dependent effects of metal nanoparticle restructuring during catalysis
Charlotte Vogt, Esther Groeneveld, Matteo Monai, Davide Ferri, Rutger A. van Santen, Maarten Nachtegaal, Raymond R. Unocic, Anatoly Frenkel, Florian Meirer, Bert M. Weckhuysen
Nature Communications, 2022, 12, 7096.
<https://doi.org/10.1038/s41467-021-27474-3>

Adsorbate bond number dependency for σ - and π -bonds in linear scaling relationships
Charlotte Vogt
Journal of Physical Chemistry C, 2023, 127, 11, 5416–5424.
<https://doi.org/10.1021/acs.jpcc.3c00727>

Restructuring of titanium oxide overlayers over nickel nanoparticles during catalysis
Matteo Monai, Kellie Jenkinson, Angela E. M. Melcherts, Jaap N. Louwen, Ece A. Irmak, Sandra Van Aert, Thomas Altantzis, **Charlotte Vogt**, Ward van der Stam, Tomáš Ducho?, Břetislav Šmíd, Esther Groeneveld, Peter Berben, Sara Bals, and Bert M. Weckhuysen
Science, 2023, 380, 644-651.

Accepted (or in press) papers

Submitted papers

Integrated Carbon Dioxide Capture and Fixation via Aqueous Phase Hydrogenation of Carbonates
Xiaochen Zhang, Mengzhu Li¹, Ang Li, Yuchen Deng, Mi Peng, **Charlotte Vogt**, Matteo Monai, Junxian Gao, Xuetao Qin, Yao Xu, Qiaolin Yu, Meng Wang, Guofu Wang, Zheng Jiang, Xiaodong Han, Casper Brady, Wei-Xue Li, Jin-Xun Liu, Bingjun Xu, Bert M. Weckhuysen, and Ding Ma
Article submitted, under review.

Review papers

The concept of active sites in heterogeneous catalysis

Charlotte Vogt, and Bert M. Weckhuysen

Nature Chemistry Reviews, 2022, 6, 89-111.

<https://doi.org/10.1038/s41570-021-00340-y>

15.3 Books

Monographs and textbooks

Edited Books

15.4 Book chapters

Charlotte Vogt, Caterina S. Wondergem, Bert M. Weckhuysen, UV-Vis Spectroscopy in Catalysis, Springer Handbook of Advanced Catalyst Characterization, 601-623 (Ed. Banares, M., Wachs, I.), Wiley-VCH, Boca Raton, 2023

Caterina S. Wondergem, **Charlotte Vogt**, Bert M. Weckhuysen, Time Resolved X-ray Spectroscopy in Catalysis, Springer Handbook of Advanced Catalyst Characterization, 601-623 (Ed. Banares, M., Wachs, I.), Wiley-VCH, Boca Raton, 2023

15.5 Refereed papers in conference proceedings

15.6 Patents (granted)

15.7 Research reports and other publications

16. CONFERENCES

16.1 Plenary, keynote or invited talks

International

1. **Charlotte Vogt**, Bert M. Weckhuysen , Structure sensitivity in CO₂ reduction over Ni-based catalysts, Joint Centre for Chemergy Research, Netherlands, 2018. (Invited Talk)
2. **Charlotte Vogt**, Virtual - How can we use CO₂ to make useful materials using catalysts?, Niels Stensen Conference for Sustainability, Netherlands, 2020. (Invited Talk)
3. **Charlotte Vogt**, Virtual - Operando spectroscopy in the clean energy transition, Award lecture as short-listed finalist at Organic Chemistry Reaxys PhD symposium, Canada, 2020. (Invited Talk)

4. **Charlotte Vogt**, Virtual - Quick-XAS to understand structure sensitivity in catalysis, Stanford Synchrotron radiation users meeting, USA, 2020. (Invited Talk)
5. **Charlotte Vogt**, Virtual - Structure sensitivity in catalysis, Seminar, Sweden, 2020. (Invited Talk)
6. **Charlotte Vogt**, Virtual - The big shift in catalysis, Material Pioneers, Netherlands, 2021. (Plenary)
7. **Charlotte Vogt**, Virtual - The era of small molecules, The World Information Congress, United Kingdom, 2021. (Plenary)
8. **Charlotte Vogt**, Virtual - Tuning catalyst activity, selectivity, and stability through fundamental understanding, NaWuReT, Germany, 2021. (Plenary)
9. **Charlotte Vogt**, A new generation of fundamental understanding in catalysis, Clara Immerwahr Award Talk, Germany, 2022. (Plenary)
10. **Charlotte Vogt**, On the activity of applied catalysts, Chemistry at the Interface of Biology and Medicine, Greece, 2022. (Invited Talk)
11. **Charlotte Vogt**, Virtual - Dynamic restructuring of supported metal nanoparticles and its implications for structure insensitive catalysis, Protochips Flashtalks Lecture Series, Netherlands, 2022. (Invited Talk)
12. **Charlotte Vogt**, Virtual - Dynamic restructuring of supported metal nanoparticles and its implications for structure insensitive catalysis, VSParticle Lecture Series, Netherlands, 2022. (Invited Talk)
13. **Charlotte Vogt**, Virtual - On the activity of applied catalysts, Nagoya University - International Science Exchange, Japan, 2022. (Invited Talk)
14. **Charlotte Vogt**, Operando FT-IR spectroscopy and quick-XAS of electrocatalytic reactions for the energy transition, UniSysCat Symposium, Germany, 2023. (Invited Talk)
15. **Charlotte Vogt**, Virtual - Feasibility of strategies for carbon capture – a catalytic point of view, Israeli Ministry of Innovation, Science and Technology, Israel, 2023. (Invited Talk)
16. **Charlotte Vogt**, Virtual - Renewable energy-driven alternatives to thermocatalysis – challenges and opportunities in catalyst activity, SASOL - Catalysis and Chemistry for Sustainability Lecture Series, South Africa, 2023. (Invited Talk)

National

1. **Charlotte Vogt**, Structure sensitivity in catalysis, Israel Chemical Society Meeting, Israel, 2020. (Invited Talk)
2. **Charlotte Vogt**, A new generation of tools to investigate catalysts in action, NanoIL, Israel, 2021. (Invited Talk)

3. **Charlotte Vogt**, Fundamental understanding of heterogeneous catalysts under working conditions, Surface Science of Catalytic Surfaces, Israel, 2022. (Invited Talk)
4. **Charlotte Vogt**, Spectroscopy and microscopy of catalysts at work for energy-transition related processes, Israel Microscopy Society, Israel, 2022. (Invited Talk)
5. **Charlotte Vogt**, Modulated excitation operando spectroscopy of electrooxidation over Ni-based catalysts, Chemistry for a Sustainable Future Conference, Israel, 2023

16.2 Contributed Talks and Posters

International Oral

1. **Charlotte Vogt**, Esther Groeneveld, Li Lu, Christopher J. Kiely, Gerda Kamsma, Peter H. Berben, Maarten Nachtegaal, Florian Meirer, Bert M. Weckhuysen, Unravelling structure sensitivity in CO₂ hydrogenation over Ni, 18th Netherlands' Catalysis and Chemistry Conference, Netherlands. 03-2017 .
2. **Charlotte Vogt**, Esther Groeneveld, Li Lu, Christopher J. Kiely, Gerda Kamsma, Peter H. Berben, Maarten Nachtegaal, Florian Meirer, Bert M. Weckhuysen, Unravelling structure sensitivity in CO₂ hydrogenation over Ni, 25th North American Catalysis Society Meeting, USA. 06-2017 .
3. **Charlotte Vogt**, Jonas Palle, Esther Groeneveld, Florian Meirer, Bert M. Weckhuysen, The structure sensitivity of carbon-carbon coupling in CO₂ hydrogenation over Ni, 5th CHemistry as an INnovating Science (CHAINS) Conference, Netherlands. 12-2017 .
4. **Charlotte Vogt**, Jonas Palle, Esther Groeneveld, Florian Meirer, Bert M. Weckhuysen, Structure sensitivity in CO₂ hydrogenation over Ni, Materials, Characterization, Catalysts, Switzerland. 01-2018 .
5. **Charlotte Vogt**, Jonas Palle, Esther Groeneveld, Florian Meirer, Bert M. Weckhuysen, Unravelling structure sensitivity in CO₂ hydrogenation over Ni, Syngas Convention - Fuels and Chemicals from Synthesis Gas: State of the Art 3, South Africa. 03-2018 .
6. **Charlotte Vogt**, Esther Groeneveld, Li Lu, Christopher J. Kiely, Gerda Kamsma, Peter H. Berben, Maarten Nachtegaal, Florian Meirer, Bert M. Weckhuysen, Syngas Convention - Fuels and Chemicals from Synthesis Gas: State of the Art 3, 6th International Congress on Operando Spectroscopy, Spain. 04-2018 .
7. **Charlotte Vogt**, Esther Groeneveld, Raymond Unocic, Maarten Nachtegaal, Florian Meirer, Bert M. Weckhuysen, Reactant Induced, and Particle size dependent restructuring in catalytic nanoparticles, 8th Tokyo Conference on Advanced Catalytic Science and Technology, Japan. 08-2018 .
8. **Charlotte Vogt**, Ronny Neumann, Baran Eren, Bert M. Weckhuysen, The effect of nanostructuring in the electrocatalytic reduction of CO₂, Electrochemical Conversion & Materials Conference, Netherlands. 06-2019 .

9. **Charlotte Vogt**, Matteo Monai, Bert M. Weckhuysen, Structure sensitivity in power-to-methane , 14th European Congress on Catalysis, Germany. 08-2019 .
10. **Charlotte Vogt**, Bert M. Weckhuysen, Structure sensitivity in catalysis, 7th CHemistry as an INnovating Science (CHAINS) Conference, Netherlands. 12-2019 .
11. **Charlotte Vogt**, Modulated excitation operando spectroscopy of electrooxidation over Ni-based catalysts, Operando VII, Switzerland. 05-2023 .

International Poster

1. Noam Zyser, **Charlotte Vogt***, Strain as an activity descriptor in the electrooxidation of urea over nickel, Operando VII, Switzerland. 05-2023 .

National Oral

National Poster

16.3 Participation in organizing conferences

17. NOTES