# CURRICULUM VITAE

## PERSONAL INFORMATION

Full Name: Monique A. van der Veen
Date of birth: 20th of April 1982
Civil status: registered partnership, one child (born August 2017)
e-mail: m.a.vanderveen@tudelft.nl
group website: https://www.tudelft.nl/cheme/vanderveengroup
Researcher unique identifiers: ResearcherID: F-1209-201,
ORCID iD: 0000-0002-0316-4639
Google Scholar: Monique A. van der Veen

Monique van der Veen is an experimental scientist who seeks to unravel and control the dynamical behaviour of framework materials with external physical forces. She aims to design better materials for electronics and energy applications. She is a teacher on the relationships between materials' structure and properties, and wishes to write a handbook on thermodynamics that students will actually understand. She is strongly engaged in societal outreach and activities, such as changing the national policy on tenure track duration for parents.

## ACADEMIC EMPLOYMENT AND EDUCATION

2019 – 2020 Associate Professor Dept. Chem. Eng., TU Delft, The Netherlands, 1 fte

2013 – 2019 Assistant Professor Dept. Chem. Eng., TU Delft, The Netherlands, 1 fte

Fall 2018 Two month mini-sabbatical in the group of B. Civalleri (Univ. Torino, Italy)
Topic: *Ab Initio Modelling of Metal-Organic Frameworks*

2010 – 2013 Postdoctoral Research Fellow in the groups of Dirk De Vos and Thierry Verbiest
University of Leuven, Belgium; funded by personal grant.

2012 – 2013 Eight month visit in the group of Mischa Bonn (MPIP, Mainz, Germany)
Topic: *Ultrafast mid-infrared spectroscopy during photocatalysis by MOFs*

2006 – 2010 PhD in the groups of Dirk De Vos and Thierry Verbiest
University of Leuven, Belgium; funded by personal grant.

2003 – 2006 Master of Engineering in Chemistry and Biochemistry
University of Leuven, Belgium Grade*: Summa Cum Laude*

2001 – 2003 Candidate in Bioscience Engineering
University of Gent, Belgium Grade*: Summa Cum Laude*

2000 – 2001 1st year of Candidate in East-European Languages and Cultures
University of Gent, Belgium Grade*: Cum Laude*

## DISTINCTIONS AND AWARDS

2018 Athena Prize awarded by the Chemistry Division of NWO (12500 €)

2017 ERC Starting Grant

2010 FWO Postdoctoral Fellowship (3-year personal fellowship)

2006 FWO Aspirantenbeurs (4-year personal scholarship)

**SELECTED INVITED LECTURES**

5th ERC Grantees Conference “"From Dynamic and Active Materials to Supramolecular Catalysis" Edinburgh, UK, due to COVID-19 postponed to February 2021

MOF2020, Dresden, Germany, September 2020
cancelled due to COVID-19, keynote lecture converted to webinar in MOF2020$^{WEB}$

Nature Conference “Physical Properties of Metal–Organic Frameworks”, Tianjin, China, November 2019

MOFSIM2019, Gent, Belgium, April 2019

MOF2018, Auckland, New-Zealand, December 2018

XXVII International Materials Research Congress, Cancun, Mexico, August 2018

ETH Zurich, Colloquium of the Dept. of Process & Mechanical Engineering, Switzerland, March 2018

Joint IEEE ISAF-IWATMD-PFM Conference, Atlanta GA, USA, May 2017

ECONOS (European Conference on Nonlinear Optical Spectroscopy) Leuven, Belgium, April 2015

International Conference on Operando Spectroscopy, Deauville, France, May 2015

2nd MOF “Young Investigators” Symposium, Kyoto, Japan, September 2014

**GRANTS**

Sole or main applicant: 1930 k€ (ERC StG, NWO, DPI, FWO, Special Research Fund U. Leuven)

Co-applicant: 850 k€ (FWO, Herculesstichting);

Fellowships of my team members: 340 k€ (Studienstiftung des Deutschen Volkes, FWO)

**RESEARCH SUPERVISION**

| | |
|---|---|
| Postdoctoral Fellows: | current: 1 (past: 2) |
| PhD students: | current: 5 (past: 4) |
| Master students: | cumulative: 11 |
| Bachelor students: | cumulative: 16 |

**SUCCESFUL MENTORSHIP**

Both my previous postdocs obtained a personal FWO postdoctoral fellowship under my mentorship: S. Van Cleuvenbergen (2014) and S. Canossa (2019). S. Van Cleuvenbergen also obtained a Tenure Track position at the U. of Leuven, KULAK (2019).

**CURRENT TEACHING**

*Structure property relationships of advanced chemical products*
MSc. Chemical Engineering, Lecturer

*Case study Product Engineering*
MSc. Chemical Engineering, Coordinator

*Separation Technology*
BSc. Molecular Science and Technology, Responsible Lecturer

*Chemical Product Design*
BSc. Molecular Science and Technology, Lecturer

**SELECTED INSTITUTIONAL SERVICE**

2019 – present Co-chairing the "Processing of Advanced Materials" cluster of the Delft Process Technology Institute

2019- present Member Board of Studies MSc. Molecular Science & Technology (TU Delft)

2018 - 2019 Interim Section head Catalysis Engineering (TU Delft)

2018 – 2019 Member of the Faculty Search Committee of the Chem. Eng. Dept. (TU Delft)

2016 – present Member Board of Studies BSc. Molecular Science & Technology (TU Delft)

**SERVICE TO PROMOTE EQUAL OPPORTUNITY IN ACADEMIA**

2020 Presenter at Women in Engineering event organised by Women in Engineering IEEE Benelux at TU Eindhoven (postponed to November 2020 due to COVID-19)

2018 Discussion Panel Member on the European Women of Mathematics annual event

2017 Host for the "Women Careers in Science" discussion with Frances Arnold at the Annual Tu Delft Process Technology Institute Event

2015 – present Dutch Tenure Track Reform committee advocator, aiming for a family-friendly tenure process

2014 – present Member Sounding Board of Delft Women In Science (DEWIS)

**ACADEMIC SERVICE**

***Scientific boards***

2019 Elected member of the EuroMOF International Scientific Committee

2019 Selected member of the Advanced Research Center Chemical Building Blocks Consortium (ARC-CBBC)

***Conference organisation***

2017 Session Chair at HYMA 2017, Lisbon, Portugal

2015, 2016 Session Chair at the Netherlands Conference of Chemistry & Catalysis, The Netherlands

***Review work***

Grant proposals: U.S. Department of Energy (DOE), NWO, FWO Flanders

Scientific articles: Nature Mater., Nature Chem., Nature Commun., Angew. Chem. Int. Ed., Chem. Eur., J.Am. Chem.Soc., J., Chem. Mater., Adv. Mater. Int., Optical Materials Express, Coordination Chem. Rev., Microporous Mesoporous Mater., J. Colloid and Polymer Sci., Phys. Chem. Chem. Phys., Journal of Physical Chemistry Letters, Journal of Physical Chemistry, J. Raman Spectroscopy, Catal. Lett., Catal. Sci. Technology

External PhD examiner: EPFL (Switserland); U. Sydney (Australia), U. Ghent (Belgium), U. Leuven (Belgium), U. Utrecht, U. Twente, TU Delft

**OUTREACH**

11.02.2020 Radio interview at Omroep West for the occasion of International Day of Women in Science. Listen here.

2020 TU Delta Columnist. Read here.

## LIST OF PUBLICATIONS IN PEER-REVIEWED INTERNATIONAL JOURNALS

* corresponding author; jfa: joint first author

41 A. Gonzalez-Nelson, S. Mula, M. Šimėnas, S. Balčiūnas, A.R. Altenhof, C. S. Vojvodin, J. Banys, R.W. Schurko, F.-X. Coudert,* M. A. van der Veen1*

*Emergence of cooperative rotor dynamics in metal–organic frameworks via tuned steric interactions*

Under Review

40 V. Kavun, M.A. van der Veen, E. Repo

*Selective recovery and separation of Rare Earth Elements by organophosphorus modified MIL-101(Cr)*

Under Review

39 S. Canossa, A. Gonzalez-Nelson, L. Shupletsov, M. del Carmen Martin, M.A. van der Veen*

*Overcoming Crystallinity Limitations of Aluminium Metal-Organic Frameworks by Oxalic Acid Modulated Synthesis*

Chem. Eur. J. 2020, 26, 16, 3564-3570.

38 M. Šimėnas, S. Balciunas, A. Gonzalez-Nelson, M. Kinka, M. Ptak, M.A. van der Veen, M. Maczka, J. Banys

*Preparation and Dielectric Characterization of P(VDF-TrFE) Copolymer Based Composites Containing Metal-Formate Frameworks*

J. Phys. Chem. C 2019, 123, 26, 16380–16387.

37 A. Gonzalez-Nelson,* F.-X. Coudert, M.A. van der Veen*

*Rotational Dynamics of Linkers in Metal–Organic Frameworks*

Nanomaterials, 2019, 9(3), 330.

*Invited Special Issue: Thermo-Mechanical Properties of Metal Organic Frameworks*

36 S. Van Cleuvenbergen,* Z.J. Smith, O. Deschaume, C. Bartik, S. Wachsmann, T. Verbiest, M. A. van der Veen*

*Morphology and structure of ZIF-8 during crystallisation measured by dynamic angle-resolved second harmonic scattering*

Nature Communications, 2018, 9, 3418.

35 K. Markey, M. Krüger, T. Seidler, H. Reinsch, T. Verbiest, D.E. De Vos, B. Champagne,* N. Stock,* M.A. van der Veen*

*Emergence of Nonlinear Optical Activity by Incorporation of a Linker Carrying the p-Nitroaniline Motif in MIL-53 Frameworks*

The Journal of Physical Chemistry C, 2017, 121 (45), 25509-25519.

34 J. Garcia Santaclara, A.I. Olivos Suarez, A. Gonzalez Nelson, D. Osadchii, M. A. Nasalevich, M.A. van der Veen, F. Kapteijn, A.M. Sheveleva, S.L. Veber, M.V. Fedin, A.T. Murray, C.H. Hendon, A. Walsh, J. Gascon

*Revisiting the incorporation of Ti (IV) in UiO-type metal-organic frameworks: metal exchange versus grafting and their implications on photocatalysis*

Chemistry of Materials, 2017, 29 (21), 8963-8967.

33 P. Schaefer, F. Kapteijn, M.A. van der Veen,* K.F. Domke*

*Understanding the inhibiting effect of BTC on CuBTC growth through experiment and modelling*

Cryst. Growth Des., 2017, 17 (11), 5603–5607.

32 S Deckers,* M Bloemen, G Koeckelberghs, C Glorieux, T Verbiest, M.A. van der Veen*

*Conformational Changes of a Surface-Tethered Polymer during Radical Growth Probed with Second-Harmonic Generation*

Langmuir 33 (17), 4157-4163.

31 J. G. Santaclara, A. I. Olivos-Suarez, I. du Fossé, A. Houtepen, J. Hunger, F. Kapteijn, J. Gascon, M. A. van der Veen*

*Harvesting the photoexcited holes on a photocatalytic proton reduction metal-organic frameworks*

Faraday Discuss., 2017, 201, 71-86.

30 S. Salameh, M.A. van der Veen, M. Kappl, J. R. van Ommen

*Contact forces between single metal oxide nanoparticles in gas-phase applications and processes*

Langmuir, 2017, 33, 2477–2484.

29 J. G. Santaclara, F. Kapteijn, J. Gascon,* M. A. van der Veen*

*Understanding metal–organic frameworks for photocatalytic solar fuel production*

CrystEngComm, 2017, 19, 4118-4125.

*Invited Special Issue: Metal-Organic Framework Catalysis*

28 P. Schäfer, A. Lalitha, P. Sebastian, S. Kumar Meena, J. Feliu, M. Sulpizi, M. A. van der Veen,* K. F. Domke*

*Trimesic acid on Cu in ethanol: potential-dependent transition from 2-D adsorbate to 3-D metal-organic framework*

J. Electroanal. Chem., 2017, 793, 226-234.

*Invited Special Issue: Professor Antonio Aldaz*

27 S. Deckers,* N. Van Steerteghem, C. Glorieux, T. Verbiest, M.A. van der Veen*

*Intense Signal Modulation of Nonlinear Optical Scattering and Multiphoton Fluorescence by Ultrasound Irradiation*

J. Phys. Chem. C, 2016, 120, 29382–29389.

26 K. Asadi,* M. A. van der Veen*

*Ferroelectricity in Metal–Organic Frameworks: Characterization and Mechanisms*

Eur. J. Inorg. Chem., 2016, 27, 4332–4344.

*Top 20 most downloaded recent paper*[1]

[1] Amongst articles published in Eur. J. Inorg. Chem. between July 2016 and June 2018, in top 20 of the highest downloads in the 12-months post online publication.

25 D. Fröhlich, E. Pantatosakic, P.D. Kolokathis, K. Markey, H. Reinsch, M. Baumgartner, M.A. van der Veen, Dirk E. De Vos, N. Stock, G.K. Papadopoulosc, S.K. Henninger, C. Janiak
*Water adsorption behaviour of CAU-10-H: A thorough investigation of its structure-property relationships*
J. Mater. Chem. A, 2016, 4, 11859-11869.

24 S. Van Cleuvenbergen,* I. Stassen, E. Gobechiya, Y. Zhang, K. Markey, D.E. De Vos, C. Kirschhock, B. Champagne, T. Verbiest, M. A. van der Veen*
*ZIF-8 as nonlinear optical material: influence of structure and synthesis.*
Chem. Mater., 2016, 28, 3203-3209.

23 M.A. Nasalevich, C.H. Hendon, J. G. Santaclara, K. Svane, B. van der Linden, S. L. Veber, M. V. Fedin , M. A. van der Veen, F. Kapteijn, A. Walsh, J. Gascon
*Orbital contributions at band edges determine photocatalytic and electronic properties of d0 metal organic frameworks.*
Scientific Reports, 2016, 6, 23676.

22 P. Schaeffer, M.A. van der Veen*, K. Domke*
*Unraveling a two-step oxidation mechanism in electrochemical Cu-MOF synthesis.*
Chemical Communications, 2016, 52, 4722-4725.

21 K. Markey, T. Putzeys, P. Horcajada, T. Devic, N. Guillou, M. Wubbenhorst, S. Vancleuvenbergen, T. Verbiest, D. De Vos, M.A. van der Veen*
*Second Harmonic Generation Microscopy reveals hidden polar organization in modulated MIL-53(Fe).*
Dalton Transactions, 2016, 45, 4401-4406.

20 J.G. Santaclara, M.A. Nasalevich, S. Castellanos, W.H. Evers, F.C. Spoor, K. Mazur, L.D.A. Siebbeles, F. Kapteijn, F. Grozema, A. Houtepen, J. Gascon, J. Hunger, M.A. van der Veen*
*Organic linker defines the excited-state kinetics of photocatalytic MIL-125(Ti)-type materials.*
ChemSusChem, 2016, 9(4), 388–395.

19 A. Ferguson, L. Stefanus J. Tapperwijn, F.-X. Coudert, S. Van Cleuvenbergen, T. Verbiest, M. A. van der Veen, S.G. Telfer
*Controlled Partial Interpenetration in Metal-Organic Frameworks.*
Nature Chem. 2016, 8, 250-257.

18 S. Deckers*, J. Steverlynck, P. Willot, S. Vandendriessche, G. Koeckelberghs, I. Asselberghs, T. Verbiest, M. van der Veen*

*Regioregularity Increases Second-Order Nonlinear Optical Response of Polythiophenes in Solution.*

J. Phys. Chem. C 2015, 119 (32), 18513–18517.

17 M. A. van der Veen*, G. Rosolen, T. Verbiest, M.K. Vanbel, B. Maes, B. Kolaric*

*Nonlinear optical enhancement caused by a higher order multipole mode of metallic triangles.*

J. Mater. Chem. C 2015, 2015**, 3,** 1576-1581.

16 T. Putzyes, M. Wübbenhorst, M.A. van der Veen

*Spontaneous Polarization in Bio-organic Materials Studied by Scanning Pyroelectric Microscopy (SPEM) and Second Harmonic Generation Microscopy (SHGM).*

Int. J. Thermophys., 2015, 36, 819-828.

15 M.A. Nasalevich, M.A. van der Veen, F. Kapteijn, J. Gascon

*Metal–organic frameworks as heterogeneous photocatalysts: advantages and challenges.*

CrystEngComm, 2014, 16(23), 4919-4926.

14 S. Deckers, S. Vandriessche, D. Cornelis, K. Clays, G. Koeckelberghs, I. Asselberghs, T. Verbiest, M.A.van der Veen*

*Poly(3-alkylthiophene)s produce unexpectedly large second-order nonlinear optical response.*

Chemical Communications, 2014, 50 (21), 2741 – 2743.

13 H. Reinsch, M.A. van der Veen,* B. Gil, T. Verbiest, D.E. De Vos, N. Stock N.*

*Structures, sorption characteristics and nonlinear optical properties of a new series of highly stable aluminium MOFs.*

Chemistry of Materials, 2013, 25(1), 17-26.

12 M.A. van der Veen,* T. Verbiest, D.E. De Vos

*Probing microporous materials with second-harmonic generation.*

Microporous and Mesoporous Materials, 2013, 166, 102-108.

11 M.A. van der Veen,* F. Vermoortele, D.E. De Vos, T. Verbiest

*Point group symmetry determination via observables revealed with polarized second-harmonic microscopy. 2. Applications*

Analytical Chemistry, 2012, 84(15), 6386-6390.

10 M.A. van der Veen,* F. Vermoortele, D.E. De Vos, T. Verbiest

*Point group symmetry determination via observables revealed with polarized second-harmonic microscopy. 1. Theory*

Analytical Chemistry, 2012, 84(15), 6378-6385.

9 A. Ghysels, M. Vandichel, T. Verstraelen, M.A. van der Veen, D.E. De Vos, M. Waroquier, V. Van Speybroeck

*Host-guest and guest-guest interactions between xylene isomers confined in the MIL-47(V) pore system.*

Theoretical Chemistry Accounts, 2012, 131(7), 1234.

8 S. Van Cleuvenbergen,* G. Hennrich, P. Willot, G. Koeckelberghs, K. Clays, T. Verbiest, M.A. van der Veen*

*All optical determination of microscopic and macroscopic structure of chiral and polar crystals obtained from achiral, apolar molecules.*

Journal of Physical Chemistry C, 2012, 116(22), 12219-12225.

7 P. Serra-Crespo (jfa), M.A. van der Veen (jfa), E. Gobechiya (jfa), K. Houthoofd, Y. Filinchuk, C. Kirschhock, J. Martens, S. Sels, D.E. De Vos, F. Kapteijn, J. Gascon

*NH2-MIL-53(Al): a reversible solid state nonlinear optical switch displaying an unprecedented contrast.*

Journal of the American Chemical Society, 2012, 134(20), 8314-8317.

6 M.A. van der Veen, J. Van Noyen, S. Sels., P. Jacobs, T. Verbiest, D.E. De Vos

*Mapping of the organization of p-nitroaniline in SAPO-5 by second-harmonic generation microscopy.*

Physical Chemistry Chemical Physics, 2010, 12 (36), 10688-10692.

5 M.A. van der Veen, B. Sels, D.E. De Vos, T. Verbiest

*Localization of p-nitroaniline chains inside zeolite ZSM-5 with second-harmonic generation microscopy.*

Journal of the American Chemical Society 2010, 132(19), 6630-6631.

4 M.A. van der Veen (jfa),* M. De Roeck (jfa), I. Vankelecom, D.E. De Vos, T. Verbiest

*The Use of Second-Harmonic Generation to Study Diffusion through Films under a Liquid Phase.*

ChemPhysChem 2010, 11(4), 870-874.

3 M.A. van der Veen,* V.K. Valev, T. Verbiest, D. De Vos

*In Situ Orientation-Sensitive Observation of Molecular Adsorption on a Liquid/Zeolite Interface by Second-Harmonic Generation.*

Langmuir 2009, 25(8), 4256-4261.

2 L. Alaerts, M. Maes, M.A. van der Veen, P. Jacobs, D.E. De Vos

*Metal-organic frameworks as high-potential adsorbents for liquid-phase separations of olefins, alkylnaphthalenes and dichlorobenzenes.*

Physical Chemistry Chemical Physics 2009, 11(16), 2903-2911.

1 L. Alaerts, C. Kirschhock, M. Maes, M.A. van der Veen, V. Finsy, A. Depla, J. Martens, G. Baron, P. Jacobs, J. Denayer, D.E. De Vos

*Selective Adsorption and Separation of Xylene Isomers and Ethylbenzene with the Microporous Vanadium(IV) Terephthalate MIL-47.*

Angewandte Chemie (International ed.) 2007, 46(23), 4293-4297.