DIFFER

LISTINGS & OUTPUT 2023

Preface

This document provides a comprehensive overview of the most significant outputs from our institute, DIFFER. It includes:

- Listings of media appearances.
- PhD, MSc, and BSc theses.
- Publications in peer-reviewed scientific journals, other journals, and conference proceedings.
- Contributions by our members as guest lecturers at conferences, meetings, and seminars, including poster presentations and other talks.
- Summaries of key positions held by our staff, including editorships.

Additionally, we have an open software and databases category, which is becoming increasingly vital in the era of open science.

The outputs are categorized according to our two primary research lines: fusion energy and solar fuels.

For interviews, news, and updates, visit: www.differ.nl

For annual reports, appendices, and this document, visit: www.differ.nl/about-us/annual-reports

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1. Scientific Output DIFFER Fusion Energy in 2023

PhD theses: 1

1. R.J.R. van Kampen, *Frequency domain estimation of spatially varying transport coefficients*, PhD thesis at the Eindhoven University of Technology, 2023/04/03, Promotor(s): H.J. Zwart, S. Weiland; Co-promotor: M. van Berkel

Master thesis & Master internship reports: 12

1. R. van Hoof, *System identification and control for piezoelectric gas valves*, Master thesis Eindhoven University of Technology, 2023/11/20, Mentor(s): M. van Berkel, T.O.S.J. Bosman, M.R. de Baar
2. J. Raukema, *Demonstration of a sparse sensor placement technique to the limited diagnostic set in a fusion power plant*, Master thesis Eindhoven University of Technology, 2023/06/01, Mentor(s): T.O.S.J. Bosman, I.G.J. Classen
3. J.T. Veenendaal, *Structural thermal optical performance analysis on the ITER upper launcher mirrors*, Master thesis Eindhoven University of Technology, 2023/11/20, Mentor(s): J. Slief, M. van Berkel
4. R.O. Houben, *Influence of ELMs on deuterium retention and outgassing in tungsten*, Master thesis Eindhoven University of Technology, 2023/03/24, Mentor(s): T.W. Morgan, G.J. van Rooij
5. M. Bakker, *A network analysis of ITER first plasma diagnostics and their requirements*, Master thesis Eindhoven University of Technology, 2023/11/30, Mentor(s): M.R. de Baar, T.F. Beernaert
6. L. Ceelen, *Identification and control of the divertor plasma in the DIII-D tokamak*, Master thesis Eindhoven University of Technology, 2023/01/25, Mentor(s): J.T.W. Koenders, M. van Berkel, M.R. de Baar
7. M.J.H. Cornelissen, *The influence of entrainment on the erosion and re-deposition of tungsten under ITER-like plasma conditions*, Master thesis Eindhoven University of Technology, 2023/06/14, Mentor(s): T.W. Morgan
8. M. Goddijn, *Controlling the Beam Current of the EU ITER Gyrotron*, Master thesis Eindhoven University of Technology, 2023/04/12, Mentor(s): M.R. de Baar, E. Westerhof
9. J.W. Rutten, *Feasibility of TES microcalorimeter X-ray detectors in magnetic confinement fusion*, Master thesis Eindhoven University of Technology, 2023/04/06, Mentor(s): M.R. de Baar
10. F. Wouters, *Implementation of a time-varying recycling coefficient in a control-oriented core-edge particle inventory model*, Internship report Eindhoven University of Technology, 2023/05/20, Mentor(s): J.T.W. Koenders, M. van Berkel
11. J. van den Berg, *Extraction of control paramaters from 2D bayesian inferred MANTIS images*, Internship report Eindhoven University of Technology, 2023/11/24, Mentor(s): J.T.W. Koenders, M. van Berkel
12. A. Kharrat, *Real-time estimation of density profiles with RAPDENS on DIII-D*, Internship report Eindhoven University of Technology, 2023/12/15, Mentor(s): L. Ceelen, M. van Berkel, M.R. de Baar

Publications in peer-reviewed scientific journals: 61

1. J. Citrin, P. Mantica, *Overview of tokamak turbulence stabilization by fast ions*, Plasma Phys. Control. Fusion 65 (2023) 033001
2. R.J.R. van Kampen, M. van Berkel, H. Zwart, *Estimating space-dependent coefficients for 1D transport using Gaussian processes as state estimator in the frequency domain*, IEEE Control Syst. Lett. 7 (2023) 247-252, 06/2022

3. J.P. Goedbloed, R. Keppens, S. Poedts, *Leaky modes in coronal magnetic flux tubes revisited*, J. Plasma Phys. 89 (2023) 905890520, 10/2023
4. J. Gonzalez, E. Westerhof, T.W. Morgan, *SOLPS-ITER simulations of a vapour box design for the linear device Magnum-PSI*, Plasma Phys. Control. Fusion 65 (2023) 055021
5. Ajay C. J., B.F. McMillan, M.J. Pueschel, *On the impact of temperature gradient flattening and system size on heat transport in microtearing turbulence*, Nucl. Fusion 63 (2023) 066024
6. S.C. Wang, M. van Kampen, T.W. Morgan, *Promotion of plasma-induced deuterium uptake of ruthenium films by monolayer-thick tin layers*, ACS Appl. Mater. Interfaces 15 (2023) 57769-57782, 12/2023
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8. P.Y. Li, M.J. Pueschel, P.W. Terry, G.G. Whelan, *On the role of mode resonances in regulating zonal-flow-moderated plasma microturbulence*, Nucl. Fusion 63 (2023) 026028
9. B.J.J. Kremers, J. Citrin, A. Ho, K.L. van de Plassche, *Two-step clustering for data reduction combining DBSCAN and k-means clustering*, Contrib. Plasma Phys. 63 (2023) 202200177
10. E. Yildirim, P. Mummery, T.W. Morgan, E. Jimenez-Melero, *Delayed surface degradation in W-Ta alloys at 400° C under high-fluence 40 eV He plasma exposure*, Fusion Eng. Des. 197 (2023) 114061, 12/2023
11. R.J.J. Mackenbach, J.H.E. Proll, G. Snoep, P. Helander, *Available energy of trapped electrons in Miller tokamak equilibria*, J. Plasma Phys. 89 (2023) 905890522, 10/2023
12. R.J.R. van Kampen, J. de Vries, S. Weiland, M.R. de Baar, M. van Berkel, *Fast simultaneous estimation of nD transport coefficients and source function in perturbation experiments*, Sci. Rep. 13 (2023) 3241, 02/2023
13. P. Costello, J.H.E. Proll, G.G. Plunk, M.J. Pueschel, J.A. Alcuson, *The universal instability in optimised stellarators*, J. Plasma Phys. 89 (2023) 905890402, 08/2023
14. C.A. Orrico, M. van Berkel, T.O.S.J. Bosman, W.P.M.H. Heemels, D. Krishnamoorthy, *Mixed-integer MPC strategies for fueling and density control in fusion tokamaks*, IEEE Control Syst. Lett. 7 (2023) 1897-1902, 06/2023
15. G. Snoep, J.T.W. Koenders, C. Bourdelle, J. Citrin, JET Contributors, *Improved flux-surface parameterization through constrained nonlinear optimization*, Phys. Plasmas 30 (2023) 063906
16. B. Tripathi, P.W. Terry, A.E. Fraser, E.G. Zweibel, M.J. Pueschel, *Three-dimensional shear-flow instability saturation via stable modes*, Phys. Fluids 35 (2023) 105151
17. J. Slief, R.J.R. van Kampen, M.W. Brookman, M. van Dijk, E. Westerhof, M. van Berkel, *Quantifying electron cyclotron power deposition broadening in DIII-D and the potential consequences for the ITER EC system*, Nucl. Fusion 63 (2023) 026029
18. M. Hamed, M.J. Pueschel, J. Citrin, M. Muraglia, X. Garbet, Y. Camenen, *On the impact of electric field fluctuations on microtearing turbulence*, Phys. Plasmas 30 (2023) 042303
19. B.Tripathi, A.E. Fraser, P.W. Terry, E.G. Zweibel, M.J. Pueschel, E.H. Anders, *Nonlinear mode coupling and energetics of driven magnetized shear-flow turbulence*, Phys. Plasmas 30 (2023) 072107
20. C. Costin, I. Mihaila, H.J. van der Meiden, H. Tanaka, J. Scholten, H.J.N. van Eck, *Plasma rotation and axial flow velocities in Magnum-PSI from cross-correlation measurements*, Plasma Sources Sci. Technol. 32 (2023) 075010
21. Y.R.J. Poels, G.L. Derks, E. Westerhof, K. Minartz, S. Wiessen, V. Menkovski, *Fast dynamic 1D simulation of divertor plasmas with neural PDE surrogates*, Nucl. Fusion 63 (2023) 126012
22. T.O.S.J. Bosman, F. Köchl, A. Ho, M.R. de Baar, D. Krishnamoorthy, M. van Berkel, *Integrated model control simulations of the electron density profile and the implications of using multiple hybrid pellet injectors for control*, Nucl. Fusion 63 (2023) 126047
23. J. Citrin, P. Trochim, M. Hamed, T. Görler, D. Pfau, K.L. van de Plassche, F. Jenko, *Fast transport simulations with higher-fidelity surrogate models for ITER*, Physics of Plasmas 30 (2023) 062501
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25. J.T.W. Koenders, A. Perek, C. Galperti, B.P. Duval, O. Fevrier, C. Theiler, M. van Berkel, *Systematic design of a multi-input multi-output controller by model-based decoupling: a demonstration on TCV using multi-species gas injection*, Nucl. Fusion 63 (2023) 106007
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31. Y. Li, J. Hou, V. Shah, Y. Huang, J.A.W. van Dommelen, W.J. Lu, Q. Zhu, T.W. Morgan, *Amorphous and anisotropic surface relief formation in tungsten under repeated high-flux hydrogen plasma loads*, Nucl. Mater. Energy 37 (2023) 101544, 12/2023
32. E. Fransson, A. Gillgren, A. Ho, J. Borsander, O. Lindberg, W. Rieck, M. Aqvist, P. Strand, *A fast neural network surrogate model for the eigenvalues of QuaLiKiz*, Phys. Plasmas, 30 (2023) 123904
33. M. Marin, J. Citrin, C. Giroud, C. Bourdelle, Y. Camenen, L. Garzotti, A. Ho, M. Sertoli, JET Contributors, *Integrated modelling of neon impact on JET H-mode core plasmas*, Nucl. Fusion 63 (2023) 016019
34. J.T.W. Koenders, A. Perek, B. Kool, O. Fevrier, T. Ravensbergen, C. Galperti, B.P. Duval, C. Theiler, M. van Berkel, *Model-based impurity emission front control using deuterium fueling and nitrogen seeding in TCV*, Nucl. Fusion 63 (2023) 026006
35. M.J. Gerard, B. Geiger, M.J. Pueschel, A. Bader, C.C. Hegna, B.J. Faber, P.W. Terry, S.T.A. Kumar, J. Schmitt, *Optimizing the HSX stellarator for microinstability by coil-current adjustments*, Nucl. Fusion 63 (2023) 056004
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37. A. de Castro, E. Oyarzabal, D. Alegre, D. Tafalla, M. Gonzalez, P.J. McCarthy, J.G.A. Scholte, T.W. Morgan, F.L. Tabares, OLMAT team, *Physics and technology research for liquid-metal divertor development, focused on a tin-capillary porous system solution, at the OLMAT high heat-flux facility*, Journal of Fusion Energy 42 (2023) 45, 12/2023
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42. R. Anirudh, R. Archibald, M.S. Asif, M.M. Becker, S. Benkadda, P.T. Bremer, R.H. S. Bude, J. Citrin, C.S. Chang, L. Chen, et al., *2022 Review of data-driven plasma science*, IEEE Trans. Plasma Sci. 51 (2023) 1750-1838
43. M. Yoshikawa, J. Kohagura, Y. Shima, Y. Nakashima, N. Ezumi, R. Minami, R. Yasuhara, I. Yamada, H. Funaba, H.J. van der Meiden, et al., *Development of dual-path multi-pass Thomson scattering system in GAMMA 10/PDX*, J. Instrum. 18 (2023) C10006
44. C. Gillot, G. Dif-Pradalier, Y. Sarazin, C. Bourdelle, A. Banon Navarro, Y. Camenen, J. Citrin, A. Di Siena, X. Garbet, P. Ghendrih, et al., *The problem of capturing marginality in model reductions of turbulence*, Plasma Phys. Control. Fusion 65 (2023) 055012
45. A. Ho, J. Citrin, C.D. Challis, C. Bourdelle, F.J. Casson, J. Garcia, J. Hobirk, A. Kappatou, D. Keeling, D. King, et al., *Predictive JET current ramp-up modelling using QuaLiKiz-neural-network*, Nucl. Fusion 63 (2023) 066014
46. T.A. Wijkamp, J.S. Allcock, X. Feng, B. Kool, B. Lipschultz, K.H.A. Verhaegh, B.P. Duval, J.R. Harrison, A. Perek, I.G.J. Classen, et al., *Characterisation of detachment in the MAST-U Super-X divertor using multi-wavelength imaging of 2D atomic and molecular emission processes*, Nucl. Fusion 63 (2023) 056003
47. E. Oyarzabal, F.L. Tabares, M. Liniers, D. Alegre, D. Tafalla, K.J. McCarthy, A. de Castro, T.W. Morgan, J.G.A. Scholte, M. Iafrati, et al., *Comparative study of different Sn wetted W CPSs exposed to NBI fluxes in the OLMAT facility*, Fusion Eng. Des. 190 (2023) 113711, 05/2023
48. J.G.A. Scholte, M. Balden, B. Böswirth, S. Elgeti, H. Greuner, A. Herrmann, K. Hunger, K. Krieger, R.C. van Schaik, T.W. Morgan, et al., *Design and GLADIS testing of a liquid tin divertor module prior to exposure in ASDEX Upgrade*, Nucl. Mater. Energy 37 (2023) 101528, 12/2023
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52. S. Gabriellini, L. Garzotti, V.K. Zotta, C. Bourdelle, F.J. Casson, J. Citrin, D. Frigione, R. Gatto, C. Giroud, M. Marin, et al., *Neon seeding effects on two high-performance baseline plasmas on the Joint European Torus*, Nucl. Fusion 63 (2023) 086025
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59. M. Bernert, S. Wiesen, O. Fevrier, A. Kallenbach, J.T.W. Koenders, B. Sieglin, T.O.S.J. Bosman, B. Kool, M. van Berkel, T.A. Wijkamp, et al., *The X-Point radiating regime at ASDEX Upgrade and TCV*, Nucl. Mater. Energy 34 (2023) 101376, 03/2023
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Publications in other journals and conference proceedings: 7

1. J.T.W. Koenders, A. Perek, C. Galperti, B.P. Duval, O. Fevrier, C. Theiler, M. van Berkel, TCV team, *MIMO gas injection control of the electron density and NII impurity emission front position in TCV*, Book of Abstracts 42nd Benelux Meeting on Systems and Control (2023) 68
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3. L. Ceelen, J.T.W. Koenders, D. Eldon, H. Anand, M. van Berkel, M.R. de Baar, *Identification and control of the divertor plasma in the General Atomics DIII-D tokamak*, Book of Abstracts 42nd Benelux Meeting on Systems and Control (2023) 172
4. C.A. Orrico, D. Krishnamoorthy, M. van Berkel, *Fueling and density control in fusion tokamaks using mixed-integer MPC,* Book of Abstracts 42nd Benelux Meeting on Systems and Control (2023) 66
5. D. Hwangbo, S. Feng, R. Zhang, S. Kajita, M. Morbey, R. Timmer, J. Vernimmen, J. Scholten, H. Tanaka, Y. Hayashi, et al., *Arc ignition and hot spot formation on tungsten with nano-tendril bundles under hydrogen plasma exposure*, Proceedings of the 30th International Symposium on Discharges and Electrical Insulation in Vacuum (ISDEIV) 2023 2023 (2023) 533C4-P-05
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7. Y. Hayashi, H. Tanaka, N. Ohno, S. Kajita, T.W. Morgan, H.J. van der Meiden, J. Scholten, J.W.M. Vernimmen, H. Natsume, K. Sawada, et al., *Influence of dynamic pressure induced by transient recycled neutral flux on reduction of pulsed particle load in the linear plasma device Magnum-PSI*, Book of Abstracts 7th Asia-Pacific Conference on Plasma Physics, 12-17 Nov, 2023, Nagoya, Japan (2023) MF-11-O7

Professional publications: 2

1. M.H. Mojet, M.J. Pueschel, *Klimaatkoffer - Een leskoffer met de belangrijkste fysisch-chemische processen*, NVOX 2023 (2023) 6-8
2. L. Ceelen, *Dealing with the scorching exhaust of a tokamak*, openME 54 (2023) 9-11

Open software: 1

1. S. Smeets, V. Azizi, *Imas2xarray for Duqtools software* (a library to read and write IMAS data (of a tokamak reactor) in HDF5 format with Python), Research Software Directory, zenodo.org and in duqtools/imas2xarray, 12/2023

Invited lectures at conferences and meetings: 16

1. 49th IOP Annual Plasma Physics Conference 2023, 2023/03/27-2023/03/30, Oxford, UK, A. Ho, L. Vialetto, *CoffeeBreakDown (Rutherford Plasma Physics Communication Prize for new podcast-style YouTube channel about plasma science and applications)*, Oral III
2. 4th International Conference on Data Driven Plasma Sciences 2023 (ICDDPS4), 2023/04/16-2023/04/21, Okinawa, Japan, A. Ho, *Emulation of QuaLiKiz turbulent transport model using neural networks trained using experimentally-based data*, Oral I-5
3. 19th International Conference on Plasma-facing Materials and Components for Fusion Application (PFMC-23), 2023/05/22-2023/05/26, Bonn, Germany, J. Scholte, B. Böswirth, J. Cecrdle, R. Dux, S. Elgeti, H. Greuner, A. Herrmann, K. Hunger, J. Horacek, K. Krieger, *Performance of a liquid tin divertor target during ASDEX Upgrade L- and H-mode operation*, Oral Thursday 14:20
4. 15th International Symposium on Fusion Nuclear Technology ISFNT-15, 2023/09/10-2023/09/15, Gran Canaria, Spain, T.W. Morgan, J.G.A. Scholte, M. Iafrati, S. Rocchella, F.L. Tabares, E. Oyarzabal, D. Alegre, A. de Castro, R. Neu, A. Herrmann, *Development of a liquid metal divertor solution for DEMO*
5. CYSENI 2023, 2023/05/23, Kaunas, Lithuania, A.J.H. Donné, *Why don't we have fusion yet - and what is EUROfusion doing to get there?*
6. Towards an Arab initiative for fusion energy, 2023/03/08, Online, Jordan, A.J.H. Donné, *Progress along the path towards fusion electricity*
7. Academy Technikwissenschaften acatech - workshop on Fusion energy, 2023/04/13, München, Germany, A.J.H. Donné, *Where does fusion energy stand today?*
8. 3rd Forum Fusion Deutschland (FFD), 2023/06/05, Berlin, Germany, A.J.H. Donné, *Roadmap to fusion electricity*
9. Big Science Mini Symposium, 2023/11/14, Leiden, Netherlands, A.J.H. Donné, *The European path towards fusion electricity. Scientific and technological challenges on the path to fusion electricity*, Oral 11:30
10. 2nd International Fusion and Plasma Conference (iFPC 2023), 2023/08/21-2023/08/25, Busan, Korea, A.J.H. Donné, A. Fasoli, G. Federici, *How to tackle the remaining scientific and technology gaps on the path to fusion electricity?*, Oral Plenary
11. 20th International Symposium on Laser-Aided Plasma Diagnostics, 2023/09/11-2023/09/14, Kyoto, Japan, A.J.H. Donné, *40 years of high-temperature laser-aided plasma diagnostics (honorary lecture)*
12. 21st International Conference on Fusion Reactor Materials (ICFRM-21), 2023/10/22-2023/10/27, Granada, Spain, A.J.H. Donné, *The importance of materials research for fusion*, Oral Opening address

13. INLA Working Group on Nuclear Fusion (International Nuclear Law Association), 2023/10/13, Online, Bruxelles, Belgium, A.J.H. Donné, A. Fasoli, *The European path towards fusion electricity*
14. EurASc Annual Symposium: Science Multidisciplinarity in the 21st Century: The future of Energy, 2023/10/23, Madrid, Spain, A.J.H. Donné, *Magnetic confinement fusion: status, challenges and prospects*
15. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, Q. Hu, D. Eldon, S. Gu, H.Q. Wang, H. Frerichs, F. Scotti, R.S. Wilcox, A. Bortolon, L. Ceelen, F. Effenberg, *Integration of RMP ELM control with divertor detachment in the DIII-D tokamak*, Oral BI02.00003
16. PhDiaFusion Summer School, 2023/06/19-2023/06/23, Niepolomice, Poland, M.R. de Baar, M. van Berkel, B.P. Duval, J.T.W. Koenders, T. Ravensbergen, A. Perek, *(Data-driven modeling for) Real time plasma control and the use of AI for the RT (real-time) analysis of complex data*

Invited seminars: 11

1. Specialist Colloquium DIFFER, 2023/03/30, Eindhoven, Netherlands, M.R. de Baar, *The nuclear fusion plasma as a system*
2. ASML ReCo lecture, 2023/01/26, Veldhoven, Netherlands, M. van Berkel, *Distributed identification and control in fusion reactors - Energy systems control group*
3. Seminar DIII-D, 2023/06/15, San Diego, CA, USA, M. van Berkel, *Exhaust control with light: analyzing and controlling divertor plasmas using multi-spectral imaging*
4. Plasmaphysik Seminar GSI Helmholtzzentum fur Schwerionenforschung GmbH, 2023/05/02, Darmstadt, Germany, A.J.H. Donné, *Magnetic fusion research - status and prospects*
5. Seminar Lihuanian Academy of Sciences, 2023/05/24, Vilnius, Lithuania, A.J.H. Donné, *Magnetic fusion research - approaching the goal: fusion electricity*
6. Seminar National Institute for Fusion Studies, 2023/09/15, Toki, Japan, A.J.H. Donné, A. Fasoli, G. Federici, *The European path towards fusion electricity*
7. Seminar Extreme Light Infrastructure, 2023/09/27, Prague, Czech Republic, A.J.H. Donné, *Magnetic fusion research - status and prospects*
8. Seminar Harvard Club Europe, 2023/06/27, Lisbon, Portugal, A.J.H. Donné, *Fusion electricity: how and when? Nuclear fusion as the energy of the future*
9. Seminar Technical University Eindhoven Control Systems group, 2023/03/23, Eindhoven, Netherlands, M. van Berkel, *Distributed identification and control in nuclear fusion reactors*
10. Remote presentation for the BEST Diagnostic team, 2023/06/28, Hefei, China, M.R. de Baar, T. Beernaert, P. Etman, M. Bakker, *A systems perspective on the plasma diagnostics*
11. Remote Seminar UK STEP Programme, 2023/07/26, Culham, UK, M.R. de Baar, T.F. Beernaert, P. Etman, L. Moormann, M. van Berkel, M. Bakker, M. De Bock, I. Classen, *A system engineering approach to the plasma control system*

Oral and poster presentations at (international) conferences & meetings: 93

1. COST CA18234 Conference Designing the Future: Electro-. Photo-, and Thermochemical water splitting, 2023/02/20-2023/02/22, Brussels, Belgium, M. van Berkel, B.F.H. van den Boorn, A. Bieberle-Hütter, *Microkinetic modeling from a systems and control perspective*, Oral
2. SIAM Conference on Computational Science and Engineering (CSE23), 2023/02/26-2023/03/03, Amsterdam, Netherlands, J. Citrin, *Fusion plasma turbulence simulation with neural network surrogate models*, Oral MS126-II

3. 42nd Benelux Meeting on Systems and Control 2023, 2023/03/21-2023/03/23, Elspeet, Netherlands, C. Orrico, D. Krishnamoorthy, M. van Berkel, *Fueling and density control in fusion tokamaks using mixed-integer MPC*, Oral TuA07-4
4. 42nd Benelux Meeting on Systems and Control 2023, 2023/03/21-2023/03/23, Elspeet, Netherlands, L. Ceelen, J.T.W. Koenders, D. Eldon, H. Anand, M. van Berkel, M.R. de Baar, *Identification and control of the divertor plasma in the General Atomics DIII-D tokamak*, Oral WeA06-5
5. 42nd Benelux Meeting on Systems and Control 2023, 2023/03/21-2023/03/23, Elspeet, Netherlands, J.T.W. Koenders, A. Perek, C. Galperti, B.P. Duval, O. Fevrier, C. Theiler, M. van Berkel, TCV team, *MIMO gas injection control of the electron density and NII impurity emission front position in TCV*, Oral TuA07-6
6. 49th IOP Annual Plasma Physics Conference 2023, 2023/03/27-2023/03/30, Oxford, UK, N. Lonigro, J. Allcock, R. Doyle, K. Verhaegh, J. Harrison, B. Lipschultz, T. Wijkamp, *Progress toward using coherence imaging spectroscopy for direct density measurements in the MAST-U divertor*, Poster P43
7. Physics Veldhoven 2023, 2023/04/04-2023/04/05, Veldhoven, Netherlands, T. Beernaert, *A systems approach to engineering complex physics*, Oral Parallel 9.1
8. Physics Veldhoven 20232, 023/04/04-2023/04/05, Veldhoven, Netherlands, G.L. Derks, M. van Berkel, E. Westerhof, *Extending DIV1D with a core scrape-off layer*, Poster 7.2
9. Physics Veldhoven 20232, 023/04/04-2023/04/05, Veldhoven, Netherlands, F. Romano, T.W. Morgan, *Lithium vapour shielding investigation with the linear plasma generator Magnum-PSI*, Poster 7.3
10. 4th International Conference on Data Driven Plasma Sciences 2023 (ICDDPS4), 2023/04/16-2023/04/21, Okinawa, Japan, J. Citrin, *Fast transport simulations with higher-fidelity surrogate models for ITER*, Poster P-40
11. Meeting of the ITPA Integrated Operation Scenarios Topical Group (IOS), 2023/04/20, Princeton, NJ, USA, M. van Berkel, D. Krishnamoorthy, M.R. de Baar, B. Kool, J.H. Slief, J.T.W. Koenders, R.J.R. van Kampen, T.O.S.J. Bosman, C.A. Orrico, L. Ceelen, et al., *Core-edge integration with a focus on pellet control and joint density - exhaust control*, Oral
12. US Transport Task Force Meeting (TTF 2023), 2023/05/02-2023/05/05, Madison, WI, US, M.J. Pueschel, S. Coda, A. Balestri, J. Ball, R.J.J. Mackenbach, *Assessing transport benefits of extreme flux-surface triangularity*, Oral Wed. 2:00 PM
13. US Transport Task Force Meeting (TTF 2023), 2023/05/02-2023/05/05, Madison, WI, US, M. Hamed, M.J. Pueschel, *A reduced transport model for microtearing modes in tokamak*, Poster 132
14. 19th International Conference on Plasma-facing Materials and Components for Fusion Application (PFMC-23), 2023/05/22-2023/05/26, Bonn, Germany, T.W. Morgan, R.S. Al, S. Alonso van der Westen, S. Brons, I.G.J. Classen, J.A.W. van Dommelen, H.J.N. van Eck, M.G.D. Geers, H.J. van der Meiden, et al., *Progress in the development of the Liquid Metal Shield laboratory (LiMeS-lab)*, Poster ID: 289
15. 19th International Conference on Plasma-facing Materials and Components for Fusion Application (PFMC-23), 2023/05/22-2023/05/26, Bonn, Germany, F. Romano, V. Tanke, J. Gonzalez, J. Schwartz, S. Brons, R. Goldston, L. Romers, P. de Laat, T.W. Morgan, *Studying the physics of the lithium vapour box in the linear plasma generator Magnum-PSI*, Poster ID: 280
16. 19th International Conference on Plasma-facing Materials and Components for Fusion Application (PFMC-23), 2023/05/22-2023/05/26, Bonn, Germany, M. Kupers, W. Dekeyser, S. Van den Kerkhof, T.W. Morgan, *Towards an optimal design of a liquid metal divertor with an adjoint gradient-based numerical optimization approach*, Poster ID: 256
17. 1st European Conference on Magnetic Reconnection in Plasmas (TTF 2023), 2023/05/23-2023/05/26, Marseille, France, S.W. Tsao, M.J. Pueschel, A. Tenerani, D.R. Hatch, *Kinetic 3D reconnection heating in the solar corona at hydrogen mass ratio*, Poster
18. 1st European Conference on Magnetic Reconnection in Plasmas (TTF 2023), 2023/05/23-2023/05/26, Marseille, France, M. Hamed, M.J. Pueschel, *Towards a reduced transport model for microtearing modes*, Oral Tue 16:00

19. 43rd Meeting of the ITPA Topical Group on Diagnostics, 2023/05/22-2023/05/25, Eindhoven, Netherlands, M.R. de Baar, *Status report ITPA Real Time Diagnostics sub group*, Oral Wed 13:45 (a)
20. 43rd Meeting of the ITPA Topical Group on Diagnostics, 2023/05/22-2023/05/25, Eindhoven, Netherlands, M.R. de Baar, T. Beernaert, P. Etman, L. Moormann, T. Wilschut, M. Bakker, M. De Bock, I. Classen, *A system engineering approach to the plasma control system*, Oral Wed 13:45 (b)
21. 43rd Meeting of the ITPA Topical Group on Diagnostics, 2023/05/22-2023/05/25, Eindhoven, Netherlands, M. van Berkel, *JEX DIAG-14 report on density (feedback) control with pellets*, Oral Wed 14:10
22. Meeting of ITPA Topical Group SOL and Divertor Physics (DivSOL), 2023/06/07-2023/06/08, Oakridge, TN, USA, M. van Berkel, T.O.S.J. Bosman, L. Ceelen, G.L. Derks, J.T.W. Koenders, B. Kool, *A model predictive control strategy for the exhaust*, Oral
23. Meeting of ITPA Topical Group SOL and Divertor Physics (DivSOL), 2023/06/07-2023/06/08, Oakridge, TN, USA, B. Kool, G.L. Derks, T. Wijkamp, N. Lonigro, R. Doyle, K.H.A. Verhaegh, G.J. McArdle, C. Vincent, J. Lovell, D. Brida, et al., *Preparation for exhaust control in MAST-U*, Oral
24. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, A. Ho, C. Bourdelle, Y. Camenen, F.J. Casson, J. Citrin, F. Koechl, JET Contributors, *Large-scale integrated model validation with preliminary JET profile database*, Poster Mo_MCF14
25. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, C.D. Stephens, D.R. Hatch, M. Kotschenreuther, S. Mahajan, J. Citrin, C. Bourdelle, *Quasilinear gyrokinetic modeling of reduced transport in the presence of high impurity content, large gradients, and large geometric alfaMHD*, Poster Mo_MCF28
26. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, M. Hoppe, J. Decker, U. Sheikh, T. Wijkamp, J.A. Cazabonne, B. Duval, G. Papp, A. Perek, Y. Peysson, L. Simons, et al., *Runaway electron dynamics in the Tokamak à Configuration Variable*, Poster Mo_MCF49
27. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, S.D. Pinches, P. Abreu, L.C. Appel, F.J. Casson, J. Citrin, G. Corrigan, M. Dubrov, L. Fleury, K.L. van de Plassche, D.C. van Vugt, et al., *Progress in the ITER integrated modelling programme*, Poster Tu_MCF45
28. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, L. Gottardi, L. Gu, I.G.J. Classen, M.R. de Baar, J.den Herder, *X-ray spectrometers based on superconducting transition edge sensors for magnetically confined plasmas*, Poster Tu_MCF84
29. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, M. Hamed, *A reduced transport model for microtearing modes in tokamak H-mode pedestal*, Oral O4.107
30. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, N. Lonigro, R. Doyle, J.S. Allcock, K. Verhaegh, C. Bowman, J. Harrison, B. Lipschultz, O. Myatra, S. Silburn, T.A. Wijkamp, *2D electron density measurements using coherence imaging spectroscopy in the MAST-U divertor*, Poster Th_MCF91
31. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, T. Beernaert, M. De Bock, P. Etman, I. Classen, M. de Baar, *A system architecture model to coordinate complex systems engineering activities: the case of an optical diagnostic*, Poster Fr_MCF11
32. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, G.L. Derks, M. van Berkel, E. Westerhof, *Benchmark of a 1D scrape-off layer model DIV1D from stagnation point to target using 2D SOLPS-ITER simulations*, Poster Fr_MCF12
33. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, T.A. Wijkamp, M. Hoppe, J. Decker, B.P. Duval, A. Perek, U. Sheikh, I.G.J. Classen, R.J.E. Jaspers, TCV team, *Runaway electron pitch angle scattering through resonant interaction with the toroidal magnetic field ripple in TCV*, Poster Fr_MCF15
34. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, M.C.L. Morren, J.H.E. Proll, M.J. Pueschel, J. van Dijk, *Influence of collisions on trapped-electron modes in tokamaks and low-shear stellarators*, Poster Fr_MCF13

35. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, P. Mulholland, K. Aleynikova, B.J. Faber, M.J. Pueschel, J.H.E. Proll, C.C. Hegna, P.W. Terry, C. Nührenberg, *Enhanced transport at high plasma Beta due to sub-threshold kinetic ballooning modes in Wendelstein 7-X geometry*, Poster Fr_MCF14
36. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, Y. Camenen, M. Marin, P. Manas, C. Angioni, C. Bourdelle, J. Citrin, E. Fable, A. Ho, P. Maget, O. Sauter, et al., *Non-linear gyrokinetic study of the current ramp-up phase in TCV*, Poster Fr_MCF39
37. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, I. Krebs, K. Lackner, S. Günter, J. Graves, O. Sauter, E. Westerhof, E. Strumberger, M. Hoelzl, A. Burckhart, A. Bock, et al., *Reduced model of magneto-hydrodynamic dynamo enabled magnetic flux pumping for scenario development of hybrid tokamak discharges*, Poster Fr_MCF25
38. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, M. de Baar, T. Beernaert, P. Etman, M. De Bock, W. Biel, M. Ariola, G. Vayakis, D. Mazon, W. Treutterer, *A system architecture model for the design of the plasma control system*, Poster Fr_MCF24
39. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, A. Perek, B.L. Linehan, K. Verhaegh, T.A. Wijkamp, E. Huett, C. Theiler, J.T.W. Koenders, H. Reimerdes, M. van Berkel, B.P. Duval, et al., *Integrated data analysis of the multispectral imaging data on the TCV tokamak*, Poster Fr_MCF42
40. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, L. Martinelli, D. Mykytchuk, B.P. Duval, P. Blanchard, M. Carpita, C. Colandrea, O. Fevrier, S. Gorno, J.T.W. Koenders, B. Linehan, et al., *Direct temperature measurements across the outer divertor leg during detachment experiments in TCV*, Poster Fr_MCF91
41. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, L. Zaniszi, J. Barr, T. Madula, A. Ho, J. Citrin, A. Gopakumar, S. Pamela, F. Casson, B. Patel, H. Dudding, et al., *Cheap training sets for gyrokinetic surrogate models with high dimensionality for DEMO-class tokamaks ramp-up scenarios*, Poster Fr_MCF27
42. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, F. Pastore, F. Felici, T.O.S.J. Bosman, C. Galperti, T. Ravensbergen, O. Sauter, B. Vincent, T. Vu, TCV team, *Integration of a multi-rate electron density profile observer in the plasma control system of TCV*, Poster Fr_MCF94
43. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, R. Dux, K. Krieger, T. Pütterich, J.G.A. Scholte, ASDEX Upgrade team, *Tin concentrations in ASDEX Upgrade H-mode plasmas with a liquid tin divertor target*, Poster Th_MCF58
44. 15th International Symposium on Fusion Nuclear Technology ISFNT-15, 2023/09/10-2023/09/15, Gran Canaria, Spain, V. Tanke, T.W. Morgan, R. Al, S. Alonso van der Westen, S. Brons, I.G.J. Classen, J.A.W. van Dommelen, H.J.N. van Eck, M.G.D. Geers, N.J. Lopes Cardozo, et al., *Development of the Liquid Metal Shield Plasma-Surface-Interaction (LiMeS-PSI) linear plasma device*, Poster PS1-20
45. 30th IEEE Symposium on Fusion Engineering 2023 (SOFE23), 2023/07/09-2023/07/13, Oxford, UK, T.F. Beernaert, M. De Bock, P. Etman, I.G.J. Classen, M.R. de Baar, *A network model of nuclear fusion plasmas*, Poster K-431
46. 30th IEEE Symposium on Fusion Engineering 2023 (SOFE23), 2023/07/09-2023/07/13, Oxford, UK, J. Slief, M. van Berkel, *On the recent experimental investigation of ECH deposition broadening in DIII-D and the potential consequences for the ITER EC system*, Poster A-418
47. 30th IEEE Symposium on Fusion Engineering 2023 (SOFE23), 2023/07/09-2023/07/13, Oxford, UK, A. Cureton, S. Henderson, M. Lord, A. Tarazona, S. Davis, R. Osawa, S. Newton, D. Moulton, B. Kool, *Designing an integrated architecture for the STEP plasma divertor, exhaust and fuel cycle*, Poster L-146
48. 30th IEEE Symposium on Fusion Engineering 2023 (SOFE23), 2023/07/09-2023/07/13, Oxford, UK, B. Kool, G.L. Derks, T. Wijkamp, N. Lonigro, R. Doyle, K. Verhaegh, G. McArdle, C. Vincent, J. Koenders, M. van Berkel, et al., *Towards detachment control in MAST-U*, Poster H-577

49. 33rd ITPA meeting of TG SOL and divertor physics 2023, 2023/06/07, Oak Ridge, TN, US, Q. Hu, H. Wang, D. Eldon, S. Gu, H. Frerichs, F. Scotti, R.S. Wilcox, A. Bortolon, L. Ceelen, F. Effenberg, et al., *Integration of RMP ELM control with divertor detachment in the DIII-D tokamak*, Oral
50. 33rd Annual international (hybrid) symposium INCOSE 2023, 2023/07/15-2023/07/20, Honolulu, HI, US, T. Beernaert, P. Etman, M. De Bock, I.G.J. Classen, M.R. de Baar, *Sources of trouble: How emergent problems blow up system complexity*, Oral #61
51. FuseNet PhD Event 2023, 2023/08/23-2023/08/25, Lausanne, Switzerland, T.F. Beernaert, M.R. de Baar, L.F.P. Etman, I.G.J. Classen, M. De Bock, *Plasma physics - untangled: A model based strategy to managing the complexity at the heart of nuclear fusion systems engineering*, Poster
52. MOSAIC Community Workshop at Commonwealth Fusion Systems Devens US, 2023/09/08, Devens, MA, US, M. van Berkel, DIFFER ESC team, TU/e Control Team, *Example of a control-oriented exhaust model to be implemented in MOSAIC*, Oral
53. 27th Joint EU-US Transport Task Force Meeting, 2023/09/11-2023/09/15, Nancy, France, A. Ho, C. Bourdelle, Y. Camenen, F.J. Casson, J. Citrin, F. Köchl, JET Contributors, *Large-scale JINTRAC validation with preliminary JET profile database*, Poster 2-10
54. 27th Joint EU-US Transport Task Force Meeting, 2023/09/11-2023/09/15, Nancy, France, J. Slief, R.J.R. van Kampen, B.F.H. van den Boorn, M.W. Brookman, E. Westerhof, M. van Berkel, *Applying self-consistent electron heat transport and ECH deposition profile estimation in DIII-D*, Oral
55. 27th Joint EU-US Transport Task Force Meeting, 2023/09/11-2023/09/15, Nancy, France, G. Snoep, C. Bourdelle, J. Citrin, M.J. Pueschel, E. Delabie, A. Ho, M. Sertoli, E.R. Salono, P. Vincenzi, JET Contributors, *Validation of reduced-order turbulence modelling in the L-mode near-edge of the JET-ILW tokamak*, Poster 2-09
56. 25th International DSM Conference (Design Structure Matrix) 2023, 2023/10/03-2023/10/05, Gothenburg, Sweden, T. Beernaert, A. Verlaan, P. Etman, P. Giesen, E.R.J. van Beekum, M. Ribeiro, I. Bola, M. De Bock, I.G.J. Classen, M.R. de Baar, *From physics to project management: a multi-domain matrix model for the distributed analysis of nuclear fusion systems*, Oral
57. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, A.J.H. Donné, A. Fasoli, S. Günter, *The European path towards fusion electricity*, Oral 1622/PWF-5
58. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, K. Verhaegh, B. Kool, B. Lipschultz, C. Theiler, D. Moulton, G. Derks, J. Harrison, N. Osborne, P. Ryan, T. Wijkamp, et al., *Experimental investigation of the physics and performance of the MAST-Upgrade Super-X divertor*, Poster P-28173
59. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, R. Bilato, C. Angioni, A. Banon Navarro, V. Bobkov, T.O.S.J. Bosman, A. Di Siena, E. Fable, F. Fischer, J. Galdon-Quiroga, T. Görler, et al., *Progresses in understanding the effects of ICRF/NBI fast-ions on core turbulence and Alfvén activity on ASDEX Upgrade*, Poster P-28518
60. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, O. Kudlacek, P. David, I. Gomez, A. Gräter, B. Sieglin, W. Treutterer, M. Weiland, T. Zehetbauer, M. van Berkel, T.O.S.J. Bosman, et al., *Recent highlights of the ASDEX Upgrade control research*, Poster P-28554
61. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, M. Lennholm, S. Aleiferis, S. Bakes, O. Bartsley, M. van Berkel, F. Casson, G.D. Conway, T. Hender, S. Henderson, B. Kool, et al., *Plasma control for the STEP power plant research*, Poster P-28230
62. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, G. McArdle, M. Kochan, C. Vincent, L. Swaidani, H. Anand, D. Eldon, W. Wehner, G. Derks, S. Elmore, B. Kool, et al., *Integrated real-time control on the MAST Upgrade tokamak*, Poster P-27917
63. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, F. Felici, C. Galperti, F. Carpanese, S. Marchioni, A. Merle, F. Pastore, A. Pau, T. Bosman, J.T.W. Koenders, M. van Berkel, et al., *Advances in real-time tokamak control research on TCV*, Poster P-28653

64. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, J. Decker, U. Sheikh, M. Hoppe, B.P. Duval, L. Simons, T. Wijkamp, W. Bin, J.A. Cazabonne, J. Cerovsky, A. Perek, et al., *Recent progress in runaway electron research at TCV*, Poster P-28172
65. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, D. Moulton, J.R. Harrison, L. Xiang, P. Ryan, A. Kirk, K. Verhaegh, T.A. Wijkamp, J.S. Allcock, F. Federici, J. Clark, *Interpretative modelling of MAST-U Super-X and conventional divertor configurations*, Oral EX-D-27862
66. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, D. Borodin, J. Gonzalez, E. Westerhof, *Atomic and molecular collisional-radiative models associated with the EIRENE neutral gas module*, Poster P-28214
67. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, S. Wiesen, S. Dasbach, A. Kit, A.E. Jarvinen, A. Gillgren, A. Ho, K. van de Plassche, Y.R.J. Poels, E. Westerhof, G. Derks, et al., *Data-driven models in fusion exhaust: AI methods and perspectives*, Poster P-28447
68. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, M. Yoshikawa, Y. Nakashima, J. Kohagura, N. Ezumi, T. Kariya, T. Minami, T. Numakura, M. Hirata, S. Togo, H. van der Meiden, et al., *Effect of higher particle flux on detached simulation plasma in the GAMMA 10/PDX divertor simulation experimental module*, Poster P-27901
69. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, M. Hoelzl, G.T. A. Huijsmans, F.J. Artola, E. Nardon, M. Bécoulet, S.J. P. Pamela, B. Nkonga, K. Aleynikova, V. Bandaru, I. Krebs, et al., *Non-linear MHD modelling of transients in tokamaks: recent advances with the JOREK code*, Poster P-27894
70. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, O. Oyarzabal, A. de Castro, D. Alegre, D. Tafalla, K.J. McCarthy, T. Estrada, M. Iafrati, J.G. A. Scholte, T.W. Morgan, F.L. Tabares, et al., *Overview of the OLMAT high heat flux facility activities testing liquid and solid metal targets for their use as divertor materials*, Poster P-28135
71. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, A. de Castro, D.N. Ruzic, R. Maingi, C. Moynihan, D. O'Dea, S. Stemmley, D. Andruczyk, M. Gryaznevich, J. Horacek, T.W. Morgan, et al., *Technological advances towards a possible liquid lithium PFC-based pathway to more economically attractive magnetic fusion reactors*, Poster P-28768
72. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, S. Maeyama, N.T. Howard, J. Citrin, T. Watanabe, T. Tokuzawa, *Overview of multi-scale turbulence studies covering ion to electron scales in magnetically confined fusion plasma*, Oral OV-28957
73. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, J. Hobirk, C.D. Challis, A. Kappatou, E. Lerche, D. Keeling, D.B. King, S. Aleiferis, E. Alessi, J. Citrin, A. Ho, et al., *The JET hybrid scenario in D, T and D-T*, Oral O-27855
74. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, A. Di Siena, R. Bilato, A. Banon Navarro, J.L. Velasco, F. Wilms, G. Merlo, R. Windisch, L. LoDestro, J.B. Parker, J. Citrin, et al., *High-fidelity performance predictions for tokamaks and stellarators: from existing devices to burning plasma experiments*, Poster P-28119
75. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, L. Zanisi, A. Ho, J. Barr, T. Madula, J. Citrin, A. Gopakumar, S. Pamela, J. Buchanan, F. Casson, JET Contributors, *Data-efficient training sets for surrogate models of tokamak plasma turbulence via Active Deep Ensembles*, Poster P-28606
76. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, A.E. Jarvinen, L. Acerbi, E. Amnell, A. Bharti, G. Clarté, A. Kit, R.M. Churchill, C.S. Furia, T. Fülöp, A. Ho, et al., *Bayesian approach for uncertainty quantification and data-efficient optimization in fusion research*, Poster P-28077

77. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, J.R. Harrison, A. Aboutaleb, S. Ahmed, M. Aljunid, G.D. Conway, S. Allan, H. Anand, G.L. Derks, B. Kool, T.A. Wijkamp, et al., *Overview of physics results from MAST Upgrade towards core-pedestal-exhaust integration*, Oral and Poster OV/3-3
78. 29th IAEA Fusion Energy Conference (FEC 2023), 2023/10/16-2023/10/21, London, UK, Q. Hu, H. Wang, D. Eldon, S. Gu, H. Frerichs, F. Scotti, R.S. Wilcox, A. Bortolon, L. Ceelen, F. Effenberg, et al., *Integration of RMP ELM control with divertor detachment in the DIII-D tokamak*, Oral and Poster 2532 EX-P
79. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, M. Morbey, F. Effenberg, S. Abe, A. Nagy, T. Abrams, A. Bortolon, D.L. Rudakov, R.T. Hood, L. Horvath, T.W. Morgan, et al., *Deuterium retention in Li-D co-deposits in the DIII-D tokamak*, Poster PP11.10
80. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, L. Ceelen, J.T.W. Koenders, D. Eldon, H. Anand, Q. Hu, G.L. Derks, F. Turco, A.L. Moser, A.W. Leonard, M.R. de Baar, et al., *Identification and radiated power control of the divertor plasma in the DIII-D tokamak*, Poster GO09.6
81. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, M.J. Pueschel, S. Coda, A. Balestri, M.M. Skyllas, E. Westerhof, R.J.J. Mackenbach, J.M. Duff, J. Ball, *Manipulating turbulence via flux-surface triangularity and electron cyclotron heating*, Oral TO07.00013
82. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, F. Federici, B. Lipschultz, M.L. Reinke, J. Lovell, K. Verhaegh, T.A. Wijkamp, P. Ryan, A. Thornton, *Study of detachment and the processes involved in its dynamics in MAST-U with the IRVB diagnostic*, Poster YP11.54
83. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, D. Andruczyk, R. Rizkallah, D. Curreli, A. Shone, R. Maingi, F. Romano, T.W. Morgan, *Lithium vapor shielding: experiment and modeling*, Oral GO09.14
84. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, M. Morbey, T.W. Morgan, *Deuterium retention and outgassing in Li-D co-deposits studies in Magnum-PSI*, Oral TO08.1
85. 65th Annual Meeting of the APS Division of Plasma Physics, 2023/10/30-2023/11/03, Denver, CO, USA, C.D. Stephens, D.R. Hatch, M. Kotschenreuther, S. Mahajan, J. Citrin, C. Bourdelle, *Quasilinear gyrokinetic modeling of reduced transport in the presence of high impurity content, large gradients, and large geometric aMHD*, Poster JP11.104
86. 8th International Workshop on Plasma Material Interaction Facilities for Fusion PMIF 2023, 2023/10/30-2023/11/01, Eindhoven, Netherlands, V. Tanke, *Liquid metal challenges for the development of the Liquid Metal Shield laboratory and its current status*, Oral II-14:25
87. 8th International Workshop on Plasma Material Interaction Facilities for Fusion PMIF 2023, 2023/10/30-2023/11/01, Eindhoven, Netherlands, F. Romano, *Studying the physics of the lithium vapour box in the linear plasma generator Magnum-PSI*, Oral IV-15:15
88. 8th International Workshop on Plasma Material Interaction Facilities for Fusion PMIF 2023, 2023/10/30-2023/11/01, Eindhoven, Netherlands, K. Schutjes, *TALIF and CARS diagnostics for measuring atomic and molecular hydrogen densities in divertor-relevant plasmas*, Oral VI-10:15
89. 44th Meeting of the ITPA Topical Group on Diagnostics, 2023/11/08, Online, ITER, France, M.R. de Baar, *Status report ITPA Real Time Diagnostics SWG sub group*, Oral
90. 44th Meeting of the ITPA Topical Group on Diagnostics, 2023/11/08, Online, ITER, France, M. van Berkel, *JEX DIAG-15 report on density (feedback) control with pellets*, Oral
91. MaterialenNL Conference 2023, 2023/12/12, Arnhem, Netherlands, T.W. Morgan, *Development of advanced tungsten materials for the heat exhaust region of nuclear fusion reactors*, Oral Parallel Session Metals for the Energy Transition

92. 62nd IEEE Conference on Decision and Control (CDC 2023), 2023/12/13-2023/12/15, Marina Bay Sands, Singapore, C. Orrico, M. van Berkel, T.O.S.J. Bosman, W.P.M.H. Heemels, D. Krishnamoorthy, *Mixed-integer MPC strategies for fueling and density control in fusion tokamaks*, Oral ThA21.4
93. 62nd IEEE Conference on Decision and Control (CDC 2023), 2023/12/13-2023/12/15, Marina Bay Sands, Singapore, C. Orrico, M. van Berkel, T.O.S.J. Bosman, W.P.M.H. Heemels, D. Krishnamoorthy, *Mixed-integer MPC strategies for fueling and density control in fusion tokamaks (journal publication presentation)*, Oral/Paper ThA21.4

Positions: 32

1. M.R. de Baar, Member of the Fusion for Energy (F4E) Governing Board (since 2019), 2023
2. M.R. de Baar, Leader ITPA Real-time Diagnostics Subgroup (RT-SWG) (since 2018), 2023
3. A.J.H. Donné, Member Coordinating Committee ITER IO-Broader Approach agreement (since 2020), 2023
4. M.R. de Baar, Member of the Fusion for Energy (F4E) Technical Advisory Panel (since 2022), 2023
5. A.J.H. Donné, Member of the ITER Science and Technology Advisory Committee (since 2016), 2023
6. A.J.H. Donné, Member EIROforum Council (member since 2014, chair 2018-2019), 2023
7. A.J.H. Donné, Member of the IEA Technology Collaboration Programmes for Co-operation on Tokamak Programmes (since 2015, chair 2017-2019), 2023
8. A.J.H. Donné, Member Coordinating Committee of the International Tokamak Physics Activity (ITPA-CC) (Member since 2014, Chair 2020-2022), 2023
9. M.J. Pueschel, Member ITPA Transport and Confinement Topical Group, 2023
10. M. van Berkel, Member ITPA Integrated Operations Scenarios (IOS) Topical Group, 2023
11. J. Citrin, Expert ITPA Topical Group on Transport & Confinement (Chair 2017-2022, Deputy Chair 2023), 2023
12. M.J. Pueschel, Member U.S. National Stellarator Coordinating Committee (since 2017), 2023
13. A.J.H. Donné, Member of the Wendelstein 7-X International Programme Committee (since 2015), 2023
14. A.J.H. Donné, Member International Evaluation Committee of the Indian Tokamak Programme (2023), 2023
15. A.J.H. Donné, Member International Advisory Board of the Institute of Solid State Physics, University of Latvia (ISSP-UL) (since 2022), 2023
16. A.J.H. Donné, Chair of the International Advisory Committee of EAST (Hefei, China) (since 2019; member since 2015), 2023
17. A.J.H. Donné, Member of the BEST Programme Advisory Committee (Hefei, China) (since 2021), 2023
18. M.J. Pueschel, Lecturer at Ruhr University Bochum, Germany (since 2021), 2023
19. J. Citrin, Member Executive Scientific Committee 4th International Conference on Data Driven Plasma Sciences, Okinawa, Japan, 16-21 April 2023, 2023
20. A.J.H. Donné, Member International Scientific Committee AAPPS-DPP Conference (Association of Asia Pacific Physical Societies) (since 2017), 2023
21. T.W. Morgan, Member Scientific Programme Committee International Conference on Plasma-Facing Materials and Components for Fusion Applications PFMC (since 2019), 2023
22. M.J. Pueschel, Member Organizing committee 1st European Conference on Magnetic Reconnection in Plasmas (Marseille, May 2023), 2023
23. J. Citrin, Organizer/chair ATIM Workshop (Advances in Tokamak Integrated Modelling), Eindhoven, Netherlands, 20-24 March 2023, 2023
24. M.R. de Baar, Member executive board of ITER-NL consortium (since 2014) and program leader for the MHD stabilization work package, 2023
25. J. Citrin, Advisory Board Member of the Dutch Physics Council, 2023

26. M.J. Pueschel, Member NWO advisory committee Physics of Fluids and Soft Matter (since 2021), 2023
27. M.R. de Baar, Professor at Eindhoven University of Technology (since 2012), 2023
28. T.W. Morgan, Associate Professor Eindhoven University of Technology (since 2019), 2023
29. M.R. de Baar, Member of the Advisory Board FONTYS Applied Natural Sciences (since 2018), 2023
30. M.J. Pueschel, Lecturer at Eindhoven University of Technology (since 2021), 2023
31. H.J. de Blank, Lecturer Course series at Eindhoven University of Technology (since 2015), 2023
32. T.W. Morgan, I.G.J. Classen, Member Local organizing Committee International Workshop on Plasma-Facing Materials and Components for Fusion Applications PFMC 2023, Eindhoven, Netherlands, 2023

Public events and industry contacts: 3

1. Workshop on Public-Private Partnerships, 2023/06/06, Brussels, Belgium, A.J.H. Donné, *EU industry and research: expectations and barriers*
2. Lecture Koninklijke Industrieele Groote Club, 2023/09/27, Amsterdam, Netherlands, M.R. de Baar, *Kernfusie: the good, the bad, the ugly*
3. Belgian Fusion Day 2023 by SCK CEN, 2023/10/09, Mol, Belgium, M.R. de Baar, *The Dutch nuclear fusion programme*

Media appearances: 10

1. *Zijn kernfusiereactoren dé oplossing? 'Moeten nog flink wat hobbels nemen'*, AD, 2023/01/23, Interview with M. de Baar, E. Westerhof
2. *Deze nieuwe kernreactoren zijn veiliger, efficiënter en produceren medische innovaties*, BNR, 2023/02/09, Interview with M. de Baar
3. *Dutch nuclear startup aims to harvest the power of thorium*, Bits and Chips, 2023/02/15, General coverage
4. *Kennisveiligheid in de praktijk*, NWO Onderzoek, (2023) 14, 2023/04/15, Interview with M. de Baar
5. *The quest of nuclear fusion*, Lithuanian National Television, 2023/05/23, Interview with T. Donné
6. *Kernfusie: de belofte van oneindig veel groene energie*, BNR Duurzaam, 2023/12/11, Interview with M. de Baar
7. *'We lopen nu nog voorop met kernfusie'*, NRC, 2023/12/18, Interview with T. Donné
8. *Joint European Torus test nieuwe oplossingen voor toekomstige fusiecentrales*, Engineeringnet.be, 2023/11/27, General coverage
9. *De Canon van Nieuwegein*. Lemma 30 'fom-rijnhuizen 1958' en lemma 34 'koninklijk bezoek 1972', Museum Warsenhoeck, Nieuwegein, Netherlands, 2023/12/07, General coverage, Acknowledgement A. Vrouwe
10. *40 years of JET, on the occasion of the last JET operation*, BBC News on TV, 2023/12/13, Interview with T. Donné

2. Scientific Output DIFFER Solar Fuels in 2023

PhD theses: 4

1. U. Mushtaq, *Protonic ceramic membrane reactors for carbon dioxide valorization*, PhD thesis at the Eindhoven University of Technology, 2023/05/26, Promotor(s): M.C.M. van de Sanden, F. Galluci; Co-promotor: M.A. Tsampas
2. O. Biondo, *Towards a fundamental understanding of energy-efficient, plasma-based CO2 conversion*, PhD thesis at the Eindhoven University of Technology, 2023/07/03, Promotor(s): A. Bogaerts, G.J. van Rooij
3. R.R. Jacquemond, *Development of membrane diagnostics and novel porous materials for next generation redox flow batteries*, PhD thesis at the Eindhoven University of Technology, 2023/02/21, Promotor(s): K. Nijmeijer, A. Forner-Cuenca
4. A.Sovelas da Silva, *Unraveling CO2 excitation dynamics for novel fixation technologies*, PhD thesis at the Eindhoven University of Technology, 2023/05/17, Promotor(s): G.J. van Rooij; Co-promotor: V.L. Guerra

Master thesis, Master internship reports & Bachelor internship reports: 6

1. L. Kuijpers, *Influence of methane addition to vortex stabilised CO2 microwave discharges*, Master thesis Eindhoven University of Technology, 2023/10/31, Mentor: C.F.A.M. van Deursen, M.C.M. van de Sanden
2. N. Corré, *A ChatGPT-written abstract detector*, Master internship University of Strasbourg, 2023/09/27, Mentor: S. Er
3. B. Lecarlate–Fernandez, *DFT simulations of catholyte molecules for aqueous redox flow batteries*, Master internship University of Strasbourg, 2023/10/10, Mentor: S. Er
4. F. Theron, *Implementing second order sensitivity indices for a microkinetic model of photo-electrochemical water splitting*, Master internship University of Strasbourg, 2023/09/14, Mentor: B.F.H. van den Boorn, A. Bieberle-Hütter
5. B. Saliou, *Chemical vendor search tool*, Master internship University of Strasbourg, 2023/09/14, Mentor: S. Er
6. I.Claassen, *Research in vibrationally-activated CO2 molecules with single atom catalysts (SACs)*, Bachelor internship Fontys University of Applied Sciences, 2023/02/02, Mentor: S. Er

Publications in peer-reviewed scientific journals: 36

1. E.R. Mercer, S. van Alphen, C.F.A.M. van Deursen, T.W.H. Righart, W.A. Bongers, R. Snyders, A. Bogaerts, M.C.M. van de Sanden, F.J.J. Peeters, *Post-plasma quenching to improve conversion and energy efficiency in a CO2 microwave plasma*, Fuel 334 (2023) 126734
2. M. Altin, L. Vialetto, S. Longo, P. Viegas, P. Diomede, *A modified Fokker–Planck approach for a complete description of vibrational kinetics in a N2 plasma chemistry model*, J. Phys. Chem. A 127 (2023) 261–275
3. D. Douat, S. Ponduri, T. Boumans, O. Guaitella, S. Welzel, E. Carbone, R. Engeln, *The role of the number of filaments in the dissociation of CO2 in dielectric barrier discharges*, Plasma Sources Sci. Technol. 32 (2023) 055001
4. O. Biondo, A. Hughes, A.W. van de Steeg, S. Maerivoet, B. Loenders, G.J. van Rooij, A. Bogaerts, *Power concentration determined by thermodynamic properties in complex gas mixtures: the case of plasma-based dry reforming of methane*, Plasma Sources Sci. Technol. 32 (2023) 045001

5. R. Gubo, P.J. Ren, D. Garcia Rodriguez, C.J. Weststrate, Y.W. Li, J.W. Niemantsverdriet, *Atomistic understanding of the formation, structure, and decomposition of an Fe4C iron carbide phase on a copper substrate*, J. Phys. Chem. C 127 (2023) 12811-12820
6. W.Q. Guo, Y.K. Wang, Q. Yi, E. Devid, X.L. Li, P . Y. Lei, W.L. Shan, K. Qi, L.J. Shi, L.L. Gao, *Research progress of aqueous Zn-CO2 battery: design principle and development strategy of a multifunctional catalyst*, Front. Energy Res. 11 (2023) 1194674
7. A. Salden, M. Budde, C. Garcia-Soto, O. Biondo, J. Barauna, M. Faedda, B. Musig, C. Fromentin, M. NGuyen-Quang, G.J. van Rooij, et al., *Meta-analysis of CO2 conversion, energy efficiency, and other performance data of plasma-catalysis reactors with the open access PIONEER database*, J. Energy Chem. 86 (2023) 318-342
8. X. Zhou, R.A.J. Janssen, S. Er, *Virtual screening of organic quinones as cathode materials for sodium-ion batteries*, Energy Adv. 2 (2023) 820-828
9. X. Zhou, A. Khetan, J. Zheng, M. Huijben, R.A.J. Janssen, S. Er, *Discovery of lead quinone cathode materials for Li-ion batteries*, Digital Discov. 2 (2023) 1016-1025
10. Y.T. Luo, H.L. Wu, X. Zhou, J.H. Wang, S. Er, Y. Li, P.L.W. van Welzen, R.A.J.F. Oerlemans, L.K.E.A. Abdelmohsen, J.X. Shao, et al., *Polymer vesicles with integrated photothermal responsiveness*, J. Am. Chem. Soc. 145 (2023) 20073-20080
11. K. Datta, B. Branco, Y. Zhao, V. Zardetto, N. Phung, A. Bracesco, L. Mazzarella, M.M. Wienk, M. Creatore, I. Olindo, et al., *Efficient continuous light-driven electrochemical water splitting enabled by monolithic perovskite-silicon tandem photovoltaics*, Adv. Mater. Technol. 8 (2023) 2201131
12. D. Zhang, K. Datta, V. Zardetto, S. Veenstra, G. Coletti, R.A.J. Janssen, *Validated method for evaluating the four-terminal perovskite/Si tandem cell performance and its efficiency potential*, Sol. RRL 7 (2023) 2200914
13. O. Almora, D. Baran, G.C. Bazan, C.I. Cabrera, S. Erten-Ela, K. Forberich, F. Guo, J. Hauch, A.W. Y. Ho-Baillie, R.A.J. Janssen, et al., *Device performance of emerging photovoltaic materials (version 3)*, Adv. Energy Mater. 13 (2023) 2203313
14. X. Ma, H. Bin, B.T. van Gorkom, T.P.A. van der Pol, M.J. Dyson, C.H.L. Weijtens, M. Fattori, S.C.J. Meskers, A.J.J.M. van Breemen, D. Tordera, et al., *Identification of the origin of ultralow dark currents in organic photodiodes*, Adv. Mater. 35 (2023) 2209598
15. D. Neagu, J.T.S. Irvine, J.Y. Wang, B. Yildiz, A.K. Opitz, J. Fleig, Y. Wang, J.P. Liu, U. Mushtaq, M.N. Tsampas, et al., *Roadmap on exsolution for energy applications*, J. Phys. Energy 5 (2023) 031501
16. R. van Limpt, M. Lavorenti, M.A. Verheijen, M.N. Tsampas, M. Creatore, *Control by atomic layer deposition over the chemical composition of nickel cobalt oxide for the oxygen evolution reaction*, J. Vac. Sci. Technol. A 41 (2023) 032407
17. H.J. Bin, J.Y. Li, A. Caiazzo, M.M. Wienk, Y.F. Li, R.A.J. Janssen, *Preparation of efficient organic solar cells based on terpolymer donors via a monomer-ratio insensitive side-chain hybridization strategy*, ChemSusChem 16 (2023) e202300006
18. T.P.A. van der Pol, B.T. van Gorkom, W.F.M. van Geel, J. Littmann, M.M. Wienk, R.A.J. Janssen, *Origin, nature, and location of defects in PM6:Y6 organic solar cells*, Adv. Energy Mater. 13 (2023) 2300003
19. R. Ollearo, X. Ma, H.B. Akkerman, M. Fattori, M.J. Dyson, A.J.J.M. van Breemen, S.C.J. Meskers, W. Dijkstra, R.A.J. Janssen, *Vitality surveillance at distance using thin-film tandem-like narrowband near-infrared photodiodes with light-enhanced responsivity*, Sci. Adv. 9 (2023) eadf9861
20. M.C.M. Bessa, A. Luna-Triguero, J.M. Vicent-Luna, P.M.O.C. Carmo, M.N. Tsampas, A. Mafalda-Ribeiro, A.E. Rodrigues, S. Calero, A.F.P. Ferreira, *An efficient strategy for electroreduction reactor outlet fractioning into valuable products*, Ind. Eng. Chem. Res. 62 (2023) 8847-8863
21. M. Singh, K. Datta, A. Amarnath, F. Wagner, Y. Zhao, G. Yang, A. Bracesco, N. Phung, M.M. Wienk, R.A.J. Janssen, et al., *Crystalline silicon solar cells with thin poly-SiOx carrier-selective passivating contacts for perovskite/c-Si tandem applications*, Prog. Photovolt: Res. Appl. 31 (2023) 877-887

22. A. Ranade, M. Lao, R.H.M. Timmer, E. Zoethout, H.J.N. van Eck, M.N. Tsampas, *Plasma-driven synthesis of self-supported nickel-iron nanostructures for water electrolysis*, Adv. Mater. Interfaces 10 (2023) 2300486
23. K. Datta, A. Caiazzo, M.A. Hope, J.Y. Li, A. Mishra, M. Cordova, Z. Chen, L. Emsley, M.M. Wienk, R.A.J. Janssen, *Light-induced halide segregation in 2D and quasi-2D mixed-halide perovskites*, ACS Energy Lett. 8 (2023) 1662-1670
24. A.Caiazzo, A.J.L.A. Maufort, B.T. van Gorkom, W.H.M. Remmerswaal, J. Ferrer Orri, J.Y. Li, J. Wang, W.T.M. van Gompel, M.M. Wienk, R.A.J. Janssen, et al., *3D perovskite passivation with a benzotriazole-based 2D interlayer for high-efficiency solar cells*, ACS Appl. Energy Mater. 6 (2023) 3933-3943
25. C.T.C. Wan, R.R. Jacquemond, Y.M. Chiang, A. Forner-Cuenca, F.R. Brushett, *Engineering redox flow battery electrodes with spatially varying porosity using non-solvent-induced phase separation*, Energy Technol. 11 (2023) 2300137
26. Y. Zhao, K. Datta, N. Phung, A. Bracesco, V. Zardetto, G. Paggiaro, H.C. Liu, M.M. Wienk, W.M.M. Kessels, R.A.J. Janssen, et al., *Optical simulation-aided design and engineering of monolithic perovskite/silicon tandem solar cells*, ACS Appl. Energy Mater. 6 (2023) 5217-5229
27. X. Ma, R.A.J. Janssen, G.H. Gelinck, *Trap-assisted charge generation and recombination in state-of-the-art organic photodetectors*, Adv. Mater. Technol. 8 (2023) 2300234
28. S. Haghverdi Khamene, C. van Helvoirt, M.N. Tsampas, A. Creatore, *Electrochemical activation of atomic-layer-deposited nickel oxide for water oxidation*, J. Phys. Chem. C 127 (2023) 22570-22582
29. X. Ma, R. Ollearo, B.T. van Gorkom, C.H.L. Weijtens, M. Fattori, S.C.J. Meskers, A.J.J.M. van Breemen, R.A.J. Janssen, G.H. Gelinck, *Origin and energy of intra-gap states in sensitive near-infrared organic photodiodes*, Adv. Funct. Mater. 33 (2023) 2304863
30. B.F.H. van den Boorn, M. van Berkel, A. Bieberle-Hütter, *Variance-based global sensitivity analysis: a methodological framework and case study for microkinetic modeling*, Adv. Theory Simul. 6 (2023) 2200615
31. Q. Liang, G. Brocks, A. Bieberle-Hütter, *First-principles study of the magnetic exchange forces between the RuO2(110) surface and Fe tip*, ChemPhysChem 24 (2023) e202200429
32. S. Kajita, T. Eda, S. Feng, H. Tanaka, A. Bieberle-Hütter, N. Ohno, *Increased photoelectrochemical performance of vanadium oxide thin film by helium plasma treatment with auxiliary molybdenum deposition*, Adv. Energy Sustain. Res. 4 (2023) 2200141
33. C.J. Weststrate, D. Sharma, M.A. Gleeson, J.W. Niemantsverdriet, *Water and hydroxyl reactivity on flat and stepped cobalt surfaces*, J. Phys. Chem. C 127 (2023) 2974–2980
34. C.J. Weststrate, D. Sharma, D. Garcia Rodriguez, H.O.A. Fredriksson, J.W. Niemantsverdriet, *Water formation kinetics on Co(0001) at low and near-ambient hydrogen pressures in the context of Fischer-Tropsch synthesis*, J. Phys. Chem. C 127 (2023) 3452-3461
35. N.P. Prasad, M. Rohnke, M.A. Verheijen, J.M. Sturm, J.P. Hofmann, J.M. Hensen, A. Bieberle-Hütter, *Role of excess Bi on the properties and performance of BiFeO3 thin-film photocathodes*, ACS Appl. Energy Mater. 6 (2023) 12237-12248
36. O. Biondi, C.F.A.M. van Deursen, A. Hughes, A.W. van de Steeg, W.A. Bongers, M.C.M. van de Sanden, G.J. van Rooij, A. Bogaerts, *Avoiding solid carbon deposition in plasma-based dry reforming of methane*, Green Chem. 25 (2023) 10485-10497

Publications in other journals and conference proceedings: 1

1. B.F.H. van den Boorn, M. van Berkel, A. Bieberle-Hütter, *State-space modeling of charge-carrier dynamics for the oxygen evolution reaction in water splitting*, Book of Abstracts 42nd Benelux Meeting on Systems and Control (2023) 82

Professional publications: 3

1. A.Goede, KEROGREEN - Synthetic kerosene from renewable sources could power the transition to zero-emission flying, CORDIS EU Report. 2022 (2023) 443172
2. B.Bos, M.C.M. van de Sanden, D.J.E.A. Dooghe, R. Dowling, M. Altaghlibi, G. Kramer, New routes for the energy transition. Exploratorive research on three underexposed themes for a new research agenda, NWA Report 2022 (2023) 73
3. G.J. van Rooij, Uit het evenwicht, Inaugural lecture in Plasma chemistry Maastricht University, 2023/06/02

Open Software and Databases: 1

1. M.C. Sorkun, E.N. Ghassemi, C. Yatbaz, J.M.V.A. Koelman, S. Er, *RedPred, a machine learning model for the prediction of redox reaction energies of the aqueous organic electrolytes*, ChemRxiv (2023) version1

Invited lectures at conferences and meetings: 28

1. Mat4Sus Symposium 2023 Materials for Sustainability, 2023/02/03, Delft, Netherlands, S. Er, *Automating the exploration of electroactive molecules for large-scale energy storage*
2. Online Low Temperature Plasma (OLTP) Seminar 2023, 2023/03/21, Online, Princeton, NJ, US, M.N. Tsampas, *Plasma activated electrochemical membrane reactors for energy applications*, Oral #s1603
3. 7th Global Energy Meet (GEM-2023), 2023/03/06-2023/03/10, Online, Boston, MA, US, A. Bieberle-Hütter, *Materials research for the energy transition: from modelling to small scale systems*, Oral Day5, 11:00
4. Symposium “Sustainability” by six EuroTech Universities: An alliance working for global sustainability, 2023/03/28, Paris, France, M.C.M. van de Sanden, *Show case EIRES/DIFFER Research*
5. 49th IOP Annual Plasma Physics Conference 2023, 2023/03/27-2023/03/30, Oxford, UK, A. Goede, *CO2 conversion via coupled plasma-electrolysis process*, Oral VII
6. 49th EPS Conference on Plasma Physics, 2023/07/03-2023/07/07, Bordeaux, France, L. Vialetto, *Multiscale modeling of plasma-surface interactions*, Oral I4.302
7. Aachen Hydrogen Colloquium 2023 Driving the energy revolution by The Hydrogen Clusters4Future, 2023/04/18-2023/04/19, Aachen, Germany, M.C.M. van de Sanden, *Hydrogen developments: the Dutch perspective*, Oral Keynote
8. EnergyNow Symposium 2023, 2023/05/15, Eindhoven, Netherlands, M.C.M. van de Sanden, *Eindhoven Institute for Renewable Energy Systems (EIRES), an introduction*, Oral Keynote
9. IUPAC|CHAINS 2023 (49th IUPAC World Chemistry Congress and 11th CHAINS), 2023/08/20-2023/08/25, The Hague, The Netherlands, P.P. Kunturu, M. Lavorenti, S. Bera, H. Johnson, S. Kinge, M.C.M. van de Sanden, M.N. Tsampas, *Scaling up BiVO4 photoanode for bias-free solar hydrogen production in zero-gap photoelectrochemical devices*, Oral [INV] F52-1073 (Focus session)
10. The plasma road to sustainable chemical conversion workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, M.C.M. van de Sanden, *Plasma conversion of N2/O2. The context: nitrogen fixation*, Oral Tue 9:00
11. The plasma road to sustainable chemical conversion workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, G.J. van Rooij, *Methane plasma chemistry to aid the energy and materials transition in the process industry*, Oral Tue 11:25

12. The plasma road to sustainable chemical conversion workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, P. Viegas, J. Afonso, L. Vialetto, V. Guerra, *Plasma-induced reversible surface modification and its impact on oxygen heterogeneous recombination*, Oral Tue 15:20
13. E-MRS Fall Meeting 2023, 2023/09/18-2023/09/21, Warsaw, Poland, A. Bieberle-Hütter, *The role of excess Bi on the properties and the performance of BiFeO3 thin film photocathodes*
14. 23rd International Conference on Gas Discharges and their Applications (GD 2023), 2023/09/10-2023/09/15, Greifswald, Germany, M.C.M. van de Sanden, *The role of plasma conversion technology in the greening of the chemical industry*, Oral Invited 05
15. FEMS EUROMAT23 Materials Science and Technology in Europe Hybrid Congress, 2023/09/03-2023/09/07, Frankfurt am Main, Germany, S. Er, *Automating the exploration of molecules for redox flow batteries*, Oral E04.01 11:30
16. Symposium Syngaschem BV - 10 years, 2023, 2023/09/29, Eindhoven, Netherlands, M.C.M. van de Sanden, *Sustainable energy research at TU/e and in The Netherlands*
17. MATSUS Fall 2023, Symposium DEVSF Solar fuels: moving from materials to devices, 2023/10/16-2023/10/20, Torremolinos, Spain, A. Bieberle-Hütter, *Photoelectrode and surface engineering via scalable methods*, Oral 1.1-I1
18. Spin matters! Magnetic order and chiral molecules in electrocatalysis - Lorentz Workshop, 2023/11/27-2023/12/01, Leiden, Netherlands, A. Bieberle-Hütter, *Multiscale modeling of electrochemical interfaces: Challenges and chances*
19. 244th ECS Meeting 2023, 2023/10/08-2023/10/12, Gothenburg, Sweden, B.F.H. van den Boorn, M. van Berkel, A. Bieberle-Hütter, *Integration of charge-carrier dynamics and microkinetic electrochemical modeling in unified microkinetic model for the oxygen evolution reaction in water splitting*, Oral I05-2340
20. 244th ECS Meeting 2023, 2023/10/08-2023/10/12, Gothenburg, Sweden, S. Bera, M.J. Jung, S.H. Kwon, A. Herrmann, M.C.M. van de Sanden, M.N. Tsampas, *Managing the scaling relationship for plasma-activated electrolysis toward nitrogen fixation*, Oral I04-2247
21. GeCatS Infoday 2023: Electrification of catalytic processes, 2023/12/04, Frankfurt am Main, Germany, M.C.M. van de Sanden, *The electrification of chemical conversion processes by means of non-thermal plasma-assisted catalysis*
22. Mat4Sus Symposium 2023 Materials for Sustainability, 2023/02/03, Delft, Netherlands, R.A.J. Janssen, *Material and device design for multijunction perovskite solar cells*
23. Nobel Symposium NS191 2023 Efficient Light to Electric Power Conversion for a Renewable Energy Future, 2023/05/03-2023/05/05, Uppsala, Sweden, R.A.J. Janssen, *Material and device design for multijunction perovskite solar cells*
24. EIRES Energizing Day 2023, 2023/06/23, Eindhoven, Netherlands, R.A.J. Janssen, *Increasing the efficiency of solar cells using perovskites*
25. MRS Spring Meeting 2023, 2023/04/10-2023/04/14, San Francisco, CA, US, R.A.J. Janssen, *Understanding and reducing dark currents in perovskite photodetectors*, Oral *EL20.04.04
26. ICMS Annual Symposium 2023 Shaping the future of complex systems (TU/e Institute for complex molecular systems), 2023/03/30, Eindhoven, Netherlands, R.A.J. Janssen, *Material and device design for multijunction perovskite solar cells*
27. Nanotechnology Crossing Borders Symposium 2023, 2023/10/24, Hasselt, Belgium, R.A.J. Janssen, *Light-driven electrochemical water splitting enabled by monolithic perovskite-silicon tandem photovoltaics*
28. 2nd International Emerging PV workshop (EPVW2) at NGSE8 (Next Generation Solar Energy Conference) 2023, 2023/12/12-2023/12/14, Erlangen, Germany, R.A.J. Janssen, *Material and device design for multijunction perovskite solar cells*, Oral Thursday

Invited seminars: 11

1. Brightlands Science Lecture 2023, 2023/02/16, Sittard-Geleen, Netherlands, G.J. van Rooij, *The flame without the CO2*
2. Seminar TU/e EIRES 2023, 2023/04/20, Eindhoven, Netherlands, S. Er, *Automatizing the discovery of molecules for energy storage*
3. Colloquium TU Delft Chemical Engineering Faculty, 2023/04/03, Delft, Netherlands, S. Er, *Automatizing the discovery of molecules for energy storage*
4. ARC CBBC Summer School (Advanced Research Center Chemical Building Blocks Consortium), 2023/06/12-2023/06/14, Dordrecht, Netherlands, M.C.M. van de Sanden, *The electrification of chemical conversion processes by means of plasma-assisted non-thermal processes or Plasma for Chemical Conversion, the basics and practical examples*
5. Monthly Seminar NWO 2023, 2023/09/04, Online, Utrecht, Netherlands, A. Bieberle-Hütter, *PLD4Energy: Pulsed Laser Deposition Lab for Energy Research*
6. AMOLF Colloquium 2023, 2023/09/25, Amsterdam, Netherlands, M.C.M. van de Sanden, *Renewable electricity driven chemistry for energy conversion and storage: novel pathways provided by plasma enhanced chemistry*
7. ASML Tech Talk 2023, 2023/11/27, Veldhoven, Netherlands, M.C.M. van de Sanden, *Renewable energy driven non-thermal chemistry: plasma chemistry as the special case*
8. Energy & Environmental Materials, Wiley online webinar, 2023/01/12, Online, Germany, R.A.J. Janssen, *Materials and device architectures towards 20% efficient organic solar cells*
9. Seminar Université de Pau et des Pays de l'Adour, 2023/10/26, Pau, France, R.A.J. Janssen, *Materials and device architectures towards 20% efficient organic solar cells*
10. Seminar University of Oxford, 2023/11/07, Oxford, UK, R.A.J. Janssen, *A multijunction solar cell journey*
11. Seminar Hasselt University, 2023/09/28, Hasselt, Belgium, R.A.J. Janssen, *Tutorial: Organic and metal halide perovskite photovoltaics*

Oral and poster presentations at (international) conferences & meetings: 49

1. COST Workshop Continuum modeling in energy applications, 2023/01/26, Eindhoven, Netherlands, B.F.H. van den Boorn, *Microkinetic and charge carrier transport modeling of the oxygen evolution reaction*, Oral 10:35
2. Fundamentals and Methods of Chemistry Meeting (FMC 2023): Machine learning for Chemistry, 2023/03/10, Leiden, Netherlands, S. Er, *Autonomous energy materials discovery*, Oral
3. 42nd Benelux Meeting on Systems and Control 2023, 2023/03/21-2023/03/23, Elspeet, Netherlands, B.F.H. van den Boorn, M. van Berkel, A. Bieberle-Hütter, *State-space modeling of charge-carrier dynamics for the oxygen evolution reaction in water splitting*, Oral WeM01-6
4. 24th Netherlands' Catalysis and Chemistry Conference NCCC 2023, 2023/03/06-2023/03/08, Noordwijkerhout, Netherlands, A. Vass, H. Ghanem, S. Rosiwal, T. Franken, R. Palkovits, M.N. Tsampas, G. Mul, M. Altomare, G. Katsoukis, *Gas phase electrochemical conversion of methane*, Poster
5. Physics Veldhoven 2023, 2023/04/04-2023/04/05, Veldhoven, Netherlands, B.F.H. van den Boorn, M. van Berkel, A. Bieberle-Hütter, *Microkinetic and charge-carrier transport modeling of the oxygen evolution reaction in water splitting*, Poster
6. Physics Veldhoven 2023, 2023/04/04-2023/04/05, Veldhoven, Netherlands, S. Haghverdi Khamene, C. van Helvoirt, M.N. Tsampas, M. Creatore, *Electrochemical activation of atomic layer deposited nickel oxide for water oxidation*, Poster

7. Physics Veldhoven 2023, 2023/04/04-2023/04/05, Veldhoven, Netherlands, Y. Wang, S. Er, *ML-assisted computational discovery of 2D materials for H2 production*, Poster
8. SPIN-NL Zomersessie 2023, Brightlands Chemelot Campus: Plasma: Emerging conversion technology from lab to deployment, 2023/06/06, Geleen, Netherlands, W. Bongers, *Plasma reactor development*, Oral Middag 3
9. SPIN-NL Zomersessie 2023, Brightlands Chemelot Campus: Plasma: Emerging conversion technology from lab to deployment, 2023/06/06, Geleen, Netherlands, G.J. van Rooij, *Methane plasma chemistry to aid the energy and materials transition in the process industry*, Oral Middag 1
10. Bad Honnef Symposium on Nonthermal chemical conversion processes 2023, 2023/04/23-2023/04/27, Bad Honnef, Germany, M.C.M. van de Sanden, *Non-thermal plasma conversion of CO2, N2/O2 and CH4*, Oral
11. International Conference on Phenomena in Ionized Gases (ICPIG XXXV) 2023, 2023/04/23-2023/04/27, Bad Honnef, Germany, C. van Deursen, H. van Poyer, W.A. Bongers, F.J.J. Peeters, F.M.A. Smits, M.C.M. van de Sanden, *Effluent nozzles in reverse-vortex-stabilized microwave plasmas for performance enhancement*, Poster P2-42
12. International Conference on Phenomena in Ionized Gases (ICPIG XXXV) 2023, 2023/04/23-2023/04/27, Bad Honnef, Germany, A. Pikalev, D. Sadi, O. Guaitella, P. Viegas, T. Silva, A. Tejero-del-Caz, L.L. Alves, M.C.M. van de Sanden, V. Guerra, *Collisional-radiative model of low-pressure He-O2 plasma*, Poster P2-8
13. International Conference on Phenomena in Ionized Gases (ICPIG XXXV) 2023, 2023/04/23-2023/04/27, Bad Honnef, Germany, X. Chen, A. Pikalev, G.J. Zhang, V. Guerra, M.C.M. van de Sanden, *Experimental study of the plasma enhanced oxygen reduction and permeation of LSM|YSZ|LSM solid oxide electrolyte cell*, Poster P1-22
14. International Conference on Phenomena in Ionized Gases (ICPIG XXXV) 2023, 2023/04/23-2023/04/27, Bad Honnef, Germany, L. Kuijpers, T. Silva, V. Guerra, E. Baratte, O. Guaitella, D. Sadi, M.C.M. van de Sanden, *Determination of atomic oxygen density and reduced electric field in oxygen containing plasmas through OES methods*, Poster P1-20
15. International Conference on Phenomena in Ionized Gases (ICPIG XXXV) 2023, 2023/04/23-2023/04/27, Bad Honnef, Germany, F.M.A. Smits, L. de Man, P.W.C. Groen, J.A.J.M. Disselhorst, E.J. Visser, E.L. Wiegers, C.F.A.M. van Deursen, D. Bouwmeester, M.C.M. van de Sanden, W.A. Bongers, *Flow and microwave design of the Topological Reactor*, Poster P1-12
16. International Conference on Phenomena in Ionized Gases (ICPIG XXXV) 2023, 2023/07/09-2023/07/14, Egmond aan Zee, Netherlands, A. Herrmann, P. Krebaum, S. Bera, M.N. Tsampas, M.C.M. van de Sanden, *Determining the dependency of radical density on position by dual thermocouple radical probe*, Oral Wed1A-4
17. International Conference on Phenomena in Ionized Gases (ICPIG XXXV) 2023, 2023/04/23-2023/04/27, Bad Honnef, Germany, Q. Shen, F.J.J. Peeters, M.C.M. van de Sanden, *Non-thermal chemical dissociation of CO2: a modelling approach*, Oral Mon2A-4
18. 243rd ECS Meeting 2023 and 18th International Symposium on Solid Oxide Fuel Cells (SOFC-XVIII), 2023/05/28-2023/06/02, Boston, MA, USA, R.R. Jacquemond, C.T.C. Wan, S. Buzzi, Y.M. Chiang, K. Nijmeijer, F.R. Brushett, A. Forner-Cuenca, *Microstructural engineering of flow battery electrodes with non-solvent induced phase separation*, Oral
19. 243rd ECS Meeting 2023 and 18th International Symposium on Solid Oxide Fuel Cells (SOFC-XVIII), 2023/05/28-2023/06/02, Boston, MA, USA, R.R. Jacquemond, M. van der Heijden, E. Burak Boz, E.R. Carreon-Ruiz, V. Munoz-Perales, K. Nijmeijer, P. Boillatt, A. Forner-Cuenca, *Investigating transport through membranes in non-aqueous redox flow batteries with neutron radiography*, Oral
20. ECCM Graduate School (by Platform ElektroChemische Conversie en Materialen (co2neutraalin2050.nl), 2023/06/13-2023/06/16, Noordwijk, Netherlands, B.F.H. van den Boorn, M. van Berkel, A. Bieberle-Hütter, *Electrochemical and charge-carrier transport modeling for the oxygen evolution reaction in water splitting*, Poster

21. International Flow Battery Forum IFBF 2023, 2023/06/27-2023/06/29, Prague, Czech Republic, R.R. Jacquemond, C.T.C. Wan, S. Buzzi, Y.M. Chiang, K. Nijmeijer, F.R. Brushett, A. Forner-Cuenca, *Manufacturing the next generation of redox flow battery electrodes via non-solvent induced phase separation*, Oral
22. PoPULAR Kick-off meeting 2023 (Printed and Stable Organic Photovoltaics from Non-fullerene Acceptors), 2023/07/17-2023/07/18, Chemnitz, Germany, R.A.J. Janssen, *Materials and device architectures towards 20% efficient organic solar cells*, Oral
23. Workshop New Horizons in Materials Design 2023, 2023/08/17-2023/08/18, Düsseldorf, Germany, X. Zhou, R.A.J. Janssen, S. Er, *High-throughput computational screening of organic cathode materials for Li/Na-ion batteries*, Poster
24. Workshop New Horizons in Materials Design 2023, 2023/08/17-2023/08/18, Düsseldorf, Germany, Y. Wang, G. Brocks, S. Er, *ML-aided computational screening of 2D materials for photocatalytic water splitting*, Poster
25. IUPAC|CHAINS 2023 (49th IUPAC World Chemistry Congress and 11th CHAINS), 2023/08/20-2023/08/25, The Hague, The Netherlands, S. Haghverdi Khamene, C. van Helvoirt, M. Creatore, M.N. Tsampas, *Electrochemical activation of ALD NiO for electrocatalytic OER*, Oral O63-0358
26. IUPAC|CHAINS 2023 (49th IUPAC World Chemistry Congress and 11th CHAINS), 2023/08/20-2023/08/25, The Hague, The Netherlands, A. Ranade, M. Lao, R.H.M. Timmer, H.J.N. van Eck, M.N. Tsampas, *Plasma-induced NiFe nanostructures for enhanced water electrolysis*, Oral O27-0419
27. IUPAC|CHAINS 2023 (49th IUPAC World Chemistry Congress and 11th CHAINS), 2023/08/20-2023/08/25, The Hague, The Netherlands, A. Herrmann, P. Krebaum, M.C.M. van de Sanden, *Mapping fluxes of activated species in plasma reactors*, Poster P1-B1027
28. IUPAC|CHAINS 2023 (49th IUPAC World Chemistry Congress and 11th CHAINS), 2023/08/20-2023/08/25, The Hague, The Netherlands, P. Le, G. Koster, A. Bieberle-Hütter, C. Baeumer, *Oxide nanosheets for high-performance functional thin film applications*, Poster P2-B1017
29. IUPAC|CHAINS 2023 (49th IUPAC World Chemistry Congress and 11th CHAINS), 2023/08/20-2023/08/25, The Hague, The Netherlands, T. van Eeden, M.C.M. van de Sanden, W.A. Bongers, Q. Shen, V. Laitl, *Studying non-thermal N2/O2 plasmas using Raman spectroscopy*, Poster P1-A1038
30. 74th Annual Meeting of International Society of Electrochemistry ISE 2023, 2023/09/03-2023/09/08, Lyon, France, M.N. Tsampas, U. Mushtaq, S. Welzel, M.C.M. van de Sanden, *A step-by-step approach to overcome fabrication and design challenges of proton conducting electrochemical ceramic membrane reactors for efficient carbon dioxide conversion to methane*, Oral S6b
31. 74th Annual Meeting of International Society of Electrochemistry ISE 2023, 2023/09/03-2023/09/08, Lyon, France, M. Lao, A. Ranade, M.N. Tsampas, *Exsolution concept of perovskite oxides brings new opportunities to anion exchange membrane water electrolyzers*, Oral S6a
32. 74th Annual Meeting of International Society of Electrochemistry ISE 2023, 2023/09/03-2023/09/08, Lyon, France, S. Haghverdi Khamene, C. van Helvoirt, M.N. Tsampas, M. Creatore, *Tuning nickel oxide film properties via atomic layer deposition for enhanced O2 evolution reaction*, Oral S9
33. 74th Annual Meeting of International Society of Electrochemistry ISE 2023, 2023/09/03-2023/09/08, Lyon, France, J. Pattadai, B. Goldman, M. Lavorenti, H. Johnson, M.N. Tsampas, K. Sivula, R. van de Krol, *Electrochemical deposition of BiVO4 on quartz-based transparent, conductive, porous substrates for solar gas-phase water splitting applications*, Poster S08-P-015
34. 74th Annual Meeting of International Society of Electrochemistry ISE 2023, 2023/09/03-2023/09/08, Lyon, France, P. Kunturu, M. Lavorenti, S. Bera, H. Johnson, S. Kinge, M.C.M. van de Sanden, M.N. Tsampas, *Scaling up bias-free solar hydrogen production in zero-gap polymeric electrolyte membranes-based photoelectrochemical cells with abundant materials*, Poster S09-P-028

35. The plasma road to sustainable chemical conversion workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, T. Silva, C.D. Pintassilgo, A. Herrmann, S. Bera, S. Welzel, M.N. Tsampas, M.C.M. van de Sanden, V. Guerra, *Understanding nitrogen fixation while studying volume and surface kinetics in N2-O2 plasmas*, Oral Tue 17:20
36. The plasma road to sustainable chemical conversion PARADiSE workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, A. Pikalev, X.Y. Chen, M.C.M. van de Sanden, V. Guerra, *Plasma diagnostics for oxygen separation experiments*, Poster P-11
37. The plasma road to sustainable chemical conversion PARADiSE workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, A. Herrmann, P. Krebaum, S. Bera, M.N. Tsampas, M.C.M. van de Sanden, *Mapping the density of nitrogen radicals in RF inductively coupled flow reactors*, Poster P-14
38. The plasma road to sustainable chemical conversion PARADiSE workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, T.P.W. Salden, M. Budde, C. Garcia-Soto, O. Biondo, M. Faedda, B. Musig, J. Barauna, O. Guaitella, *The PIONEER database: introducing a platform for meta-analysis of CO2 conversion experiments*, Poster P-17
39. The plasma road to sustainable chemical conversion PARADiSE workshop 2023, 2023/09/03-2023/09/05, Funchal, Madeira, Portugal, L. Kuijpers, T. Silva, V. Guerra, E. Barrate, O. Guaitella, D. Sadi, M.C.M. van de Sanden, *Determination of atomic oxygen density and reduced electric field in oxygen-containing plasmas through OES methods*, Poster P-13
40. 7th International Conference on Polymer Electrolyte Membrane Fuel Cells and Electrolysis (CARISMA 2023), 2023/10/01-2023/10/05, Lefkada, Greece, M.N. Tsampas, M. Lavorenti, D. Kashyap, E. Irtem, T.V. Pfeiffer, *Spark ablation for the fabrication of PEM water electrolysis catalysts*, Oral Monday 16:25
41. 244th ECS Meeting 2023, 2023/10/08-2023/10/12, Gothenburg, Sweden, A. Ranade, M. Lao, R.H.M. Timmer, H.J.N. van Eck, M.N. Tsampas, *Plasma-driven synthesis of 3D self-supported Ni-Fe nanostructures for green hydrogen production*, Oral L08-2809
42. 244th ECS Meeting 2023, 2023/10/08-2023/10/12, Gothenburg, Sweden, R. van Limpt, M. Lavorenti, M. Lao, M.A. Verheijen, M.N. Tsampas, M. Creatore, *Digital composition control of cobalt nickel oxides by ALD for the oxygen evolution reaction*, Oral G01-1504
43. 244th ECS Meeting 2023, 2023/10/08-2023/10/12, Gothenburg, Sweden, A. Vass, H. Ghanem, S. Rosiwal, T. Franken, R. Palkovits, G. Mul, M.N. Tsampas, G. Katsoukis, M. Altomare, *Gas-phase electrochemical conversion of methane on boron-doped diamond gas diffusion anodes*, Oral L01-2647
44. Materials for Sustainable Development Conference (MATSUS 2023), 2023/10/16-20232/10/20, Torremolinos, Spain, R.A.J. Janssen, *Increasing the efficiency of perovskite solar cells using multi-junctions*, Oral #PerFut
45. 1st Dutch Computational Science conference DUCOMS day 2023, 2023/11/10, Utrecht, Netherlands, Y. Wang, G. Brocks, S. Er, *AI-aided discovery of 2D materials*, Poster
46. 1st Dutch Computational Science conference DUCOMS day 2023, 2023/11/10, Utrecht, Netherlands, X. Zhou, R.A.J. Janssen, S. Er, *High-throughput computational screening of organic cathode materials for Li/Na-ion batteries*, Poster
47. MaterialenNL Conference 2023, 2023/12/12, Arnhem, Netherlands, Y. Wang, G. Brocks, S. Er, *Data-driven discovery of intrinsic direct gap 2D photocatalysts for overall water splitting*, Poster
48. MaterialenNL Conference 2023, 2023/12/12, Arnhem, Netherlands, X. Zhou, R.A.J. Janssen, S. Er, *High-throughput computational screening of organic cathode materials for Li/Na-ion batteries*, Poster
49. MaterialenNL Conference 2023, 2023/12/12, Arnhem, Netherlands, R.A.J. Janssen, *Increasing the efficiency of solar cells using perovskites*, Oral Parallel Session Metals for the Energy Transition

Positions, including editorships: 37

1. M.C.M. van de Sanden, Member of the EASAC Energy Steering Panel (European Academies) (since 2014), 2023
2. M.C.M. van de Sanden, Captain of Science Topteam Energie, Board of Topsector Energie (2023-2030) and Member Board NWO Domain Applied and Engineering Sciences (AES, in Dutch: TTW) (since 2021), 2023
3. M.C.M. van de Sanden, Senior Advisory Board Member of Plasma Sources: Science and Technology (since 2005, Senior since 2014), 2023
4. M.C.M. van de Sanden, Member of the Editorial Board of the Journal "Applied Sciences" (since 2016), 2023
5. M.C.M. van de Sanden, Editorial Board member of the journal Global Transitions (since 2018), 2023
6. M.C.M. van de Sanden, International Advisory Board for the journal Plasma Processes and Polymers (since 2002), 2023
7. A.Bieberle-Hütter, COST Action 22123 EU-MACE Management committee member for the Netherlands (European Materials Acceleration Center for Energy, 2023-2027), 2023
8. A.Bieberle-Hütter, Leader Work Group "Microscale and Continuum Modeling" of COST Action Computational materials sciences for efficient water splitting with nanocrystals from abundant elements (2019-2023) and organizer Working Group meeting January 2023, 2023
9. A.Bieberle-Hütter, Member Management Committee for Netherlands for COST Action 18234 Computational materials sciences for efficient water splitting with nanocrystals from abundant elements (2019-2024), 2023
10. S. Er, Member European Energy Research Alliance Joint Program on Energy Storage, 2023
11. A.P.H. Goede, Coordinator European EERA Joint Programme Energy Storage, Subprogram 2 Chemical Energy Storage (2017-2023), 2023
12. A.Bieberle-Hütter, Subprogram leader: Materials Science, European joined program EERA AMPEA (2019-2023), 2023
13. A.P.H. Goede, Coordinator European EU Horizon2020 project KEROGREEN (2017-2023), 2023
14. A.P.H. Goede, Fellow of European Physical Society (since 2011), 2023
15. A.Bieberle-Hütter, Member Proposal Review Committee 2023 review round of A*STAR MTC Investigator Research Grant/Young Investigator Research Grant (Singapore), 2023
16. A.Bieberle-Hütter, Member Scientific Advisory Council for Energy Ville, Genk, Belgium (since 2023), 2023
17. A.P.H. Goede, Member of the Technical Advisory Board of the German BMBF KOPERNIKUS 10 year Programme P2X (since 2016), 2023
18. M.C.M. van de Sanden, Member Scientific Advisory Board of the CNR Institute of Nanotechnology, Salento (since 2018), 2023
19. M.C.M. van de Sanden, G.J. van Rooij, Member International Scientific Advisory Committee and Chair International Summer School on Vacuum, Electron and Ion Technologies VEIT (since 2015), 2023
20. M.C.M. van de Sanden, Fellow of the International Plasma Chemistry Society (since 2017), 2023
21. M.C.M. van de Sanden, Organizer AVS Conference - Program: Plasma Science and Technology division (since 2012), 2023
22. A.Bieberle-Hütter, Member editorial board Journal of Physics: Energy (since 2022), 2023
23. A.Bieberle-Hütter, Member editorial board of the Dutch physics.org website (since 2018), 2023
24. A.Bieberle-Hütter, Member Advisory board Raad voor de Scheikunde (Dutch Chemistry Council) (since 2020), 2023
25. S. Er, Member NWO Chemistry Research Community Fundamentals and Methods, 2023
26. A.Bieberle-Hütter, Member NWO Chemistry Research Communities Chemistry of Materials and Chemical Conversion, 2023

27. M.C.M. van de Sanden, Partime professorship in the Department EIRES (since 2011 after fulltime since 2000), 2023
28. G.J. van Rooij, Professor Plasma Chemistry at Faculty of Science and Engineering Maastricht University (since 2020), 2023
29. S. Er, Member TU/e-EIRES Partners / Management Team, 2023
30. A.Bieberle-Hütter, Member User Commission ECCM Electrochemical Conversion Materials (2020-2023), 2023
31. S. Er, Member Scientific Integrity Liaison Team, between DIFFER and NWO, 2023
32. S. Er, A. Bieberle-Hütter, Member NWO Physics Research Community Nano, Quantum and Materials, 2023
33. A.Bieberle-Hütter, Member NWO Theme Materials (since 2023), 2023
34. M.C.M. van de Sanden, Member KNAW Klimaat Klankbordgroep (since 2021), 2023
35. M.C.M. van de Sanden, Member of the Royal Netherlands Academy of Arts and Sciences (KNAW) (since 2013), 2023
36. S. Er, Fellow Netherlands eScience Center, 2023
37. A.Bieberle-Hütter, Organiser CHAINS Focus session 'Complex metal oxides for energy applications' at conference CHAINS 2023, The Hague, Netherlands, 2023

Public events and industry contacts: 7

1. DoMo / Colloquium at Signify (LED multinational on HighTech campus), 2023/04/18, Eindhoven, Netherlands, M.N. Tsampas, M.C.M. van de Sanden, *The future is electric: the electrification of chemical conversion processes*
2. Symposium IHI Hauzer Techno Coating Venlo 40 jaar, 2023/06/16, Venlo, Netherlands, M.C.M. van de Sanden, *Driving the energy revolution*
3. Dutch Ministry OCW Roundtable event on China, 2023/09/06, The Hague, Netherlands, S. Er, *Contributor Roundtable session on scientific collaboration with China*
4. Inspiratiesessie Energie - Innovatie en realisme voor Gemeenteraad Tilburg, 2023/09/25, Tilburg, Netherlands, M.C.M. van de Sanden, *De energietransitie in de bredere context*
5. Solliance company event, 2023/10/23, Eindhoven, Netherlands, R.A.J. Janssen, *Increasing the efficiency of solar cells using perovskites*
6. Nationaal Waterstofcongres 2023, 2023/11/21, Utrecht, Netherlands, M.C.M. van de Sanden, *De rol van waterstof en de kansen voor de maakindustrie*
7. FLIE Electrolyzer Networking event (FieldLab Industrial Electrification, Rotterdam), 2023/11/29, Zoetermeer, Netherlands, M.N. Tsampas, *DIFFER water electrolysis activities: The case of spark ablation for PEM water electrolysis*

Media appearances: 21

1. *Vliegtuigbrandstof uit water en lucht / Kerosene from water and air*, NWO Resultaat, p.20, 2023/01/19, Interview with A. Goede
2. *Kunnen we fotosynthese namaken?*, Chemie Magazine, 2023/02/01, General coverage
3. *In deze Nederlandse labs helpen de knapste koppen AkzoNobel, BASF en Shell vergroenen*, Change.inc, 2023/02/24, General coverage
4. *Zonder vliegschaamte de wereld rond? DIFFER boekt succes met groene kerosine*, Eindhovens Dagblad, 2023/05/07, Interview with A. Goede

5. *4,7 miljoen euro voor onderzoek DIFFER naar batterijlaagjes; 'Er bestaat geen vergelijkbaar apparaat'*, Eindhovens Dagblad, 2023/05/09, Interview with A. Bieberle
6. *DIFFER bouwt nieuw lab om laagjes te maken voor betere batterijen en zonnepanelen*, Solar Magazine, 2023/05/09, Interview with A. Bieberle
7. *DIFFER ontwikkelt onderzoeksfaciliteit voor energietransitie*, EngineersOnline, 2023/05/09, Interview with A. Bieberle
8. *Een nieuwe faciliteit voor de nanolaagjes die nodig zijn voor de energietransitie*, BNR podcast Wetenschap Vandaag, (2023), 2023/05/09, Interview with A. Bieberle
9. *NWO investeert €4,7 mln in onderzoek materialen voor energietransitie*, Energeia, 2023/05/09, Interview with A. Bieberle
10. *NWO support takes pulsed laser deposition to next level*, Bits-Chips.nl, 2023/05/10, Interview with A. Bieberle
11. *Nieuwe onderzoeksfaciliteit voor energietransitie krijgt 4,7 miljoen euro*, Engineeringnet.be, 2023/05/12, Interview with A. Bieberle
12. *Miljoenen subsidie voor wetenschappelijke infrastructuur*, Cursor (via HOP), 2023/05/12, General coverage
13. *Miljoenen subsidie voor wetenschappelijke infrastructuur*, Erasmus Magazine (via HOP), 2023/05/12, General coverage
14. *NWO investeert 23 miljoen euro in wetenschappelijke infrastructuur*, Innovation Origins, 2023/05/14, General coverage
15. *NWO steekt 22,7 mln euro in wetenschappelijke infrastructuur*, ICT/magazine, 2023/05/17, General coverage
16. *Hoe kunnen we de transitie naar duurzame energie versnellen?*, DWIN.com, 2023/06/06, Interview with R. van de Sanden
17. *Honderden miljoenen uit Groeifonds voor Battery Competence Cluster*, Innovation Origins, 2023/07/09, General coverage
18. *Waterstof tot nadenken. Op zoek naar alternatieve verwarming*, Eigen Huis Magazine, 2023/09/01, Interview with R. van de Sanden
19. *Duizenden electrolyzers nodig*, Eindhovens Dagblad, 2023/11/01, General coverage
20. *Fotoanodes met een gouden (waterstof)randje / Scaleble photoanodes for gold hydrogen*, Sciencelink, 2023/11/16, Interview with P. Kunturu
21. *Nederlandse en Vlaamse ontdekken nieuwe materialen voor batterijen*, Solar Magazine, 2023/11/24, Interview with S. Er

3. Scientific Output DIFFER Facilities & Instrumentation in 2023

Bachelor thesis: 1

1. R. Vervoort, *A droplet on demand using the liquid metal injector prototype inside nano-PSI*, Bachelor thesis Fontys University of Applied Sciences, 2023/06/26, Mentor(s): B. Tyburska-Pueschel, V. Tanke, R. Al

Publications in peer-reviewed scientific journals: 4

[concerns Research Departments papers co-authored by members F&I]

1. A.Ranade, M. Lao, R.H.M. Timmer, E. Zoethout, H.J.N. van Eck, M.N. Tsampas, *Plasma-driven synthesis of self-supported nickel-iron nanostructures for water electrolysis*, Adv. Mater. Interfaces 10 (2023) 2300486
2. V.F.B. Tanke, R.S. Al, S. Alonso van der Westen, S. Brons, I.G.J. Classen, J.A.W. van Dommelen, H.J.N. van Eck, M.G. D. Geers, N.J. Lopes Cardozo, H.J. van der Meiden, *LiMeS-Lab: an integrated laboratory for the development of liquid–metal shield technologies for fusion reactors*, J. Fusion Energy 42 (2023) 44
3. J.G.A. Scholte, M. Iafrati, S.S.H. Lam, B. Tyburska-Pueschel, M. Riepen, F. Brochard, M.M.P. Vissers, T.W. Morgan, *Reducing tin droplet ejection from capillary porous structures under hydrogen plasma exposure in Magnum-PSI*, Nucl. Mater. Energy 34 (2023) 101315
4. Costin, I. Mihaila, H.J. van der Meiden, H. Tanaka, J. Scholten, H.J.N. van Eck, *Plasma rotation and axial flow velocities in Magnum-PSI from cross-correlation measurements*, Plasma Sources Sci. Technol. 32 (2023) 075010

Publications in other journals and conference proceedings: 2

[concerns Research Departments papers co-authored by members F&I]

1. D. Hwangbo, S. Feng, R. Zhang, S. Kajita, M. Morbey, R. Timmer, J. Vernimmen, J. Scholten, H. Tanaka, Y. Hayashi, et al., *Arc ignition and hot spot formation on tungsten with nano-tendril bundles under hydrogen plasma exposure*, Proceedings of the 30th International Symposium on Discharges and Electrical Insulation in Vacuum (ISDEIV) 2023 2023 (2023) 533C4-P-05
2. Y. Hayashi, H. Tanaka, N. Ohno, S. Kajita, T.W. Morgan, H.J. van der Meiden, J. Scholten, J.W.M. Vernimmen, H. Natsume, K. Sawada, et al., *Influence of dynamic pressure induced by transient recycled neutral flux on reduction of pulsed particle load in the linear plasma device Magnum-PSI*, Book of Abstracts 7th Asia-Pacific Conference on Plasma Physics, 12-17 Nov, 2023, Nagoya, Japan (2023) MF-11-O7

Oral and poster presentations at (international) conferences & meetings: 7

1. 19th International Conference on Plasma-facing Materials and Components for Fusion Application (PFMC-23), 2023/05/22-2023/05/26, Bonn, Germany, T.W. Morgan, R.S. Al, S. Alonso van der Westen, S. Brons, I.G.J. Classen, J.A.W. van Dommelen, H.J.N. van Eck, M.G.D. Geers, H.J. van der Meiden, et al., *Progress in the development of the Liquid Metal Shield laboratory (LiMeS-lab)*, Poster ID: 289

2. 19th International Conference on Plasma-facing Materials and Components for Fusion Application (PFMC-23), 2023/05/22-2023/05/26, Bonn, Germany, L. Fumagalli, B. Tyburska-Pueschel, *Solutes suppression of void and 3D defects formation resulting in reduction of deuterium retention in tungsten*, Poster ID: 282
3. 19th International Conference on Plasma-facing Materials and Components for Fusion Application (PFMC-23), 2023/05/22-2023/05/26, Bonn, Germany, F. Romano, V. Tanke, J. Gonzalez, J. Schwartz, S. Brons, R. Goldston, L. Romers, P. de Laat, T.W. Morgan, *Studying the physics of the lithium vapour box in the linear plasma generator Magnum-PSI*, Poster ID: 280
4. 15th International Symposium on Fusion Nuclear Technology ISFNT-15, 2023/09/10-2023/09/15, Gran Canaria, Spain, V. Tanke, T.W. Morgan, R. Al, S. Alonso van der Westen, S. Brons, I.G.J. Classen, J.A.W. van Dommelen, H.J.N. van Eck, M.G.D. Geers, N.J. Lopes Cardozo, et al., *Development of the Liquid Metal Shield Plasma-Surface-Interaction (LiMeS-PSI) linear plasma device*, Poster PS1-20
5. 21st International Conference on for Fusion Reactor Materials (ICFRM-21), 2023/10/22-2023/10/27, Granada; Spain, L. Fumagalli, B. Tyburska-Pueschel, *Operando NRA deuterium retention measurements in neutron-irradiated tungsten samples*, Poster P-199
6. 8th International Workshop on Plasma Material Interaction Facilities for Fusion PMIF 2023, 2023/10/30-2023/11/01, Eindhoven, Netherlands, R.H.M. Timmer, *Tackling the challenges of Operando Ion Beam Analysis in the Linear Plasma Generator 'Upgraded Pilot-PSI'*, Oral II-14:00
7. 8th International Workshop on Plasma Material Interaction Facilities for Fusion PMIF 2023, 2023/10/30-2023/11/01, Eindhoven, Netherlands, H.J.N. van Eck, *Status and outlook of the PSI facilities at DIFFER*, Oral I-9:25

Positions: 2

1. B. Tyburska-Pueschel, Member Euratom Scientific and Technical Committee (since 2020), 2023
2. H.J.N. van Eck, B. Tyburska-Pueschel, Member Local organizing Committee International Workshop on Plasma-Facing Materials and Components for Fusion Applications PFMC 2023, Eindhoven, Netherlands, 2023

Public events and industry contacts: 2

1. Library Helmond-Peel, 2023/09/27, Helmond, Netherlands, G. Kaas, P.W.C. Groen, *TechBizz workshop for kids aged 8-12 years by DIFFER*
2. Precisiebeurs (with stand ILO-net and DIFFER-ILO), 2023/11/15-2023/11/16, Den Bosch, Netherlands, B. Tyburska-Püschel, *Ion Beam Facility: unveiling the power of ion beam analysis and ion irradiation for industry advancements*, Oral Day1, Hall1, 13:30

Media appearances: 8

1. *Techlab bij Bibliotheek met workshop programmeren*, Ditishelmond.nl, 2023/10/02, Interview with G. Kaas, P.W. Groen
2. *Deeltjesbundel test materialen voor gesmolten-zout-reactor*, De Ingenieur, 2023/10/16, Interview with B. Tyburska-Pueschel
3. *DIFFER opent testfaciliteit naar resistente materialen voor thorium kernreactor*, Engineersonline.nl, 2023/10/18, Interview with B. Tyburska-Pueschel

4. *DIFFER start met proeven voor kernreactor die werkt met gesmolten zout*, Eindhovens Dagblad, 2023/10/24, General coverage
5. *Opening testfaciliteit voor materialen kernreactor*, Provincie Noord-Brabant, 2023/10/26, Interview with B. Tyburska-Pueschel
6. *Unieke testfaciliteit naar resistente materialen voor kernreactor opgestart*, Engineeringnet, 2023/10/26, Interview with B. Tyburska-Pueschel
7. *In Eindhovens laboratorium werkt Beata Tyburska mee aan veilige kernenergie: 'Nederland moet voor andere centrale kiezen'*, Eindhovens Dagblad, 2023/11/12, Interview with B. Tyburska-Pueschel
8. *Gaan we voor goud met zout?*, KIJK, 2023/11/23, Interview with B. Tyburska-Pueschel