

Curriculum Vitae

(March 2020)

Dr.ir. P.M. (Maarten) Biesheuvel

HIGHLY CITED RESEARCHER 2018 (www.hcr.clarivate.com)

Webpage: www.wetsus.nl/maartenbiesheuvel
Google Scholar: <https://bit.ly/2tiyiEc>
ORCID: 0000-0002-5468-559X

Principal Scientist at Wetsus, European Centre of Excellence for Sustainable Water Technology, Leeuwarden, The Netherlands.

Scientific interests: chemical and electrochemical engineering; ion-exchange membrane processes; porous electrode theory; electric double layer phenomena; capacitive deionization, reverse osmosis.



Scientific activities

Coordinator of the Wetsus themes Advanced Water Treatment, Concentrates, and Capacitive Deionization (CDI) (total R&D program budget ~ € 1,100,000 / year). In each of these themes university and industrial partners collaborate in academic research carried out by PhD students and postdoctoral fellows. Company membership in these themes include: Shell, Dupont, Unilever, Evides, Vitens, Oasen, Dunea, PWN, WLN, Voltea, Saudi Aramco.

At Wetsus, I collaborate with students and postdoctoral fellows in the field of reverse osmosis, ion-exchange membranes and porous carbons for water treatment. I chair the two-monthly "themacoördinatorenoverleg" (25 members).

On behalf of University of Twente I teach Chemical Reactor Design in the [MSc program Water Technology](#). I am responsible for course material, teaching, and examination. (Since Nov 2011).

Member editorial board [Desalination](#) (from January 2015; journal impact factor 5.5, 2016).

Member working group Electrochemie, Dutch Royal Society of Chemistry, KNCV (Since April 2013).

National delegate on behalf of the Vereniging voor Nederlandse Proces-technologen (NPT), in the [Working Party Electrochemical Engineering](#) of the European Federation of Chemical Engineering (EFCE-EE) (Since March 2013).

Member, International Advisory Council of "Interfaces Against Pollution" (Since May 2012).

Member, [international working group on Capacitive Deionization & Electrosorption \(CDI&E\)](#). Members of the working group are CDI&E-scientists from Europe (3), Middle-East (2), Asia (5) and USA (3). Founding chairman, May 2014 – May 2015; honorary secretary 2015-2019.

Member, International Working Group [Physics of Membrane Processes](#) (Since Jan. 2017).

Member, International Advisory Board of [ELKIN – international symposium on electrokinetic phenomena](#) (Since Sept. 2017).

Advisorship role

Postdoctoral fellows

- Dr. Li Zhang (2018-2020) – Wetsus.
- Dr. Matthijs de Winter (2016-2017) – Wetsus, Utrecht University.
- Dr. Michele Tedesco (2015-2016) – Wetsus.
- Dr. Slawomir Porada (2015-2016) – Wetsus, University of Twente.
- Dr. Michiel van Soestbergen (2012) – Wetsus.

PhD students

- Kaustub Singh (2017-2019) – Wageningen University. Primary advisor: Dr. L.C.P.M. de Smet.
- Ettore Virga (2017-2021) – University of Twente. Primary advisor: Dr. W.M. de Vos.
- Janneke Dickhout (2014-2018) – University of Twente. Primary advisor: Dr. W.M. de Vos.
- Jouke Dykstra (2013-2017) – Wageningen University, 7 joint publications.
- Taeyoung Kim (2014) – Visiting PhD student National University Seoul, 1 publication.
- Slawomir Porada (2009-2013) – PhD defense 22/11/2013, Wrocwaw University, 6 publications.
- Ran Zhao (2009-2013) – PhD defense 10/09/2013, Wageningen University, 6 publications.
- Michiel van Soestbergen (2007-2011) – PhD defense 04/03/2011, Delft University, 6 publications.

MSc students - thesis

- Edward Kimani (2019-2020)
- Sebastian Castaño (2019-2020)
- Pauline Gasquet (2018-2019) – Co-advise with prof.dr. W.G.J. van der Meer
- Jennifer Benavides (2018-2019) – Co-advise with dr. J.E. Dykstra
- Aymar de Lichtervelde (2016-2017) – Co-advise with dr. A. ter Heijne
- Yaeli Oren (2016-2017) – Publication in *Phys. Rev. Applied* (2018)
- Geert Franken (2016-2017) – Co-advise with J.E. Dykstra
- Marije Struijs (2015-2016) – Co-advise with J.E. Dykstra
- Gijs Doornbusch (2014-2015) – Publication in *J. Mater. Chem. A* (2016)
- Tania Mubita (2014) – Co-advise with J.E. Dykstra. Publication in *Electrochim. Acta* (2018)
- Jouke Dykstra (2012-2013) – Co-advise with dr. A. ter Heijne. Publication in *Phys. Rev. E* (2014)

MSc students - internship

- Qian Jia (2018) – AquaBattery
- Marije Struijs (2016) – Karlsruhe Institute of Technology
- Morten Jogi (2016) – Technion Israel Institute of Technology
- Gijs Doornbusch (2015) – Technion Israel Institute of Technology
- Tania Mubita (2015) – Dow Terneuzen
- Jouke Dykstra (2013) – INM Saarbrücken

BSc students - thesis

- Pieter Bart Peters (2016) – Utrecht University. Publication in *Phys. Rev. E* (2016)

Examination role (for students not mentioned above)

- 2019 MSc thesis: Bernard Bos, Shangeetha Mahendran
- 2020 MSc thesis: Indah Puspita
- Yearly examination of students Chemical Reactor Design (15-25 students)

Scholarships and awards

2019 **Outstanding Reviewer**, RSC Environmental Science: Water Research & Technology.

2018 **Highly Cited Researcher** (Clarivate Analytics, Web of Science, www.hcr.clarivate.com). Based on overall citation performance and number of top 1% papers, included in 6000 person list (worldwide, all fields) of researchers with exceptional cross-field research performance and elite status. Highly Cited Researcher are “identi[ed as] that small fraction of the researcher population that contributes disproportionately to extending the frontier and gaining for society knowledge and innovations that make the world healthier, richer, sustainable, and more secure.” [Link to full report](#)

2018 **Selection for Milestone Article** in *APS Physical Review E* [25th Anniversary Milestones](#). Our paper “Nonlinear dynamics of capacitive charging and desalination by porous electrodes” was selected as the milestone article for the year 2010 for our “important contribution to the field”. [link](#)

2015 **ES&T Letters Best Paper Award**

2013 **Excellence in Review Award** Environmental Science & Technology.

2005-2006 **Fellowship of the Alexander von Humboldt foundation** (30 k€) for research at the MPI Colloids and Interfaces, Germany. The AvH Foundation “sponsors exceptionally qualified scientists [...] to target [...] the academic elites of tomorrow [...] to win them over as partners for Germany.”

2002-2005 **VENI-fellowship** (NWO-CW, 200 k€). The VENI-scheme is directed at “outstanding young individuals of outstanding talent and originality who have a great enthusiasm for the conduct of challenging, ground-breaking research.”

Journal refereeing activities

| year | Number of reports |
|------|-------------------|
| 2019 | 59 |
| 2018 | 64 |
| 2017 | 65 |
| 2016 | 88 |
| 2015 | 77 |
| 2014 | 63 |
| 2013 | 53 |

Most frequent journals: Phys. Rev. Lett., Phys. Rev. E, Electrochimica Acta, Desalination, Sep. Purif. Techn., Energy & Environm. Sci., ES&T Lett., ES&T, Water Research, ACS Mater. & Interf., J. Colloid Interface Sci., J. Membrane Sci., J. Electrochem. Soc.

Present and former collaborations

- [Dr. Li Zhang](#), Wetsus.
- [Dr. Bastiaan Blankert](#), KAUST, Saudi-Arabia.
- [Prof.Dr. Walter van der Meer](#), University of Twente, Oasen.
- [Yaeli Oren, MSc](#), Ben-Gurion University of the Negev, Israel.
- [Prof.Dr. Shihong Lin](#), Vanderbilt University, USA.
- [Dr. Michael Stadermann](#), Lawrence Livermore, USA.
- [Dr. Michele Tedesco](#), Wetsus.
- [Prof.Dr. Moran Bercovici](#), Technion, Haifa, Israel.
- [Dr. Jacopo Catalano](#), Aarhus University, Denmark.
- [Prof.Dr. Rob Lammertink](#), University of Twente.
- [Dr. Evan Spruijt](#), Radboud University Nijmegen.
- [Prof.Dr. Matthew Suss](#), Technion, Haifa, Israel.
- [Prof.Dr. Volker Presser](#), Institute of New Materials, Saarbrücken, Germany.
- [Dr.Ir. Bert Hamelers](#), Wetsus.
- [Dr. Jouke Dykstra](#), Wageningen University.
- [Prof.Dr.Ir. Bert van der Wal](#), Wageningen University / Evides.
- [Prof.Dr. Rene van Rooij](#), Utrecht University.
- [Dr. Slawomir Porada](#), University of Twente.
- [Prof.Dr. Ran Zhao](#), East China Normal University, Shanghai, China.
- [Prof.Dr. Gert Jan Kramer](#), Utrecht University.
- [Dr. Michiel van Soestbergen](#), NXP, Nijmegen.
- [Prof.Dr. Andreas Fery](#), Technical University of Dresden, Germany.
- [Prof.Dr. Wilhelm Huck](#), Radboud University Nijmegen.
- [Prof.Dr. Helmuth Moehwald](#), MPI Colloids and Interfaces, Potsdam, Germany (†).
- [Dr. Richard Weinkamer](#), MPI Colloids and Interfaces, Potsdam, Germany.
- [Dr. Mathias Baekbo Andersen](#), Dynatest, Søborg, Denmark.
- [Prof.Dr. Martin Bazant](#), MIT, USA.
- [Dr.Ir. Wiebe de Vos](#), University of Twente.
- [Dr.Ir. Saskia Lindhoud](#), University of Twente.
- [Dr. Marcin Otto](#), ConYar, Arnhem.
- [Dr. Juan-Manuel Paz Garcia](#), University of Malaga, Spain.
- [Dr.Ir. Annemiek ter Heijne](#), Wageningen University.
- [Dr.Ir. Mieke Kleijn](#), Wageningen University.
- [Dr.Ir. Karel Keesman](#), Wageningen University.
- [Dr.Ir. Harry Bruning](#), Wageningen University.
- [Prof.Dr.Ir. Frans Leermakers](#), Wageningen University.
- [Dr. Dorian Brogioli](#), Universität Bremen, Germany.
- [Prof.Dr.Ir. Victor Breedveld](#), GeorgiaTech, Atlanta, USA.
- [Prof.Dr. Hans Lyklema](#), Wageningen University (†).
- [Prof.Dr.Ir. Martien Cohen Stuart](#), Wageningen University.
- [Prof.Dr.Ir. Henk Verweij](#), Ohio State University, USA.
- [Prof.Dr.Ir. Arian Nijmeijer](#), Shell, University of Twente.
- [Prof.Dr. Fred Lange](#), UCSB, Santa Barbara, CA, USA (†).
- [Prof.dr. Taeyoung Kim](#), Clarkson University, USA.
- [Dr. Oane Galama](#), Auckland, New Zealand.
- [Prof.Dr. Jasper van der Gucht](#), Wageningen University.
- Dr.Ir. Samuel de Lint, DE Master Blenders.
- Dr.Ir. Arthur Janse, DSM.

Summary of past research activities

September 2014 – August 2016. Part-time visiting scientist, Laboratory of Physical Chemistry and Soft Matter, Wageningen University.

July 2013 – December 2014. Member editorial advisory board of ACS ES&T Letters.

Sept. 2008 – Sept. 2014. I held two joint appointments, one as scientific project manager at Wetsus; and one as postdoctoral fellow at Wageningen University, the Netherlands, dept. of Environmental Technology. **Research conducted in this period led to 1 top-0.1% paper, 4 top-1% papers and 18 top-10%-papers (Thomson-Reuters, Essential Science Indicators).** From September 2014 onward, full-time employment with Wetsus.

Sept. 2006 – Aug. 2008. **Delft University of Technology**, Dept. Mechanical, Maritime and Materials Engineering. In a project at NXP (Philips Semiconductors), I worked as a post-doctoral fellow together with dr.ir. M. van Soestbergen on electrokinetics and corrosion in the encapsulation of integrated circuits. We cooperated closely with prof.dr. M.Z. Bazant (MIT, USA).

Nov. 2005 – Aug. 2006. **Alexander von Humboldt-fellow** in the group of prof.dr. H. Möhwald, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany. Topics: self-propelled biomimetic colloids; multilayer polyelectrolyte vesicles. Collaboration with prof.dr. Andreas Fery, and others.

Sept. 2002 – Oct. 2005. **VENI-fellow**, Laboratory of Physical Chemistry and Colloid Science, Wageningen University, with prof.dr. M.A. Cohen Stuart. Subjects: interaction of charged polymers in solution and with surfaces. Collaboration with dr. S. Lindhoud, dr. W.M. de Vos, and others.

Oct. 2000 – Aug. 2002. **Shell Research and Technology Centre**, Amsterdam. Collaboration with prof.dr. G.J. Kramer (at present, Utrecht University) and dr. H.P.C.E. Kuipers on high temperature conversion of hydrocarbons to H₂ in steam/air mixtures using precious metal catalysts for fuel cells.

Feb. 2000 – Sept. 2000. **University of California Santa Barbara**, U.S.A. Postdoctoral fellow, College of Engineering with prof. F.F. Lange. Topics: colloidal processing; particle-particle interaction in water; charge regulation. Supervised 1 BA student and assisted dr. B. Yu, dr. R. Bock.

Education

Doctorate: University of Twente, Dept. of Chemical Technology, Inorganic Materials Science-group. Date: 04/02/2000. PhD thesis: "Porous Ceramic Membranes: Suspension Processing, Mechanical and Transport Properties, and Application in the Osmotic Tensiometer." Promotor: prof.dr. H. Verweij (15 publications)

Doctoraal ("ir."): University of Twente, Dept. of Chemical Technology, Reactor Engineering-group. Date: 28/08/1996. MSc thesis: "Hydrodynamics of Granular Flow in the Rotating Cone Reactor". Advisor: prof.dr.ir. W.P.M. van Swaaij (2 publications)

Publication overview

| Journal | Number of publications | Impact Factor (2014) | Impact Factor (2016) |
|--------------------------|------------------------|----------------------|----------------------|
| Phys. Rev. Lett. | 4 | 7.5 | 8.5 |
| Phys. Rev. Applied | 4 | - | 4.8 |
| Phys. Rev. E | 10 | 2.3 | 2.4 |
| Phys. Rev. Res. | 1 | | |
| Progr. Mater. Sci. | 1 | 27.4 | 31.1 |
| Energy & Env. Sci. | 4 | 20.5 | 29.5 |
| Adv. Mat. | 1 | 17.5 | 19.8 |
| Nano Lett. | 1 | 13.6 | 12.7 |
| Adv. Func. Mat. | 1 | 11.8 | 12.1 |
| Angew. Chemie Intl. Ed. | 1 | 11.3 | 12.0 |
| J. Phys. Chem. Lett. | 2 | 7.5 | 9.4 |
| J. Mater. Chem. A | 2 | 7.4 | 8.9 |
| ACS Appl. Mat. Int. | 1 | 6.7 | 7.5 |
| Water Research | 7 | 5.5 | 6.9 |
| J. Power Sources | 2 | 6.2 | 6.4 |
| Carbon | 1 | 6.2 | 6.3 |
| Chem. Eng. J. | 1 | 4.3 | 6.2 |
| Env. Sci. Techn. | 2 | 5.3 | 6.2 |
| J Membrane Sci. | 6 | 5.1 | 6.0 |
| Macromolecules | 2 | 5.8 | 5.8 |
| Desalination | 6 | 3.8 | 5.5 |
| ES&T Letters | 2 | - | 5.3 |
| Electrochimica Acta | 4 | 4.5 | 4.8 |
| J. Phys. Chem. C | 1 | 4.8 | 4.5 |
| J Colloid Interface Sci. | 16 | 3.4 | 4.2 |
| Langmuir | 8 | 4.5 | 3.8 |
| J. Phys. Chem. B | 3 | 3.3 | 3.2 |
| Chem. Eng. Sci. | 3 | 2.3 | 2.9 |
| AIChE J. | 7 | 2.8 | 2.8 |
| J. Phys.: Condens. Matt. | 4 | 2.3 | 2.7 |
| EPL | 2 | 2.1 | 2.0 |
| COLCOM | 2 | - | - |

Citation statistics

| | | |
|-------------------------------|--------------|----------|
| Citations per year (*) | 150 | 2010 |
| | 170 | 2011 |
| | 310 | 2012 |
| | 430 | 2013 |
| | 520 | 2014 |
| | 600 | 2015 |
| | 670 | 2016 |
| | 790 | 2017 |
| | 1140 | 2018 |
| Total citations (*) | 3400 | Jan 2017 |
| | 5560 | Jan 2019 |
| h-index (**) | 38 | Jan 2017 |
| | 45 | Jan 2019 |
| h-index (***) | 41,45 | Jan 2019 |

(*): *Web of Science, excl. self-citations*
(**): *Web of Science, incl. self-citations*
(***): *Scopus, excl./incl. self-citations*

Peer-reviewed journal publications

1. E. Virga, B. Bos, P.M. Biesheuvel, A. Nijmeijer, and W.M. de Vos, "Surfactant-dependent Critical Interfacial Tension in Silicon Carbide Membranes for Produced Water Treatment," *J. Colloid Interface Sci.* xx (2020).
2. K. Singh, Z. Qian, P.M. Biesheuvel, H. Zuilhof, S. Porada, and L.C.P.M. de Smet, "Nickel hexacyanoferrate electrodes for high mono/divalent ion-selectivity in capacitive deionization," *Desalination* **481**, 114346 (2020).
3. J. Ahn, J. Lee, S. Kim, C. Kim, J. Lee, P.M. Biesheuvel, and J. Yoon, "High performance electrochemical saline water desalination using silver and silver-chloride electrodes," *Desalination* **476**, 114216 (2020).
4. P.M. Biesheuvel, "Comment to "A theoretical model for salt ion drift due to electric field suitable to seawater desalination"," *Desalination* **474**, 114214 (2020).
5. P.M. Biesheuvel, L. Zhang, P. Gasquet, B. Blankert, M. Elimelech, and W.G.J. van der Meer, "Ion Selectivity in Brackish Water Desalination by Reverse Osmosis: Theory, Measurements, and Implications," *Environ. Sci. Technol. Lett.* **7**, 42-47 (2020).
6. L. Zhang, P.M. Biesheuvel, I.I. Ryzhkov, "Theory of ion and water transport in electron-conducting membrane pores with pH-dependent chemical charge," *Phys. Rev. Appl.* **12**, 014039 (2019).
7. S. Porada, H.V.M. Hamelers, and P.M. Biesheuvel, "Electrostatic cooling at electrolyte-electrolyte junctions," *Phys. Rev. Res.* **1**, 033195 (2019).
8. A. de Lichtervelde, H.V.M. Hamelers, P.M. Biesheuvel, A. Ter Heijne, and J.E. Dykstra, "Theory of coupled ion transport and chemical conversions in bioelectrochemical systems," *Phys. Rev. Applied* **12**, 014018 (2019).
9. T.M. Mubita, J.E. Dykstra, P.M. Biesheuvel, S. Porada, A. van der Wal, "Selective adsorption of monovalent anions in microporous carbons," *Water Research* **164**, 114885 (2019).
10. K. Singh, S. Porada, H.D. de Gier, P.M. Biesheuvel, and L.C.P.M. de Smet, "Timeline on the application of intercalation materials in Capacitive Deionization," *Desalination* **455**, 115-134 (2019).
11. S.A. Hawks, A. Ramachandran, P.G. Campbell, M.E. Suss, S. Porada, P.M. Biesheuvel, J.G. Santiago, and M. Stadermann, "Performance Metrics for the Objective Assessment of Capacitive Deionization Systems," *Water Research* **152**, 126-137 (2019). [link](#)
12. A.C. Arulrajan, D.L. Ramasamy, M. Sillanpää, A. van der Wal, P.M. Biesheuvel, S. Porada, and J.E. Dykstra, "Exceptional Water Desalination Performance with Anion-Selective Electrodes," *Adv. Mat.* **31**, 1806937 (2019).
13. M. Tedesco, H.V.M. Hamelers, and P.M. Biesheuvel, "Nernst-Planck transport theory for (reverse) electro dialysis: III. Optimal membrane thickness for enhanced process performance," *J. Membrane Sci.* **565**, 480-487 (2018). [link](#)
14. J. Catalano and P.M. Biesheuvel, "AC-Driven Electro-Osmotic Flow in Charged Nanopores," *EPL (Europhysics Letters)* **123**, 58006 (2018). [link](#)
15. J.E. Dykstra, S. Porada, A. van der Wal, and P.M. Biesheuvel, "Energy consumption in Capacitive Deionization – constant current versus constant voltage operation," *Water Research* **143**, 367-375 (2018). [link](#)
16. T.M. Mubita, S. Porada, P.M. Biesheuvel, A. van der Wal, and J.E. Dykstra, "Capacitive deionization with wire-shaped electrodes," *Electrochim. Acta* **270**, 165-173 (2018). [link](#)
17. K. Singh, H.J.M. Bouwmeester, L.C.P.M. de Smet, M.Z. Bazant, and P.M. Biesheuvel, "Theory of Water Desalination with Intercalation Materials," *Phys. Rev. Appl.* **9**, 064036 (2018). (editors' suggestion). [link](#) [OPEN ACCESS]
18. F. He, P.M. Biesheuvel, M.Z. Bazant, and T.A. Hatton, "Theory of water treatment by capacitive deionization with redox active porous electrodes," *Water Research* **132**, 282-291 (2018). [link](#)
19. L. Wang, P.M. Biesheuvel, and S. Lin, "Reversible thermodynamic cycle analysis for capacitive deionization with modified Donnan model," *J. Colloid Interface Sci.* **512**, 522-528 (2018). [link](#)
20. Y.S. Oren and P.M. Biesheuvel, "Theory of ion and water transport in reverse osmosis membranes," *Phys Rev. Appl.* **9**, 024034 (2018). (arXiv:1706.06835). [link](#)
21. E. Virga, W.M. de Vos, and P.M. Biesheuvel, "Theory of gel expansion to generate electrical energy," *EPL (Europhysics Letters)* **120**, 46002 (2017). [link](#)
22. J.E. Dykstra, K.J. Keesman, P.M. Biesheuvel, and A. van der Wal, "Theory of pH changes in water desalination by capacitive deionization," *Water Research* **119**, 178-186 (2017). [link](#) HCP2018
23. M. Janssen, E. Griffioen, P.M. Biesheuvel, R. van Roij, and B. Ern , "Coulometry and Calorimetry of Electric Double Layer Formation in Porous Electrodes," *Phys. Rev. Lett.* **119**, 166002 (2017). [link](#)

24. E.N. Guyes, A.N. [Shocron](#), A. Simanovski, P.M. Biesheuvel, and M.E. Suss, "A one-dimensional model for water desalination by flow-through electrode capacitive deionization," *Desalination* **415**, 8-13 (2017). [link](#)
25. D. Yan, M.Z. Bazant, P.M. Biesheuvel, M.C. Pugh, and F.P Dawson, "Theory of linear sweep voltammetry with diffuse charge: unsupported electrolytes, thin films, and leaky membranes," *Phys. Rev. E* **95** 033303 (2017). [link](#)
26. S. Porada, A. Shrivastava, P. Bukowska, P.M. Biesheuvel, and K.C. Smith, "Nickel Hexacyanoferrate Electrodes for Cation Intercalation Desalination," *Electrochim. Acta* **255**, 369-378 (2017). [link](#)
27. J.M. Dickhout, J. Moreno, P.M. Biesheuvel, L. Boels, W.M. de Vos, and R.G.H. Lammertink, "Produced water treatment by membranes: A review from a colloidal perspective," *J. Colloid Interface Sci.* **487** 523-534 (2017). [link](#) [Feature Article] **HCP2018**
28. M. Tedesco, H.V.M. Hamelers, and P.M. Biesheuvel, "Nernst-Planck transport theory for (reverse) electrodialysis: II. Effect of water transport through ion-exchange membranes," *J. Membrane Sci.* **531** 172-182 (2017). [link](#)
29. S. Rubin, M.E. Suss, P.M. Biesheuvel, and M. Bercovici, "Induced Charge Capacitive Deionization: The Electrokinetic Response of a Porous Particle to an External Electric Field," *Phys. Rev. Lett.* **117** 234502 (2016). [link](#)
30. P.M. Biesheuvel and M.Z. Bazant, "Analysis of ionic conductance of carbon nanotubes," *Phys. Rev. E* **94** 050601 (2016). [link](#) [Rapid Comm.]
31. M. Tedesco, H.V.M. Hamelers, and P.M. Biesheuvel, "Nernst-Planck transport theory for (reverse) electrodialysis: I. Effect of co-ion transport through the membranes," *J. Membrane Sci.* **510** 370-381 (2016). [link](#)
32. J. Catalano, H.V.M. Hamelers, A. Bentien, and P.M. Biesheuvel, "Revisiting Morrison and Osterle 1965: the efficiency of membrane-based electrokinetic energy conversion," *J. Phys. Cond. Matt.* **28** 324001 (2016). [link](#)
33. P.B. Peters, R. van Roij, M.Z. Bazant, and P.M. Biesheuvel, "Analysis of electrolyte transport through charged nanopores," *Phys. Rev. E* **93** 053108 (2016). [link](#) [Editors' suggestion]
34. P.M. Biesheuvel, H.V.M. Hamelers, and M.E. Suss, "Theory of Water Desalination by Porous Electrodes with Immobile Chemical Charge," *Colloids Interface Sci. Comm.* **9** 1-5 (2015) [OPEN ACCESS]. [link](#)
35. G.J. Doornbusch, J.E. Dykstra, P.M. Biesheuvel, and M.E. Suss, "Fluidized bed electrodes with high carbon loading for water desalination by capacitive deionization," *J. Materials Chemistry A* **4** 3642-3646 (2016). [link](#) (top 10%, 12/18)
36. X. Gao, S. Porada, A. Omosebi, K. Liu, P.M. Biesheuvel, and J. Landon, "Complementary Surface Charge for Enhanced Capacitive Deionization," *Water Research* **92** 275-282 (2016). [link](#) **HCP2018**
37. J.E. Dykstra, R. Zhao, P.M. Biesheuvel, and A. van der Wal, "Resistance identification and rational process design in Capacitive Deionization," *Water Research* **88** 358-370 (2016). **HCP2018**
38. E. Spruijt, P.M. Biesheuvel, and W.M. de Vos, "Adsorption of charged and neutral polymer chains on silica surfaces: The role of electrostatics, volume exclusion, and hydrogen bonding," *Phys. Rev. E* **91** 012601 (2015).
39. J.M. Paz-Garcia, J.E. Dykstra, P.M. Biesheuvel, and H.V.M. Hamelers, "Energy from CO₂ using capacitive electrodes – A model for energy extraction cycles," *J. Colloid Interface Sci.* **442** 103-109 (2015).
40. M. E. Suss, S. Porada, X. Sun, P.M. Biesheuvel, J. Yoon, and V. Presser, "Water desalination via capacitive deionization: what is it and what can we expect from it?," *Energy & Environm. Sci.* **8** 2296-2319 (2015) [OPEN ACCESS]. **HCP2018**
41. S. Porada, P.M. Biesheuvel, and V. Presser, "Comment on *Sponge-Templated Preparation of High Surface Area Graphene with Ultrahigh Capacitive Deionization Performance*," *Advanced Functional Materials* **25** 179-181 (2015).
42. T. Kim, J.E. Dykstra, S. Porada, A. van der Wal, J. Yoon, P.M. Biesheuvel, "Enhanced charge efficiency and reduced energy use in capacitive deionization by increasing the discharge voltage," *J. Colloid Interface Sci.* **446** 317-326 (2015). (top 10% 12/18)
43. F. Liu, R.M. Wagterveld, B. Gebben, M.J. Otto, P.M. Biesheuvel, and H.V.M. Hamelers, "Carbon nanotube yarns as strong flexible conductive capacitive electrodes," *Colloids Interface Sci. Comm.* **3** 9-12 (2014) [OPEN ACCESS].
44. J.E. Dykstra, P.M. Biesheuvel, H. Bruning and A. ter Heijne, "Theory of ion transport with fast acid-base equilibrations in bioelectrochemical systems," *Phys. Rev. E* **90** 013302 (2014). (top10% 12/18, 4/16)

45. J.M. Paz-García, O. Schaetzle, P.M. Biesheuvel and H.V.M. Hamelers, "Energy from CO₂ using capacitive electrodes – Theoretical outline and calculation of open circuit voltage," *J. Colloid Interface Sci.* **418** 200-207 (2014).
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HCP2018: Highly Cited Paper Web of Science (Clarivate Analytics), December 2018.

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Patents and non-reviewed publications

1. P.M. Biesheuvel and J.E. Dykstra "The difference between Faradaic and Nonfaradaic processes in Electrochemistry," arXiv:1809.02930 (2018). [link](#)
2. P.M. Biesheuvel, M.Z. Bazant, R.D. Cusick, T.A. Hatton, *et al.* "Capacitive Deionization--defining a class of desalination technologies," arXiv:1709.05925 (2017). [link](#)
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6. P.M. Biesheuvel, "EFCE: working party Electrochemical Engineering," *NPT Procestechologie* **4** 23 (2015).
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11. P.M. Biesheuvel, S. Porada, A. van der Wal, and V. Presser, "Carbon Nanomaterials for Water Desalination by Capacitive Deionization," in *Carbon Nanomaterials*, 2nd Ed. CRC Press (Boca Raton, 2013).
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16. B. van Limpt and P.M. Biesheuvel, "Energiezuinig ontzouten met capacitieve deionizatie," *NPT Procestechologie* **5/6** 22-23 (2009).

Membership of doctoral committees

- Graduate examination committee Amit Shocron, Dept. Mechn. Eng., Technion, Haifa, Israel, Sept. 8, 2019. "Theoretical Analysis of Electrochemical Systems" (via phone-in connection)
- External PhD thesis examiner (stand in), Dr. Changyong Zhang, School of Civil and Environmental Engineering, University of New South Wales, Sydney, Australia, 2019.
- Graduate examination committee, Imri Atlas, Dept. Mechn. Eng., Technion, Haifa, Israel, Feb. 7, 2019.
- External PhD thesis examiner, Dr. W.W. Tang, "Water Treatment by Capacitive Deionization (CDI): Non-Faradaic and Faradaic Reactions," School of Civil and Environmental Engineering, University of New South Wales, Sydney, Australia, May 2017.
- Member of three-person doctoral committee for dr. Sofie Haldrup, Dept. Engineering, Aarhus University, Denmark, March 4, 2016. Title: "Synthesis and characterisation of nano porous ion-conducting membranes for energy conversion purposes."
- Member of three-person doctoral committee for dr. Christoffer Peder Nielsen, Dept. Physics, Danish Technical University, Lungby, Denmark, October 23, 2015. Title: "Concentration polarization: Electrodeposition and transport phenomena at overlimiting current."
- Member of four-person doctoral committee for dr. Oane Galama, Wageningen University, April 24, 2015. Title: "Ion exchange membranes in seawater applications; Processes and characteristics."

Conferences organized, chair roles, scientific committees

- Co-chair of Program committee, 12th European symposium on electrochemical engineering (ESEE2020), "Electrochemistry for electrification and energy transition toward a sustainable future," June 14-18, 2020, Leeuwarden, The Netherlands. <http://www.electrochemical-engineering.eu/2020/>
- Section organizer, section 6, "Electrochemistry of ionically conducting media", 11th International Frumkin Symposium, Oct 19-23, 2020, Moscow <http://www.frumkinsymp.ru/>
- Co-organizer of 3rd International Workshop on Physics of Membrane Processes, embedded in the 13th symposium of electrokinetics ([ELKIN](#)), June 14, 2019, MIT, Cambridge, USA. Chair of session S4, Physics of Membranes.
- Member [Scientific Committee](#) 4th International Conference on Capacitive Deionization & Electrosorption, May 20-23, 2019, Tsinghua University, Beijing, China. Chair of session CDI operation (I), May 22, 2019.
- Co-chair, session "Upscaling Technologies," Wetsus Congress, September 25, 2018, Leeuwarden.
- Co-organizer of [symposium 14](#) "Electrochemical engineering: research towards deployable technology" during [69th ISE Annual meeting of the International Society of Electrochemistry](#), September 2-6, 2018 Bologna, Italy.
- [International Advisory Board](#), [CESEP'17](#), October 23-26, 2017, Lyon.
- Member Scientific Committee, <http://www.cdi-e2017.com/>, July 3-6, 2017, Seoul, Republic of Korea (~150 participants).
- Scientific and programme committee, [11th European Symposium On Electrochemical Engineering](#), June 4-8, 2017, Prague.
- Workshop organizer and chair "Physics for Impact," Wetsus, April 20, 2017, Leeuwarden.
- Member, [Local Board Committee](#), 9th International Conference on Porous Media & Annual meeting "Interpore", May 8-11, 2017, Rotterdam (~600 participants expected)
- Co-chair [symposium MS4.1](#) "Porous Electrodes for Desalination and Environmental Applications," during [Interpore](#), May 8-11, 2017, Rotterdam.
- Co-chair symposium "Novel theoretical approaches for membrane transport processes in drinking water production," during [EDS-Conference](#) on "Membranes in Drinking and Industrial Water Production (MDIW)," February 6-8, 2017, Leeuwarden (also member of Scientific and Organizing Committee).

- Session chair, invited plenary lecture Prof. Lyderic Bocquet (Paris), Wetsus Congress, October 4, 2016, Leeuwarden (~250 person audience).
- Member International Scientific Committee, <http://www.iap2016.org/>, September 4-7, 2016, Lleida, Spain (~150 participants)
- Member organizing committee 67th Annual meeting of the International Society of Electrochemistry, August 21-26, 2016, The Hague. <http://annual67.ise-online.org/> (1,600 participants).
- Coordinator and chair of symposium 9 "[Capacitive electrodes for environmental applications](#)," during ISE, August 23-25, 2016, The Hague (~150 attendants).
- Workshop organizer and chair "Hard Science about Soft Ions," April 21, 2016, Leeuwarden.
- Chair of session on "Hybrid and FCDI," [2nd International conference on Capacitive Deionization and Electrosorption](#), October 27, 2015, Saarbrücken, Germany (~150 attendants).
- Chair of the scientific committee of the 7th [EFCE-EE summerschool](#), June 22-26, 2015, Leeuwarden. Advisor to the local organizing committee (~100 participants).
- Co-chair of the 8th international IAP-conference (IAP2014), May 25-28, 2014, Leeuwarden, www.iap2014.nl.
- Session chair, invited plenary lecture Prof. Hans Lyklema (Wageningen) during IAP2014, May 26, 2016.
- Organizer and chair of the [first international symposium on CDI&E](#) (capacitive deionization & electrosorption), during IAP2014, with ~80 participants.
- Session chair and program organizer of sessions "E-technologies in water" (chair and organizer) and "Advanced nanomaterials for water treatment" (organizer), Annual Wetsus conference "Societal challenges: call for innovative water technology," October 2, 2012, Leeuwarden (approx. 80 attendants per session).
- Program organizer and co-chair of "Mini-symposium: Electrochemistry, Energy and Water," September 30, 2011, Leeuwarden (approx. 100 attendants).

Oral presentations and lectures

- [Presentation on data representation with graphics](#): Haifa, Technion, February 3, 2019; Tsinghua, Beijing, May 24, 2019; Han sur Lesse winterschool, February 12, 2020; Wetsus, Leeuwarden, March 11, 2020.
- P.M. Biesheuvel, "The surface equation of state for charged films, and its application in electrochemical engineering," Van Marum Colloquium, University of Leiden, Leiden Institute of Chemistry (prof. Marc Koper), February 18, 2020.
- P.M. Biesheuvel, "Electrical double layer theory, Electrokinetics, Electrochemical Systems," 3 hr tutorials, Winterschool Physical Chemistry, Han-sur-Lesse, Belgium, February 11-12, 2020. www.hsl-school.nl/
- P.M. Biesheuvel, "Continuum modeling of electrodialysis incl. acid-base reactions and electrostatic cooling," Ionics&IontronicsNL symposium, Utrecht University, October 11, 2019.
- P.M. Biesheuvel, "1D and 2D modeling of electrodialysis and reverse osmosis," 13th Intl. symposium on electrokinetics ([ELKIN](#)), June 12-14, 2019, MIT, Cambridge, USA.
- P.M. Biesheuvel, "Tutorial: Electrodialysis," Tsinghua University, School of Environment (prof. Peng Liang), May 24, 2019.
- P.M. Biesheuvel, [Invited Plenary Speaker](#), "The Next Generation of CDI? Theory of Water Desalination with Intercalation Materials," [4th International Conference on Capacitive Deionization & Electrosorption](#), Tsinghua University, Beijing, China, May 20-23, 2019
- P.M. Biesheuvel, "Water Desalination by Capacitive Deionization: Introduction & Basic Concepts," and "Electrical Double Layers and Porous Electrode Theory," 1.5 hr Tutorial, 4th [International Conference on CDI and Electrosorption](#), Tsinghua University, Beijing, China, May 20, 2019.

- P.M. Biesheuvel, "Metal corrosion: a self-organizing precipitation process of economic relevance," E-COST Chemobrionics: physical and chemical processes related to the Origin of Life, March 11-13, 2019, Granada, Spain (with J.E. Dykstra).
- P.M. Biesheuvel, [Invited speaker](#), "Physics-based modeling of pressure-driven and current-driven water desalination," Dead Sea Water Workshop 2019 "Nanomaterials at the water-energy nexus," Ein Gedi, Israel, February 4-7, 2019.
- P.M. Biesheuvel, tutorial lecture (60 min), seminar (60 min), "Physics-based modeling of pressure-driven and current-driven water desalination," Dept. Mech. Eng. Technion, Haifa, Israel, February 3, 2019. (prof. Matthew Suss)
- P.M. Biesheuvel, "Capacitive Deionization with Intercalation Electrodes," [69th ISE Annual meeting of the International Society of Electrochemistry](#), September 2-6, 2018 Bologna, Italy, September 6, 2018.
- P.M. Biesheuvel, "The Sonin-Probstein approach for electrodialysis, capacitive deionization and reverse electrodialysis," [3rd Physics of Membrane Processes Symposium](#), Bologna, Italy, September 2, 2018.
- P.M. Biesheuvel, "Porous electrodes for energy storage, desalination and CO₂ cycling," Netherlands conference on Electrochemical Conversion & Materials ([ECCM](#)), The Hague, June 28, 2018.
- P.M. Biesheuvel, "Capacitive Deionization: desalination of water using the electrical double layer in porous carbon electrodes," 16th Conference of the International Association of Colloid and Interface Scientists ([IACIS](#)), Rotterdam, May 22, 2018.
- P.M. Biesheuvel, "Electric Double Layer theory and Electrochemical Systems," 4 hr Tutorial, Winterschool Physical Chemistry, Han-sur-Lesse, Belgium, February 7 and 8, 2018. www.hsl-school.nl/
- P.M. Biesheuvel, "Modelling innovative water technologies - what simple theories can do for you," Wetsus members-only congress, Leeuwarden, The Netherlands, November 30, 2017.
- P.M. Biesheuvel, "Theory of Water desalination using Capacitive Carbon Electrodes," Carbon for Energy Storage and Environment Protection - CESEP'2017, Lyon, October 23, 2017. <http://cesep2017.univ-lyon1.fr/en>
- P.M. Biesheuvel, "Theory for ion storage and transport in porous electrodes: Simple models that can do a lot," INVITED TALK, International Conference on CDI, Electrosorption and Electrodialysis, Seoul, Republic of Korea, July 4, 2017. www.cdi-e2017.com
- P.M. Biesheuvel, "Water Desalination by Capacitive Deionization: Introduction & Basic Concepts", "Electrical Double Layers and Porous Electrode Theory," 1.5 hr Tutorial, International Conference on CDI, Electrosorption and Electrodialysis, Seoul, Republic of Korea, July 3, 2017. www.cdi-e2017.com
- P.M. Biesheuvel, "Electrodialysis and ion-exchange membrane processes - II: Theory of Donnan equilibrium and ion transport," 1 hr Tutorial, International Conference on CDI, Electrosorption and Electrodialysis, Seoul, Republic of Korea, July 3, 2017.
- P.M. Biesheuvel, "Water desalination using capacitive electrodes: from carbon nanotube membranes to activated carbon suspensions," 9th International Conference on Porous Media & Annual Meeting, Rotterdam, May 9, 2017.
- P.M. Biesheuvel, "Water Desalination by Capacitive Deionization: Introduction & Basic Concepts", "Electrical Double Layers and Porous Electrode Theory," 1.5 hr Tutorial, 9th International Conference on Porous Media & Annual Meeting, Rotterdam, May 8, 2017.
- P.M. Biesheuvel, "Combined ion and water flow in ion exchange membranes and carbon nanotubes -- From Space Charge theory to Stefan Maxwell, single pores and ED cells," 11th International Conference on Membranes in Drinking and Industrial Water Production (MDIW), February 7, 2017, Leeuwarden, The Netherlands.

- P.M. Biesheuvel, "Water desalination using Capacitive Electrodes: from Carbon Nanotube Membranes to Activated Carbon Suspensions -- Concepts and Mean-field Transport Theory," [CECAM workshop](#), Erwin Schrödinger Institute for Mathematics and Physics, University of Vienna (Austria), December 1, 2016.
- P.M. Biesheuvel, "Water desalination using Capacitive Electrodes: from Carbon Nanotube Membranes to Activated Carbon Suspensions," ICMS Discussion Meeting, Department of Chemical Engineering and Chemistry, Technical University of Eindhoven, November 4, 2016.
- P.M. Biesheuvel and M.E Suss, "Capacitive Deionization," 3-hour Tutorial Lecture, Interfaces against Pollution, Lleida (Spain), September 7, 2016.
- P.M. Biesheuvel, "The origin of pH fluctuations in Capacitive Deionization," Interfaces against Pollution, Lleida (Spain), September 7, 2016.
- P.M. Biesheuvel, "Theory of ion and water flow through charged nanotubes," 67st Annual Meeting of the International Society of Electrochemistry, The Hague, August 25, 2016.
- P.M. Biesheuvel and M.E. Suss, "Capacitive Deionization," 3-hour Tutorial Lecture, 67st Annual Meeting of the International Society of Electrochemistry, The Hague, August 21, 2016.
- P.M. Biesheuvel, "Chemical effects of membrane transport and porous carbon electrodes," Aarhus University (Denmark), March 4, 2016.
- P.M. Biesheuvel, "Combined Faradaic-capacitive processes: theory of redox reactions and leakage currents in CDI," [2nd International conference on Capacitive Deionization and Electrosorption](#), Saarbrücken (Germany) (invited), October 27, 2015.
- P.M. Biesheuvel, "EDL theory and transport modeling in Capacitive Deionization," Tutorial Lecture, [2nd International conference on Capacitive Deionization and Electrosorption](#), Saarbrücken (Germany) (invited), October 26, 2015.
- P.M. Biesheuvel, "Membrane Capacitive Deionization – New Concepts and Transport Modeling," [Euromembrane2015](#), Aachen (Germany) (invited keynote), September 7, 2015.
- P.M. Biesheuvel, "Electrochemical engineering aspects of Capacitive Deionization, a technology for water desalination using porous carbon electrodes," [7th European Summerschool on Electrochemical Engineering](#), Leeuwarden, June 26, 2015.
- P.M. Biesheuvel, "Fundamentals and Challenges in Capacitive Deionization as a Small-Scale Energy-Efficient Portable Water Desalination Technology," Group Seminar prof. M.Z. Bazant, MIT (USA), June 3, 2015.
- P.M. Biesheuvel, "Fundamentals and Challenges in Capacitive Deionization as a Small-Scale Energy-Efficient Portable Water Desalination Technology Using Capacitive Ion Storage in Microporous Carbon Electrodes," [Gordon Research Conference "Microfluidics, Physics & Chemistry of Microscale Technology for Advancing and Translating Discovery,"](#) Mount Snow, West Dover, VT (USA) (Invited Plenary Presentation), June 2, 2015.
- P.M. Biesheuvel, "Ionic transport processes," gastcollege in course "Advanced Water Treatment and Re-use," Wageningen University (dr. H. Bruning), March 31, 2015; March 22, 2016.
- P.M. Biesheuvel, "Coupled Processes in electrochemistry," gastcollege in course "Coupled Processes," Wageningen University (dr. M. Kleijn), March 2, 2015; March 1, 2016.
- P.M. Biesheuvel, "Capacitive Deionization," Voltea, Sassenheim, the Netherlands, February 26, 2015; March 21, 2014.
- P.M. Biesheuvel, "Mean-field modeling of ion transport and storage in porous carbon electrodes," [COST Action MP1004 Winter Seminar](#) "Latest Developments in Electrochemical Capacitors," Poznan (Poland), January 29, 2015.

- P.M. Biesheuvel, "Charged colloids in solution and porous matter: from water treatment to capsule explosions," Laboratory of Physical Chemistry and Colloid Science, Wageningen University, November 28, 2014.
- P.M. Biesheuvel, "Transport of ions, colloids and water in porous media and membranes with special attention to water desalination by capacitive deionization," Interpore Benelux, Unilever Vlaardingen (*invited*), October 28, 2014.
- P.M. Biesheuvel, "Continuum Nernst-Planck-Poisson models for novel applications," [workshop "Electrochemical Interfaces: Recent Topics and Open Questions,"](#) Weierstrass Institute (WIAS), Berlin (*invited*), October 1, 2014.
- P.M. Biesheuvel, "Membrane Capacitive Deionization: definitions and EDL modeling," [8th International Conference "Interfaces against Pollution,"](#) Leeuwarden, May 28, 2014.
- P.M. Biesheuvel, "Negative Joule Heating In Ion-exchange membranes," [11th International Symposium on Electrokinetic Phenomena \(ELKIN\),](#) Ghent (Belgium), May 23, 2014.
- P.M. Biesheuvel, "Capacitive porous electrodes," Group Seminar (prof.dr. R. van Roij), Institute for Theoretical Physics, Dept. of Physics and Astronomy, Utrecht University, January 13, 2014.
- P.M. Biesheuvel, "Capacitive Deionization," [ElectroChem2013,](#) Southampton (UK), September 2, 2013.
- P.M. Biesheuvel, "Electrochemistry and -kinetics in aqueous media containing amphoteric ions," Group Seminar prof. M.Z. Bazant, MIT (USA), June 26, 2013.
- P.M. Biesheuvel, "Electrochemistry and -kinetics in aqueous media containing amphoteric ions," [EREM2013,](#) Boston (USA), June 25, 2013.
- P.M. Biesheuvel, "Water Desalination with Wires," Max Planck Institute for Colloids and Surfaces, Alumni Meeting Dept. Interfaces (prof. Möhwald), Golm-Potsdam (Germany), May 30, 2013.
- P.M. Biesheuvel, "Capacitive energy extraction from the controlled mixing of river and sea water using porous electrode cells," KNCV Electrochemistry Symposium "Electrochemistry of (photon)conversion processes," TU Delft, November 9, 2012.
- P.M. Biesheuvel, "Water desalination using membrane capacitive deionization," Electromembrane processes and materials, Satellite Meeting of The 63rd ISE Annual Meeting, Český Krumlov (Czech Republic), August 28, 2012.
- P.M. Biesheuvel, "Porous electrode theory for water desalination by capacitive deionization using nanoporous carbon electrodes," [ICREA Symposium 2012 "Nanofluidics, Colloids, and Membranes,"](#) Barcelona (Spain), July 16, 2012.
- P.M. Biesheuvel, "E-separation technologies for water treatment: novel academic developments with special focus on Capacitive Deionization," E-Webinar "The Future of Electro-Separation Technologies: Market Trends and Technology Directions," BlueTech Research (O₂ Environmental), July 12, 2012.
- P.M. Biesheuvel, "Capacitive Deionization (and other water desalination techniques)," NanoNextNL 'Nanotechnology in water applications,' University of Twente, July 3, 2012.
- P.M. Biesheuvel, "Porous electrode theory for Water Desalination by Capacitive Deionization using nanoporous carbons," The Annual World Conference on Carbon, Krakow (Poland), June 20, 2012.
- P.M. Biesheuvel, "Water Desalination Using Capacitive Deionization," Interfaces Against Pollution – SessionB: Resources and Interfaces (IAP), Nancy (France), June 11, 2012.
- P.M. Biesheuvel, "Water desalination using (membrane) capacitive deionization," Desalination for the Environment, European Desalination Society, Barcelona (Spain), April 23, 2012.

- P.M. Biesheuvel, "Water desalination using Capacitive Deionization," gastcollege in course "Advanced Water Treatment and Re-use" Wageningen University, March 27, 2012.
- P.M. Biesheuvel, "Ions in water: about controlled mixing and uncontrolled desalination," Wetsus internal congress, Leeuwarden, November 24, 2011.
- P.M. Biesheuvel, "Porous electrode millifluidics: separation of divalent from monovalent cations using capacitive deionization," The Netherlands MicroNanoConference 2011, Ede, November 15, 2011.
- P.M. Biesheuvel, "Microporous carbon electrodes for water desalination using capacitive deionization - Principle of the method, and current trends," Workshop "Carbon Materials for Electrodes," Fraunhofer Institute IWS Dresden (Germany), November 3, 2011.
- P.M. Biesheuvel, "Time-dependent ion selectivity in multicomponent double layer charging of porous electrodes," Minisymposium "Ion adsorption at solid-electrolyte interfaces," Physics of Complex Fluids-group, Department of Science and Technology, University of Twente, October 17, 2011.
- P.M. Biesheuvel, "Transport phenomena of ionic systems," gastcollege in course "transport phenomena", Wetsus Water Academy, October 14, 2011; October 9, 2012.
- P.M. Biesheuvel, "Membrane Capacitive Deionization," IWA Specialist Conference on Membrane Technology for Water & Wastewater Treatment, Aachen (Germany), October 6, 2011.
- P.M. Biesheuvel, "Carbide-derived carbon electrodes for water desalination using Capacitive Deionization," CESEP'11, 4th international conference on Carbons for Energy Storage/Conversion and Environment Protection, Vichy (France), September 29, 2011.
- P.M. Biesheuvel, "Porous electrode millifluidics: Water desalination using Capacitive Deionization," XXXII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química, Murcia (Spain), September 8, 2011.
- P.M. Biesheuvel, "A simple physics-based transport model for electrodialysis with non-perfect membranes," ICOM 2011, International Congress on Membranes and Membrane Processes, Amsterdam, July 27, 2011.
- P.M. Biesheuvel, "Charged interfaces in dynamic systems: Water desalination using capacitive deionization," SIXTH European Practical Summer school of separation and analytical chemistry of Marcoule, Marcoule (France), July 17-22, 2011.
- P.M. Biesheuvel, "Charged interfaces in dynamic systems: Water desalination using capacitive deionization," Prof. H.H.M. Möhwald 65th-anniversary symposium, Potsdam (Germany), June 23, 2011.
- P.M. Biesheuvel, "Capacitive deionization: millifluidic flow cells for water desalination based on electrokinetics and porous electrodes," Chemistry Department (prof. D. Aurbach), Bar-Ilan University, Rabat-Gan (Israel), May 12, 2011.
- P.M. Biesheuvel, "Charged interfaces in dynamic systems: Water desalination using capacitive deionization," Physics of Complex Fluids-group (prof. F. Mugele), Department of Science and Technology, University of Twente, May 3, 2011.
- P.M. Biesheuvel, "Millifluidic flow cells for water desalination, and for energy recovery from mixing river and sea water," Soft condensed matter-group (dr. R. van Roij), Dept. of Physics and Astronomy, Utrecht University, February 14, 2011.
- P.M. Biesheuvel, "Energy-efficient water desalination using porous electrode capacitive flow cells," The Netherlands MicroNanoConference, Enschede, November 18, 2010.
- P.M. Biesheuvel, "Microscopic modeling of porous electrodes for fuel cell applications including effects of diffuse space charge," The 61st Annual Meeting of the International Society of Electrochemistry, Nice (France), September 27, 2010.

- P.M. Biesheuvel, "Electrostatic interactions across multiple length scales – from ions, via micelles and proteins, to brushes and particles... - The paradoxical situation that mean-field theory (including chemistry) works so well...," Colloid & Interface Science Group (prof. C. Stubenrauch, prof. E. Roduner), Institut für Physikalische Chemie, University of Stuttgart, Stuttgart (Germany), October 26, 2010.
- P.M. Biesheuvel, "Electrostatic interactions across multiple length scales – from ions, via micelles and proteins, to brushes and particles... - The paradoxical situation that mean-field theory (including chemistry) works so well...," Institute of Experimental Physics I (prof. K. Kremer), University of Leipzig, Leipzig (Germany), August 5, 2010.
- P.M. Biesheuvel, "Polyelectrolytes in confined space - research highlights from Golm and Wageningen, or How polymer theory can do more than getting the exponent right," Department of biofunctional polymer materials (prof. C. Werner), Leibniz-Institut für Polymerforschung Dresden (IPFDD), Dresden (Germany), August 4, 2010.
- P.M. Biesheuvel, "Double layer effects in colloidal interactions and in electrochemistry: the Frumkin effect and porous electrodes," Max-Planck Institut für Eisenforschung (MPIE), Düsseldorf (Germany), July 19, 2010.
- P.M. Biesheuvel, "Electrodes for energy applications including effects of diffuse space charge: microscopic vs. phenomenological modeling," SIAM Conference on Mathematical Aspects of Materials Science (MS10), Philadelphia (USA), May 25, 2010.
- P.M. Biesheuvel, "Water desalination using double layers in a porous electrode capacitive flow cell," A.J. Drexel Nanotechnology Institute (prof. Y. Gogotsi), Department of Materials Science and Engineering, Drexel University, Philadelphia (USA), May 24, 2010.