Curriculum Vitae: Dr. Timothy Noël

Professional Experience

2012 – Present **Tenured Assistant Professor**
Laboratory for Micro Flow Chemistry and Process Technology
Department of Chemical Engineering and Chemistry
Eindhoven University of Technology, Eindhoven
The Netherlands
Head: Prof. Dr. Volker Hessel

Research Interests: microfluidics, micro flow chemistry, organic synthetic chemistry, enantioselective catalysis, fluorine chemistry, catalytic carbon-carbon and carbon-heteroatom formation

2013 – 2015 **10% Research Professor**
Department of Organic Chemistry (S4)
Ghent University, Ghent
Belgium

2010 – 2011 **Post-doctoral Research: Fulbright Scholar**
Department of Chemistry
Novartis – MIT Center for Continuous Manufacturing
Massachusetts Institute of Technology (MIT), Cambridge
United States of America
Host: Prof. Dr. Stephen L. Buchwald
Collaboration with group of Prof. Dr. Klavs F. Jensen (Department of Chemical Engineering)

Research Topic: *Cross-coupling reactions in continuous-flow – Towards a continuous manufacturing of pharmaceuticals*.

Education

2005 – 2009 **Ph.D. in Sciences – Chemistry: BOF Research Fellow**
Laboratory for Organic and Bioorganic Synthesis
Department of Chemistry
Ghent University, Ghent

Belgium
Supervisor: Prof. Dr. Johan Van der Eycken

Ph.D. Thesis: *Synthesis and application of chiral dienes and chiral imidates for asymmetric transition metal catalysis.*

2005 – 2008 **Doctoral School**
Department of Chemistry
Ghent University, Ghent
Belgium

Graduated with marks equivalent to high distinction.

Courses: *Organometallic Chemistry; Asymmetric Synthesis; Bioorganic Chemistry; Advanced NMR; Advanced Chromatography; Advanced Academic English Writing Skills; Management of Research and Development in University and Industry*.

2004 – 2005 **Predoctoral Training in Chemistry**
Department of Chemistry
Ghent University, Ghent
Belgium

Graduated with marks equivalent to high distinction – First of the year.

2000 – 2004 **Industrial Chemical Engineer (M.Sc.)**
Department of Chemical Engineering
KaHo Sint-Lieven, Ghent
Belgium

M.Sc. Thesis: *The synthesis of a fluorescence label with improved spectral properties for labeling D10-p5-2k as an HIV-1 inhibitor.*

Graduated with high distinction – First of the year.

1994 – 2000 **High School – Latin-Sciences**
Sint-Jozefscollege, Aalst
Belgium

Recipient of the Excellence Award and Science Award.
Graduated with high distinction – First of the year.

Scientific Awards

2015 - "Thieme Chemistry Journal Award" for promising young professors at the beginning of their career.

- VIDI grant (Netherlands Institute for Scientific Research, NWO), 800 k€.

2013 - Marie Curie Career Integration Grant, 100 k€.

2012 - VENI grant (Netherlands Institute for Scientific Research, NWO), 250 k€.
- Finalist European Young Chemist Award, EuCheMS Conference.

2011 - Incentive Award for Young Researchers 2011 (Comité de Gestion du Bulletin des Sociétés Chimiques Belges), 2 500 €.

2010 - Fulbright – Hays Award.

2006 - Best poster presentation in the chemistry section at the Ph.D. Symposium, Ghent University, 250 €.

2004 - Extraordinary Research Fund Fellowship (BOF fellowship, Ghent University).

2000 - Excellence Award at Sint-Jozefscollege, Aalst, Belgium.
- Science Award at Sint-Jozefscollege, Aalst, Belgium.

Research Publications

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89 Palladium-catalyzed aerobic oxidative coupling of o-xylene in flow: a safe and scalable protocol for cross-dehydrogenative coupling.
Erdmann, N. E.; Su, Y.; Bosmans, B.; Hessel, V.; Noël, T. *Org. Process Res. Dev.,* **2016**, DOI:.

88 Utilization of milli-scale coiled flow inverter in combination with phase separator for continuous-flow liquid-liquid extraction processes.
Vural-Guersel, I.; Kurt, S. K.; Aalders, J.; Wang, Q.; Noël, T.; Nigam, K.D.P.; Kockmann, N.; Hessel, V. *Chem. Eng. J.,* **2016**, *283*, 855-868.

87 Hydrogen chloride gas in solvent-free continuous conversion of alcohols to chlorides in microflow.
Borukhova, S.; Noël, T.; Hessel, V. *Org. Process Res. Dev.,* **2016**, *20*, 568-573.

86 High pressure direct synthesis of adipic acid from cyclohexene and hydrogen peroxide via capillary microreactors.
Shang, M.; Noël, T.; Su, Y.; Hessel, V. *Ind. Eng. Chem. Res.,* **2016**, DOI: 10.1021/acs.iecr.5b04813.

85 Continuous ruthenium-catalyzed methoxycarbonylation with supercritical carbon dioxide.
Stouten, S.C.; Noël, T.; Wang, Q.; Beller, M.; Hessel, V. *Catal. Sci. Technol.,* **2016**, DOI: 10.1039/C5CY01883H.

84 Applications of continuous-flow photochemistry in organic synthesis, material science and water treatment.
Cambié, D.; Bottecchia, C.; Straathof, N. J. W.; Hessel, V.; Noël, T. *Chem. Rev.,* **2016**, DOI: 10.1021/acs.chemrev.5b00707.

83 Continuous-flow multi-step synthesis of Cinnarizine, Cyclizine and a Buclizine derivative from bulk alcohols.

Borukhova, S.; Noël, T.; Hessel, V. *ChemSusChem,* **2016**, *9*, 67-74.

82 Accelerated Gas-liquid Visible Light Photoredox Catalysis with Continuous-Flow Photochemical Microreactors.
Straathof, N. J. W.; Su, Y.; Hessel, V.; Noël, T., *Nature Protocols,* **2016**, *11*, 10-21

81 A convenient numbering-up strategy for the scale-up of gas-liquid photoredox catalysis in flow.
Su, Y.; Kuijpers, K.; Hessel, V.; Noël, T., *Reaction Engineering & Chemistry,* **2016**, *1*, 73-81. (cover article)

80 Beyond organometallic flow chemistry: the principles behind the use of continuous-flow reactors for synthesis.
Noël, T.; Su, Y.; Hessel, V., *Top. Organomet. Chem.,* **2016**, DOI: 10.1007/3418_2015_152.

79 Liquid phase oxidation chemistry in continuous-flow
Gemoets, H. P. L.; Su, Y.; Shang, M.; Hessel, V.; Luque, R.; Noël, T., *Chem. Soc. Rev.* **2016**, *45*, 83-117.

78 Leaching-Free Supported Gold Nanoparticles Catalyzing Cycloisomerizations under Microflow Conditions.
Schröder, F.; Erdmann, N.; Noël, T.; Luque, R.; Van der Eycken, E. V. *Adv. Synth. Catal.,* **2015**, *357*, 3141-3147.

77 Controlled Photocatalytic Aerobic Oxidation of Thiols to Disulfides in an Energy Efficient Photomicroreactor.
Su, Y.; Talla, A.; Hessel, V.; Noël, T., *Chem. Eng. Technol,* **2015**, *38*, 1733-1742. (cover article)

76 Heterocat, homocat, and biocat. What does better flow?
Hessel, V.; Noël, T., *Chim. Oggi* **2015**, *33*, 44-49.

75 Supported Liquid Phase Catalyst coating in micro flow Mizoroki–Heck.
Stouten, S.; Noël, T.; Wang, Q.; Hessel, V. *Chem. Eng. J* **2015**, *279*, 143-148.

74 Supported Gold Nanoparticles as an Efficient, Reusable and Green Heterogeneous Catalyst for Cycloisomerization Reactions. Schröder, F.; Ojeda, M.; Erdmann, E.; Jacobs, J.; Van Meervelt, L.; Luque, R.; Noël, T.; Van der Eycken, J.; Van der Eycken, E. V. *Green Chem.* **2015**, *17*, 3314-3318.

73 Room temperature catalysis enabled by light. Noël, T., In *Sustainable catalysis, energy-efficient reactions and applications.* Luque, R.; Lam, F., Eds, Wiley-VCH, Berlin, **2015**, accepted for publication.

72 Pressure-Accelerated Azide–Alkyne Cycloaddition: Micro Capillary versus Autoclave Reactor Performance. Borukhova, S.; Seeger, A. D.; Noël, T.; Wang, Q.; Busch, M.; Hessel, V., *ChemSusChem* **2015**, *8*, 504-512.

71 Separation/Recycling Methods of Homogeneous Transition Metal Catalysts in Continuous Flow.
Vural-Gursel, I.; Noël, T.; Wang, Q.; Hessel, V., *Green Chem.* **2015**, *17*, 2012-2026.

70 Visible light photoredox catalysis.
Erdmann, N.; Noël, T., In *Green Chemistry in Drug Discovery: From academia to industry*, Le, P. T.; Richardson, P. F., Eds, Springer Science, **2015**, accepted for publication.

69 Reactor Concepts for Aerobic Liquid-phase Oxidation: Microreactors and tube reactors.
Gemoets, H.; Hessel, V.; Noël, T., In *Liquid Phase Aerobic Oxidation Catalysis – Industrial applications and academic perspectives*, Stahl, S. S.; Alsters, P. L., Eds, Wiley-VCH, Berlin, **2015**, accepted for publication.

68 A compact photochemical design combining a capillary microreactor with small-scale LEDs for

gas-liquid photocatalytic transformations.
Su, Y.; Hessel, V.; Noël, T., *AIChE J.* **2015**, *61*, 2215-2227.

67 Accelerating Visible Light Photoredox Catalysis in Continuous-flow Reactors.
Straathof, N. J. W.; Noël, T., In *Visible light photocatalysis in organic chemistry*, C. R. J. Stephenson, T. Yoon, D. W. C. MacMillan, Eds., Wiley-VCH, Berlin, **2015**, accepted for publication.

66 Iridium(I)-catalyzed ortho-directed hydrogen-isotope exchange in continuous-flow reactors.
Habraken, E. R. M.; Vliegen, M.; Noël, T., *J. Flow Chem.* **2015**, *5*, 2-5.

65 Continuous Metal Scavenging and Coupling to One-pot Copper-Catalyzed Azide-Alkyne Cycloaddition Click Reaction in Flow.
Vural-Gursel, I.; Aldiansyah, F.; Wang, Q.; Noël, T.; Hessel, V. *Chem. Eng. J.* **2015**, *270*, 468-475.

64 Metal-free photocatalytic aerobic oxidation of thiols to disulfides in batch and continuous-flow.
Talla, A.; Driessen, B.; Straathof, N. J. W.; Milroy, L.-G.; Brunsveld, L.; Hessel, V.; Wang, X.; Noël, T., *Adv. Synth. Catal.* **2015**, *357*, 2180-2186.

63 Connected nucleophilic substitution-Claisen rearrangement in flow – Analysis for kilo-lab process solutions with orthogonality.
Shahbazali, E.; Spapens, M.; Kobayashi, H.; Ookawara, S.; Noël, T.; Hessel, V. *Chem. Eng. J.* **2015**, *281*, 144-154.

62 Cross-coupling chemistry in continuous flow.
Noël, T.; Hessel, V., In *New Trends in cross-coupling: Theory and applications*, T. Colacot, Ed., RSC, Cambridge (UK), **2015**, pp. 608-642.

61 2- and 3-stage temperature ramping for the direct synthesis of adipic acid in micro-flow packed-bed reactors.
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60 Aerobic C–H olefination of indoles via a cross-dehydrogenative coupling in continuous flow.
Gemoets, H. P. L.; Hessel, V.; Noël, T., *Org. Lett.* **2014**, *16*, 5800-5803.

59 The Claisen Rearrangement – Part 1: Mechanisms and Transition States, Revisited with Quantum Mechanical Calculations and Ultrashort Pulse Spectroscopy
Zelentsov, S.; Hessel, V.; Shahbazali, E., Noël, T., *ChemBioEng Rev.* **2014**, *1*, 230-240.

58 The Claisen Rearrangement – Part 2: Impact Factor Analysis of the Claisen Rearrangement, in Batch and in Flow.
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57 Claisen-Umlagerung im Ruhr- und Durchflussbetrieb: Verstandnis des Mechanismus und Steuerung der Einflussgroßen
Hessel, V.; Shahbazali, E., Noël, T.; Zelentsov, S., *Chem. Ing. Tech.* **2014**, *86*, 2160-2179.

56 A mild and fast photocatalytic trifluoromethylation of thiols in batch and continuous-flow.
Straathof, N. J. W.; Tegelbeckers, B. J. P.; Hessel, V.; Wang, X.; Noël, T., *Chem. Sci.* **2014**, *5*, 4768-4773

55 Photochemical transformations accelerated in continuous-flow reactors: basic concepts and applications.
Su, Y.; Straathof, N. J. W.; Hessel, V.; Noël, T., *Chem. Eur. J.* **2014**, *20*, 10562-10589. (Highlighted on the Chem Eur J facebook webpage; highlighted on Organic Chemistry Portal by

Douglass F. Taber, 28/09/2015; cover of volume 20, issue 34).

54 Biotechnical microflow processing at the edge: lessons to be learnt for a young discipline.
Hessel, V.; Tibhe, J.; Noël, T.; Wang, Q. *Chem. Biochem Eng. Q.* **2014**, *83*, 167-188.

53 Catalyst retention in continuous flow with supercritical carbon dioxide.
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52 Micro Flow Chemistry: New possibilities for synthetic chemists.
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51 Eco-efficiency analysis for intensified production of an active pharmaceutical ingredient: a case study.
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50 Heat-integrated novel process of liquid fuel production from bioresources – process simulation and costing study.
Vural-Gursel, I.; Wang, Q.; Noël, T.; Hessel, V.; Kolb, G. A.; van Veen, A., *Chem. Eng. Trans.* **2014**, *39*, 931-936.

49 Rapid trifluoromethylation and perfluoroalkylation of five-membered heterocycles by photoredox catalysis in continuous flow.
Straathof, N. J. W.; Gemoets, H.; Wang, X.; Schouten, J. C.; Hessel, V.; Noël, T., *ChemSusChem* **2014**, *7*, 1612-1617. (*Invited artwork for the cover of ChemSusChem*)

48 Visible Light Photocatalytic Metal-Free Perfluoroalkylation of Heteroarenes in Continuous Flow.
Straathof, N. J. W.; van Osch, D. J. G. P.; Schouten, A.; Wang, X.; Schouten, J. C.; Hessel, V.; Noël, T., *J. Flow Chem.* **2014**, *4*, 12-17.

47 The accelerated preparation of 1,4-dihydropyridines using microflow reactors.
Baraldi, P.T.; Noël, T.; Wang, Q.; Hessel, V., *Tetrahedron Lett.* **2014**, *55*, 2090-2092.

46 Metallic nanoparticles made in flow and their catalytic applications in organic synthesis.
Shahbazali, E.; Hessel, V.; Noël, T.; Wang, Q., *Nanotechnology Rev.* **2014**, *3*, 65-86.

45 Solvent- and catalyst-free Huisgen cycloaddition towards Rufinamide in flow with decision on a greener and less expensive dipolarophile.
Borukhova, S.; Noël, T.; Metten, B.; de Vos, E.; Hessel, V., *ChemSusChem* **2013**, *6*, 2220-2225.

44 Ferrocene-derived P,N ligands: Synthesis and application in enantioselective catalysis.
Noël, T.; Van der Eycken, J., *Green Processing and Synthesis* **2013**, *2*, 297-309.

43 Improving energy efficiency of process of adipic acid synthesis in flow using pinch analysis.
Vural-Gursel, I.; Wang, Q.; Noël, T.; Hessel, V.; Tinge, J. T., *Ind. Eng. Chem. Res.* **2013**, *52*, 7827-7835.

42 Flow Synthesis of phenylserine using threonine aldolase immobilized on Eupergit support.
Tibhe, J.; Fu, H.; Noël, T.; Wang, Q.; Meuldijk, J.; Hessel, V., *Beilstein J. Org. Chem.* **2013**, *9*, 2168-2179.

41 Accelerating photoredox catalysis in continuous microflow.
Noël, T.; Wang, X.; Hessel, V., *Monographic suppl. Series of Chimica Oggi - Chem. Today: Organometallic chemistry, biocatalysis and catalysis,* **2013,** *31*, 10-14.

40 A mild, one-pot Stadler-Ziegler synthesis of arylsulfides facilitated by photoredox catalysis in batch and continuous-flow.
Wang, X.; Cuny, G. D.; Noël, T., *Angew. Chem. Int. Ed.* **2013**, *52*, 7860-7864.

39 Lipase based biocatalytic flow process in a packed bed microreactor.
Dencic, I.; de Vaan, S.; Noël, T.; Meuldijk, J.; de Croon, M.; Hessel, V., *Ind. Eng. Chem. Res.* **2013**, *52*, 10951-10960.

38 Novel Process Windows for Enabling, Speeding-up and Uplifting Flow Chemistry.
Hessel, V.; Kralisch, D.; Kockmann, N.; Noël, T.; Wang, Q., *ChemSusChem* **2013**, *6*, 746-789. (Special attention: one of the most frequently cited papers in ChemSusChem among those published in 2012 or 2013)

37 The impact of Novel Process Windows on the Claisen rearrangement.
Kobayashi, H.; Driessen, B.; van Osch, D. J. G. P.; Talla, A., Noël, T.; Hessel, V., *Tetrahedron* **2013**, *69*, 2885-2890.

36 Implementation of heat integration for efficient process design of direct adipic acid synthesis in flow.
Vural-Gürsel, I.; Wang, Q.; Noël, T.; Hessel, V. *Chem. Eng. Trans.* **2013**, *35*, 775-780.

35 A view through Novel Process Windows.
Stouten, S. C.; Noël, T.; Wang, Q.; Hessel, *Aust. J. Chem.* **2013**, *66*, 121-130.

34 Supported aqueous phase catalyst coating in micro flow Mizoroki-Heck reaction.
Stouten, S. C.; Noël, T.; Wang, Q.; Hessel, *Tetrahedron Lett.* **2013**, *54*, 2194-2198.

33 Packed-bed microreactor for continuous-flow adipic acid synthesis from cyclohexene and hydrogen peroxide.
Shang, M.; Noël, T.; Wang, Q.; Hessel, V. *Chem. Eng. Technol.* **2013**, *36*, 1001-1009.

32 Micro Process Technology – 3. Applications
Hessel, V.; Noël, T. *Ullmann's Encyclopedia of Industrial Chemistry*, DOI: 10.1002/14356007.o16_o02.

31 Membrane microreactors: Gas-liquid reactions made easy.
Noël, T.; Hessel, V. *ChemSusChem* **2013**, *6*, 405-407.

30 Micro reaction technology for valorization of biomolecules using enzymes and metal catalysts.
Dencic, I.; Noël, T.; Meuldijk, J.; de Croon, M.; Hessel, V. *Eng. Life Sci.* **2013**, *13*, 326-343.

29 Chemical intensification in flow chemistry through harsh reaction conditions and new reaction design.
Noël, T.; Hessel, V. In *Microreactors in preparative chemistry: Practical aspects in bioprocessing, nanotechnology, catalysis and more*, W. Reschetilowski, Ed., Wiley-VCH, Weinheim (Germany), **2013**, pp. 273-295. (DOI: 10.1002/9783527652891.ch11)

28 Direct synthesis of adipic acid in flow – A sustainable process alternative.
Vural-Gürsel, I.; Wang, Q.; Noël, T.; Hessel, V. *Chem. Eng. Trans.* **2012**, *29*, 565-570.

27 Green is the future of chemistry.
Noël, T. *Green Proc. Synth.* **2012**, *1*, 399-401.

26 Window of opportunity – Increase in profitability using modular compact plants and microreactor based flow processing.
Vural-Gürsel, I.; Hessel, V.; Wang, Q.; Noël, T.; Lang, J. *Green Proc. Synth.* **2012**, *1*, 315-336.

25 Chiral imidate-ferrocenylphosphanes: Synthesis and application as P,N-ligands in iridium(I)-catalyzed hydrogenation of unfunctionalized and poorly functionalized olefins.
Bert, K.; Noël, T.; Kimpe, W.; Goeman, J. L.; Van der Eycken, J. *Org. Biomol. Chem.* **2012**, *10*, 8539-8550.

24 Threonine aldolase immobilization on different supports for engineering of productive, cost-

efficient enzymatic microreactors.
Fu, H.; Dencic, I.; Tibhe, J.; Pedraza, C. A. S.; Wang, Q.; Noël, T.; Meuldijk, J.; de Croon, M.; Hessel, V.; Weizenmann, N.; Oeser, T.; Kinkeade, T.; Hyatt, D.; Van Roy, S.; Dejonghe, W.; Diels, L. *Chem. Eng. J.* **2012**, *207-208*, 564-576.

23 Modeling of anionic polymerization in flow with coupled variations of concentration, viscosity and diffusivity.
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22 Copper(I)-catalyzed azide-alkyne cycloadditions in microflow: Catalyst activity, high T operation, and an integrated continuous copper scavenging unit.
Varas, A. C.; Noël, T.; Wang, Q.; Hessel, V. *ChemSusChem* **2012**, *5*, 1703-1707.

21 Micro Process Technology – 1. Introduction
Hessel, V.; Noël, T. *Ullmann's Encyclopedia of Industrial Chemistry*, DOI: 10.1002/14356007.q16_q01

20 Micro Process Technology – 2. Processing
Hessel, V.; Noël, T. *Ullmann's Encyclopedia of Industrial Chemistry*, DOI: 10.1002/14356007.b16_b37.pub2

19 Potential analysis of smart flow processing and micro process technology for fastening process development – Use of chemistry and process design as intensification fields.
Hessel, V.; Vural-Gürsel, I.; Wang, Q.; Noël, T.; Lang, J. *Chem. Eng. Technol.* **2012**, *35*, 1184-1204.

18 Potentialanalyse von Milli- und Mikroprozesstechniken fuer die Verkuerzung von Prozessentwicklungszeiten – Chemie und Prozess Design als Intensivierungsfelder.
Hessel, V.; Vural-Gürsel, I.; Wang, Q.; Noël, T.; Lang, J. *Chem. Ing. Tech.* **2012**, *84*, 660-684.

17 Chiral Imidate Ligands: Synthesis and Applications in Asymmetric Catalysis.
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16 Accelerating Pd-catalyzed C–F bond formation: Use of a microflow packed-bed reactor.
Noël, T.; Maimone, T. J.; Buchwald, S.L. *Angew. Chem. Int. Ed.* **2011**, *50*, 8900-8903.
(*Selected as a hot paper by the editors of Angewandte Chemie. Highlighted in Org. Process Res. Dev.* **2012** *DOI: 10.1021/op300251d*)

15 Suzuki-Miyaura cross-coupling of heteroaryl halides and aryl boronic acids in continuous-flow.
Noël, T.; Musacchio, A. J. *Org. Lett.* **2011**, *13*, 5180-5183.

14 A Teflon microreactor with integrated piezoelectric actuator to handle solid forming reactions.
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13 Suzuki-Miyaura cross-coupling reactions in flow: Multistep synthesis enabled by a microfluidic extraction.
Noël, T.; Kuhn, S.; Musacchio, A. J.; Jensen, K.F.; Buchwald, S.L. *Angew. Chem. Int. Ed.* **2011**, *50*, 5943-5946.
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12 Palladium-catalyzed amination reactions in flow: overcoming the challenges of clogging *via* acoustic irradiation.

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10 Cross-Coupling in Flow.
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9 Imidate-Phosphane ligands as highly versatile ligands for Palladium-catalyzed allylic substitution reactions.
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Noël, T.; Gök, Y.; Van der Eycken, J. *Tetrahedron: Asymmetry* **2010**, *21*, 540-543.

7 Novel C_2-symmetrical bisoxazolines with a chiral *trans*-2,3-diphenylcyclopropane backbone: Preparation and application in asymmetric catalytic reactions.
Gök, Y.; Noël, T.; Van der Eycken, J. *Tetrahedron: Asymmetry* **2010**, *21*, 2275-2280.

6 A novel C_2-symmetrical bisphosphane ligand with a cyclopropane backbone: Synthesis and application in Rh(I)-catalyzed Asymmetric 1,4-addition of arylboronic acids to cyclic enones.
Gök, Y.; Noël, T.; Van der Eycken, J. *Tetrahedron: Asymmetry* **2010**, *21*, 2768-2774.

5 *Trans*-(2*R*,3*R*)-diphenylcyclopropane-1,1-dimethanol: a pivotal diol for the synthesis of novel C_2-symmetric ligands for asymmetric transition metal catalysis.
Vervecken, E.; Van Overschelde, M.; Noël, T.; Gök, Y.; Alvárez Rodríguez, S.; Cogen, S.; Van der Eycken, J. *Tetrahedron: Asymmetry* **2010**, *21*, 2321-2328.

4 Cyclic Imidate Ligands.
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3 Chiral imidates as a new class of nitrogen-based chiral ligands: synthesis and catalytic activity in asymmetric aziridinations and diethylzinc additions.
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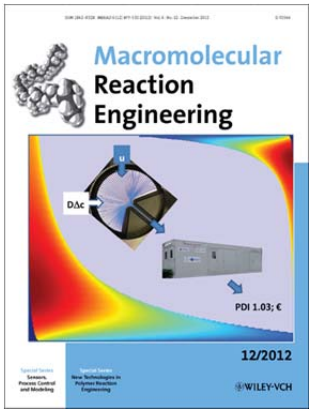

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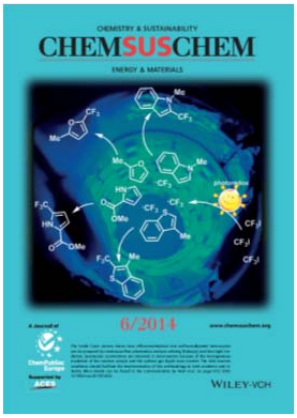

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Chem. Eur. J.

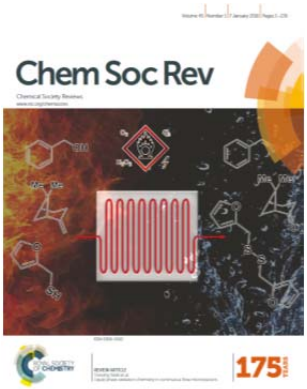
2014, *20*, 10562-10589

Chem. Ing. Tech.

2014, *12*, 2160-2179

Chem. Eng. Technol.

2015, *38*, 1733-1742



Chem. Soc. Rev.

2016, *45*, 83-117.

Guest Editorials

2012 Guest editor of a special issue of Challenges: "Challenges in Chemical Processes". (Together with Volker Hessel)

2015 Guest editor of a special issue in Journal of Flow Chemistry, volume 5, issue 3, pp. 123-194 "Flow Chemistry in North America". (Together with Aaron Beeler)

2015 Guest editor of a special issue in Chemical Engineering Technology: "Chemical intensification in flow" **2015**, issue 10 (Together with Volker Hessel)

2016 Guest editor of a special issue of Challenges: "Challenges in Chemical Processes". (Together with Volker Hessel)

Books

2015 Micro Process Technology, Hessel, V. and Noël, T. eds., Wiley-VCH, Weinheim (Germany), **2015** (book in preparation).

2015 Photochemical processes in continuous-flow reactors: From engineering principles to chemical

applications, Noël, T. ed., Imperial College Press, London (UK), **2015** (book in preparation).

2015 Organometallic Flow Chemistry, Noël, T. ed., Springer, Heidelberg (Germany), **2015** (book in preparation).

Conferences participation – Oral Presentations

2016 Flow Chemistry Conference Europe 2016 (Cambridge, UK) (Conference Chair – Invited Talk).

2015 Webinar on 9th December 2015 for Technology Networks (Invited Talk).

2015 Pacifichem 2015 (Honolulu, Hawai, USA) (Invited Talk).

2015 EPIC5 (European Process Intensification Conference) (Nice, France) (Keynote Talk).

2015 Photochemistry Gordon Research Conference (Stonehill College, Easton, MA, USA) (Invited Talk).

2015 17th International Symposium on Relations between Homogeneous and Heterogeneous Catalysis (ISHHC17) (Utrecht, Netherlands).

2015 NextGenChem@NL symposium (Leiden, Netherlands)

2015 ACS Meeting Denver, New Trends in Cross-Coupling Catalysis in Industry and Academia, Session dedicated to the 2015 ACS Award in Industrial Chemistry in honor of Dr. Thomas J. Colacot (Johnson Matthey) (Denver, CO, USA) (Invited Talk).

2015 Lecture at DSM – Geleen (Netherlands) (Invited talk).

2015 Flow Chemistry Society – Berlin (Germany) (Conference & Session Chair – Keynote Lecture).

2014 Netherlands Process Technology Symposium (NPS 14) (Netherlands) (Keynote Lecture).

2014 NextGenChem@NL symposium (Eindhoven, Netherlands).

2014 Automation in chemistry: Carbohydrate synthesis and continuous-flow (Germany) (Invited Talk).

2014 Queen's University Belfast (UK) (Invited Talk).

2014 Flow Chemistry Society – Boston (USA) (Invited Talk).

2014 Engineering for a Sustainable Future – Eindhoven (NL) (Invited Talk).

2014 Flow Chemistry Society – Barcelona (Spain) (Invited Talk).

2014 University of Amsterdam – Amsterdam (NL) (Invited Talk).

2013 FROST 4 – Flow Chemistry Society – Budapest (Hungary) (Invited Talk).

2013 Prof. Guangwen Chen's Group – Dalian Institute of Chemical Physics – Dalian **2013** (China) (Invited talk).

2013 Global Congress of Catalysis – Dalian **2013** (China) (Invited talk). Special attention: Chair of Photocatalysis session.

2013 FLOHET – 2013, Annual Florida Heterocyclic and Synthetic IUPAC – Sponsored Conference, Florida **2013** (USA) (Invited talk).

2013 Lecture at Janssen Pharmaceuticals – Beerse (Belgium) (Invited talk).

2012 MinacNed Conference, Amsterdam **2012** (The Netherlands), (Invited talk).

2012 European Young Chemist Award at Euchems Chemistry Conference, Prague **2012** (Czech Republic), (Invited talk).

2012 Euchems Chemistry Conference, Prague **2012** (Czech Republic).

2012 Incentive Award for Young Researchers Lecture at Vlaams Jongeren Congres, Oostende **2012** (Belgium), (Invited talk).

2012 Microwave & Flow Chemistry Conference, Lanzarote **2012** (Spain).

2011 15th Sigma-Aldrich Organic Synthesis Meeting, Spa **2011** (Belgium), Opening and Plenary

Lecture, (Invited talk).

2011 Lecture at Ghent University, Department of Chemistry, Ghent 2011 (Belgium), (Invited talk).

2011 Lecture at EcoSynth, Oostende **2011** (Belgium), (Invited talk).

2010 Metals In Synthesis Seminars, Massachusetts Institute of Technology **2010** (USA).

2010 Flemish Youth Conference of Chemistry, Blankenberge **2010** (Belgium).

2009 13th Sigma-Aldrich Organic Synthesis Meeting, Spa **2009** (Belgium).

2009 42nd IUPAC Conference, Glasgow **2009** (Scotland, UK).

2009 COST Chemistry D.40, Turku **2009** (Finland).

2007 Flemish Youth Conference of Chemistry, Antwerp **2007** (Belgium).

Supervision and guidance of Ph.D. students

2015 *The chemical plant of tomorrow and the future. Process-design intensification at different production scales.*
Iris Vural-Gűrsel (TU/e). Special attention: Cum Laude.

Supervision and guidance of postdoctoral researchers

2016 Dr. Yuanhai. Ph.D. from Dalian Institute of Chemical Physics. Current position: Professor at Shanghai Jiao Tong University. Special attention: recipient of 1000-talents scholarship.

2015 Dr. Nico Erdmann. Ph.D. from RWTH Aachen. Current position: consultant at Accenture.

Participation in research projects – Supervision and guidance of (under-)graduate students

2015 *Continuous-flow synthesis of CF3-vinylic compounds via Heck type coupling and photoredox catalysis.*
Nicolle Beckers (M.Sc. Student, TU/e).

2015 *Accurate Measurements of the Photon Flux in Multiphase Reactor Systems by Actinometry.*
Robin Verijke (M.Sc. Student, TU/e).

2015 *A convenient internal numbering-up strategy for the scale up of gas-liquid photoredox catalysis.*
Koen Kuijpers (M.Sc. Student, TU/e).

2015 *TiO_2 catalyzed aerobic oxidation of thiols in a photomicroreactor.*
Patricia Tijssen (M.Sc. Student, TU/e).

2014 *Continuous-flow synthesis of CF_3-vinylic compounds via Heck-type coupling.*
Luuk Spijkers (M.Sc. Student, TU/e).

2014 *Combining Photoredox Catalysis and C-H activation for the Site-selective Arylation of 1-methylindole.*
Liesbeth Colpaert (Erasmus Student, KaHo Sint Lieven).

2014 *Direct Functionalization of Heterocycles through Generation of a Short-lived Organolithium Intermediate in Micro-Flow.*
Sieuwert Blommaert (Erasmus Student, KaHo Sint Lieven).

2014 *The Enzymatic Epoxidation of Styrene in Microflow.*
Robin Dellaert (M.Sc. Student, TU/e).

2014 *Optimization of key steps towards Rufinamide and Aripiprazole.*

Marc Van den Bergh (M.Sc. Student, TU/e).

2014 *Thermal Claisen Rearrangement in Flow – Increasing Selectivity of Two-step Synthesis.*
Max Spapens (M.Sc. Student, TU/e).

2014 *Continuous metal scavenging with a flow liquid-liquid extraction unit.*
Ferry Aldiansyah (M.Sc. Student, TU/e).

2014 *Photoredox-Catalyzed Trifluoromethylation of Thiols in Microflow.*
Bart Tegelbeckers (M.Sc. Student, TU/e).

2014 *Perfluorovinylation of Anilines in Continuous Micro Flow.*
Laura Kollau (M.Sc. Student, TU/e).

2014 *Photoredox Aerobic Oxidation of Thiols to Disulfides in a Photomicroreactor.*
Ali Talla (M.Sc. Student, TU/e).

2014 *Photocatalytic Perfluoralkylation in Photomicroreactors and a Study Towards the Distance-to-Time Transformation.*
Dannie J. G. P. van Osch (M.Sc. Student, TU/e).

2013 *Synthesis of perfluoroalkylated heterocyclic substrates facilitated by photoredox catalysis in a capillary microreactor.*
Hannes Gemoets (Erasmus Student, KaHo Sint Lieven).

2012 *Copper(I)-catalyzed azide-alkyne cycloaddition in a micro flow system: Catalyst activity study enabling high T operation and coupling to flow copper scavenging.*
Alvaro C. Varas (M.Sc. Student, TU/e).

2012 *Enzyme immobilization with innovative carrier materials for chiral synthesis of alfa-aminoalcohols in microreactors*.
Hui Fu (M.Sc. Student, TU/e).

2012 *Steps towards a high pressure intensified and multi-step flow synthesis of 1,2,3-triazoles via catalyst-free Huisgen Cycloaddition*.
Svetlana Borukhova (M.Sc. Student, TU/e).

2012 *The Claisen rearrangement of allyl phenyl ether and the optimization of the synthesis of allyl phenyl ethers in continuous-flow – High T, p and c processing.*
Danny J. G. P. van Osch (B.Sc. Student, TU/e).

2012 *Johnson-Claisen rearrangement of cinnamyl alcohol and triethyl ortoacetate in microstructured reactors.*
Ali Talla (B.Sc. Student, TU/e).

2012 *Influence of Novel Process Windows on the Claisen rearrangement of allyl phenyl ether.*
Brian Driessen (B.Sc. Student, TU/e).

2011 *Contribution to the development of a multistep flow system for C–C bond formation reactions.*
Andrew Musacchio (Undergraduate Student, MIT, USA)

2009 *Contribution to the application of chiral imidate,phosphane ligands in several asymmetric test reactions*.
Punit Rasadia (Erasmus-Mundus Student, Ghent University).

2009 *Contribution to the synthesis of chiral imidate,phosphane ligands and their application in asymmetric allylic alkylation reactions*.
Katrien Bert (Predoctoral Student, Ghent University).

2008 *Contribution to the synthesis and validation of an imidazolidine organocatalyst for asymmetric α-halogenation*.

Elvan Er (Socrates-Erasmus Student, Ghent University).

2007 *Contribution to the synthesis and validation of chiral dienes based on a bicyclo[2.2.1]heptadiene backbone*.
Yilmaz Özkiliç (Socrates-Erasmus Student, Ghent University).

Research Funding

Granted Research Project Applications

2015	VIDI award from Dutch Science Foundation, NWO, personal grant. *Sensitized photoredox catalysis in continuous-flow microreactors* (SensPhotoFlow).	800 k€
2015	Marie Curie Innovative Training Network, coordinator of the project, incl. 3 Ph.D. positions and a part-time project manager. *Accelerating photoredox catalysis in continuous-flow systems.* (Photo4Future)	2,289 k€
2014	Marie Curie Intra-European Fellowship, Dr. Yuanhai Su. *Synthesis of trifluoromethylstyrene compounds via gas-liquid photoredox catalysis in continuous-flow microreactors.* (PhotoFlow)	200 k€
2013	CatchBio grant from Dutch Science Foundation, NWO. *Boosting organometallic-catalyzed C–H oxidation reactions in continuous-flow microreactors.*	225 k€
2013	ECHO grant from Dutch Science Foundation, NWO. *Breaking the unbreakable: C-H carbonylation in micro flow and vision to process.*	260 k€
2013	Marie Curie Career Integration Grant, personal grant. *C–H Activation and Carbonylation in Continuous Microflow (FLACH)*	100 k€
2012	VENI award from Dutch Science Foundation, NWO, personal grant. *The Fluor Revolution: Boosting Fluorination in Continuous-Flow.*	250 k€
2010	Fulbright-Hays award, Bureau of Educational and Cultural Affairs, US Department of State, personal grant. *Multistep Microchemical Synthesis of Imatinib – Towards a Continuous Manufacturing of Pharmaceuticals.*	---[a]
2005-2009	Extraordinary Research Fund fellow (BOF grant), personal grant. *Novel efficient chiral ligands for asymmetric catalysis.*	200 k€

[a] Involves sponsorship of VISA, flight tickets, health insurance, etc.

Outreach activities

- Participation in the BZT show for the demonstration of chemical experiments with children (Dutch television, Ned 3, February 2, 2013).
- Teacher days: Presentation for high school science teachers during docentendag ST (2013-2014).
- Presentation about photoredox catalysis in microreactors for highly gifted children.
- Demonstration of chemical experiments (Basisschool EigenWijs, Veldhoven, groep 7-8).

- Uitleggen van wetenschappelijke fenomenen op de Nederlandse Radio (NPO Radio 2, Programma: Bureau Kijk in de Vegte)
  1) 26-07-2015 ‘Waarom klinkt heet water schenken anders dan koud water?' http://www.npo.nl/bureau-kijk-in-de-vegte/26-07-2015/RBX_KRO_729397/RBX_KRO_1520543 (radio interview)
  2) 05-07-2015 'Waarom blijft plastic nat in de vaatwasser?' http://www.npo.nl/bureau-kijk-in-de-vegte/05-07-2015/RBX_KRO_729394/RBX_KRO_1283784 (radio interview)
- Twitter: @NoelGroupTUE

Other professional activities

- I am an associate editor for Journal of Flow Chemistry.
- I am actively involved in the peer-review process of several scientific journals, such as: Angewandte Chemie, ChemSusChem, Green Chemistry, Chemical Communications, Chemical Engineering Technology, Ind. Eng. Chem. Res., Green Processing & Synthesis, etc.
- In 2012-2013, I was a docent coach at TU/e for novel bachelor students in the department Chemical Engineering and Chemistry.
- Teaching: Micro Process Technology (6KM45), Advanced Inorganic Chemistry (6KM60), Introduction chemistry and chemical technology (6A1X0), Chemical Reaction Engineering (6P3X0), Advanced Organic Chemistry (8RM00)
- I am a member of several professional associations:
  - Royal Society of Chemistry (RSC), membership number 435174.
  - Royal Society of Chemistry Flanders (KVCV), membership number 9282.
  - American Chemical Society (ACS), membership number 30140007.