

# Curriculum Vitae Dr. Tiddo J. Mooibroek (Dec. 2018)

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Date of birth: March 12<sup>th</sup> 1982  
Nationality: Dutch  
Internet: [Homepage](#); [Google Scholar](#) (h = 23, i10 = 36); [Publons](#)



## Work experience and education

2016 – present Research Assistant Professor at the University of Amsterdam  
[Supramolecular catalysts for carbohydrate synthesis \(VIDI project €800k\)](#)

2017 – 2018 Hydroformylation of alkenes with supramolecular catalysts (Eastman-Kodak project €100k)

2014 – 2016 [STAR Research Fellow \(€175k\)](#), glucose responsive insulin, Novo Nordisk, with [Dr. T. Høeg-Jensen](#) and Bristol, UK, with [Prof. Dr. A. P. Davis](#)

2011 – 2014 Postdoctoral Researcher, synthetic lectins  
Bristol, UK, with [Prof. Dr. A. P. Davis](#)

2007 – 2011 [PhD in homogeneous catalysis](#), Pd-diphosphane catalyzed reductive carbonylation of nitro-aromatics  
Leiden, NL, with [Prof. Dr. E. Bouwman](#) and [Prof. Dr. E. Drent](#)

2010 – 2011 [MA in the philosophy of science and society](#)  
Amsterdam, NL, with [Prof. Dr. G. Glas](#)

2008 – 2011 [MA in the philosophy of science](#)  
Leiden, NL, [Dr. J. W. McAllister](#) and [Dr. M. S. van der Schaar](#)

2005 – 2007 MSc in chemistry 'design and synthesis' (*Oosterhof award*, Leiden, NL, with [Prof. Dr. J. Reedijk](#), [Prof. Dr. E. Bouwman](#), [Prof. Dr. P. Gamez](#), and [Dr. W. T. Fu](#))

2002 – 2005 BSc in organic & analytical chemistry (*Cum Laude*, 'Hogeschool' Leiden, NL, with [Dr. M. J. Sinnige](#), [Prof. Dr. J. Reedijk](#) and [Prof. Dr. P. Gamez](#))

## Other details

Grants [Teaching innovation grant \(€10k for making instruction video's\)](#); [Eastman-Kodak Company collaboration, 2017 \(€100k, with Prof. Dr. J. N. H. Reek\)](#); [VIDI individual research grant, NWO, 2016 \(€800k\)](#); [STAR Research Fellowship grant, Novo Nordisk, 2014 \(€175k\)](#); [Pro Rege studiefonds, 2010 \(€5k\)](#); [Hendrik Muller studiefonds, 2010 \(€5k\)](#).

Refereeing [Nat. Commun.](#), [Nat. Chem.](#), [J. Am. Chem. Soc.](#), [Science Adv.](#); [Chem. Commun.](#); [Org. Lett.](#); [Inorg. Chem.](#); [Chem. Eur. J.](#); [Nature Sci. Rep.](#); [Cryst. Growth Des.](#); [CrystEngComm](#); [PLOS-ONE](#); [Org. Biomol. Chem.](#); [ChemPhysChem](#); [J. Phys. Chem.](#); [Inorg. Chim. Acta](#); [Crystals](#); [Chem. Phys. Lett](#); [Comp. Theor. Chem.](#); [J. Chem. Educ.](#); [ACS Omega](#). See also my [Publons page](#).

Memberships [RSC](#); [KNCV](#); [HRSMC](#); [NWO study group CC&HK](#); [NWO study group O&S](#)

Organizing [22<sup>nd</sup> EuCOMC \(2017\)](#); [NextGenChem@NL2018](#); [21<sup>st</sup> ISHC \(2018\)](#); [Focus session at CHAINS '18](#)

Mentoring [1 Postdoc](#): [Tetiana Krachko](#); [2 PhD students](#): [Xander Schaapkens](#), [Sandra Nurttila](#); [7 MSc students](#): [Arjaan Kooyman](#), [Roy van Sluis](#), [Pablo Rio Moreno](#), [Patrick Stuart](#), [Erica Wenker](#), [Wietse Smit](#) and [Hanneke Muilwijk](#); [14 BSc students](#): [Yara Djaidoen](#), [Julius Roeleveld](#), [Celine Nieuwland](#), [Martijn Dijkstra](#), [Matthijs Hakkennes](#), [Steven Beutick](#), [Victoria Heywood](#), [Tom Alfold](#), [Toby Playfair](#), [Tom Meadley](#), [Shugantan Sundramurthy](#), [Ruud Kortlever](#), [Bart van Limburg](#) and [Elwin Molenbroek](#). (+ various BSc/MSc literature projects or short internships).

Teaching Vice-chairman of the [Study Programme Committee Chemistry \(2017-present\)](#); [BKO certificate \(2017\)](#); [Lecturer supramolecular chemistry \(MSc, 2017-present\)](#); [Coordinator practical course organic chem. \(BSc, 2016-present\)](#); [Tutorials \(in\)organic chem. \(BSc, 2013-present\)](#); [practical courses \(in\)organic chem. \(BSc, 2006-2011\)](#); [tutorials medical calculus \(BSc, 2006-2007\)](#).

Languages Dutch and English (fluently, both oral and written); German and French (average).

Hobbies Family and friends / philosophy / sports (soccer and (kick)boxing).

# List of publications (46 / 49 peer reviewed)

22 as corresponding author, \*

19 in journals with IF > 5

## 2018

49. Intermolecular  $\pi$ -Hole/ $n \rightarrow \pi^*$  interactions with carbon monoxide ligands in crystal structures.  
M. T. Doppert, H. van Overeem, T. J. Mooibroek\*  
[Chem. Commun.](#), **2018**, *54*, 12049
48.  $\pi$ -Hole/ $n \rightarrow \pi^*$  interactions with acetonitrile in crystal structures.  
A. Ruigrok van der Werve, Y. R. van Dijk, T. J. Mooibroek\*  
[Chem. Commun.](#), **2018**, *54*, 10742
47. Maltodextrin recognition by a macrocyclic synthetic lectin.  
P. Stewart, C. Renney, T. J. Mooibroek, S. Fareen, A. P. Davis  
[Chem. Commun.](#), **2018**, *54*, 8649

## 2017

46. Attracting the unattractive.  
T. J. Mooibroek  
[Amsterdam Sci.](#), **2017**, *6*, 20
45. Coordinated nitrate anions can be directional  $\pi$ -hole donors in the solid state; a CSD study.  
T. J. Mooibroek\*  
[CrystEngComm](#), **2017**, *19*, 4485
44. Enantioselective Carbohydrate Recognition by Synthetic Lectins in Water.  
P. Ríos, T. J. Mooibroek\*, T. S. Carter, C. Williams, M. R. Wilson, M. P. Crump, A. P. Davis  
[Chem. Sci.](#), **2017**, *8*, 4056; also highlighted in [Synfacts](#) **2017**, *13* (07), 0705
43. Disaggregation is a Mechanism for Emission Turn-On of ortho-Aminomethylphenylboronic Acid-Based Saccharide Sensors. B. M. Chapin, P. Metola, S. L. Vankayala, H. L. Woodcock, T. J. Mooibroek, V. M. Lynch, J. D. Larkin, E. V. Anslyn  
[J. Am. Chem. Soc.](#), **2017**, *139*, 5568
42.  $\text{NO}_3^-$  anions can act as Lewis acid in the solid state.  
A. Bauzá, A. Frontera, T. J. Mooibroek\*  
[Nature Commun.](#), **2017**, *8*, 14822

## 2016

41.  $\pi$ -Hole Interactions Involving Nitro Compounds: Directionality of Nitrate Esters.  
A. Bauzá, A. Frontera, T. J. Mooibroek\*  
[Cryst. Growth Des.](#), **2016**, *16*, 5520
40. Platform Synthetic Lectins for Divalent Carbohydrate Recognition in Water.  
T. S. Carter, T. J. Mooibroek, P. F. N. Stewart, M. P. Crump, M. C. Galan, A. P. Davis  
[Angew. Chem. Int. Ed.](#), **2016**, *55*, 9311
39.  $\sigma$ -Hole opposite to a lone pair: unconventional pnictogen bonding interactions between  $\text{ZF}_3$  (Z = N, P, As and Sb) compounds and several donors.  
A. Bauzá, T. J. Mooibroek, A. Frontera  
[ChemPhysChem](#), **2016**, *17*, 1608
38. Synthetic Receptors for High-Affinity Recognition of O-GlcNAc Derivatives.  
P. Rios, T. S. Carter, T. J. Mooibroek\*, M. P. Crump, M. Lisbjerg, M. Pittelkow, N. T. Supekar, G.-J. Boons, A. P. Davis  
[Angew. Chem. Int. Ed.](#), **2016**, *55*, 3387
37. A Threading Receptor for Cellulose and Related Oligo/Polysaccharides.  
T. J. Mooibroek, J. M. Casas-Solvas, R. L. Harniman, C. M. Renney, T. S. Carter, M. P. Crump, A. P. Davis  
[Nature Chemistry](#), **2016**, *8*, 69; also highlighted in [Synfacts](#) **2016**, *12* (3), 0251
36. Tetrel bonding interactions.  
A. Bauzá, T. J. Mooibroek\*, A. Frontera  
[The Chemical Record](#), **2016**, *1*, 473

35. *Synthesis and evaluation of a desymmetrised synthetic lectin: an approach to carbohydrate receptors with improved versatility.*  
T. J. Mooibroek,\* Matthew P. Crump, Anthony P. Davis  
[Org. Biomol. Chem., 2016, 14, 1930](#)
34. *1,1,2,2-tetracyanocyclopropane (TCCP) as supramolecular synthon.*  
A. Bauzá, T. J. Mooibroek,\* A. Frontera  
[Phys. Chem. Chem. Phys., 2016, 18, 1693](#)
33. *Towards design strategies for anion- $\pi$  interactions in crystal engineering.*  
A. Bauzá, T. J. Mooibroek,\* A. Frontera  
[CrystEngComm, 2016, 18, 10](#)

## 2015

32. *The bright future of unconventional  $\sigma/\pi$ -hole interactions.*  
A. Bauzá, T. J. Mooibroek,\* A. Frontera  
[ChemPhysChem, 2015, 12, 2496](#)
31. *Directionality of  $\pi$ -holes in nitro compounds.*  
A. Bauzá, T. J. Mooibroek,\* A. Frontera  
[Chem. Commun., 2015, 51, 8, 1491](#)
30. *The N-atom in  $[N(PR_3)_2]^+$  cations ( $R = Ph, Me$ ) can act as electron donor for (pseudo) anti-electrostatic interactions.*  
A. Bauzá, A. Frontera, T. J. Mooibroek,\* J. Reedijk  
[CrystEngComm, 2015, 17, 3768](#)
29. *Affinity Enhancements by Dendritic Side-Chains in Synthetic Carbohydrate Receptors.*  
H. Destecroix, C. C. Renney, T. J. Mooibroek, T. S. Carter, P. F. N. Steward, M. P. Crump, A. P. Davis  
[Angew. Chem. Int. Ed., 2015, 7, 2057](#)

## 2014

28. *A Practical, Large-Scale Synthesis of Pyrene-2-Carboxylic Acid.*  
J. M. Casas-Solvas, T. J. Mooibroek, S. Sandramurthy, J. D. Howgego, A. P. Davis  
[Syn. Lett., 2014, 25, 2591](#)
27. *Non-covalent  $sp^3$  carbon bonding with  $ArCF_3$  is analogous to  $CH-\pi$  interactions.*  
A. Bauzá, T. J. Mooibroek,\* A. Frontera  
[Chem. Commun., 2014, 84, 12626](#)
26. *Small Cycloalkane  $(CN)_2C-C(CN)_2$  Structures Are Highly Directional Non-covalent Carbon-Bond Donors.*  
A. Bauzá, T. J. Mooibroek,\* A. Frontera  
[Chem. Eur. J., 2014, 33, 10245](#)
25. *Influence of ring size on the strength of carbon bonding complexes between anions and perfluorocycloalkanes.*  
A. Bauzá, T. J. Mooibroek, A. Frontera,  
[Phys. Chem. Chem. Phys., 2014, 16, 19192](#)
23. *A catalytic role for methionine revealed by a combination of computation and experiments on phosphite dehydrogenase.*  
K. E. Ranaghan, J. E. Hung, G. J. Bartlett, T. J. Mooibroek, J. N. Harvey, D. N. Woolfson, W. A. van der Donk, A. J. Mulholland  
[Chem. Sci. 2014, 5, 2191](#)

## 2013

23. *Tetrel-Bonding Interaction: Rediscovered Supramolecular Force?*  
A. Bauzá, T. J. Mooibroek, A. Frontera  
[Angew. Chem. Int. Ed., 2013, 47, 12317](#)
22. *Easy Demonstration of the Marangoni Effect by Prolonged and Directional Motion: "Soap Boat 2.0".*  
C. Renney, A. Brewer, T. J. Mooibroek,\*  
[J. Chem. Educ., 2013, 10, 1353](#)

21. *Homogeneous Hydrogenation and Isomerization of 1-Octene Catalyzed by Nickel<sup>II</sup> Complexes with Bidentate Diarylphosphane Ligands.*  
T. J. Mooibroek, E. C. M. Wenker, W. Smit, I. Mutikainen, M. Lutz, E. Bouwman  
[Inorg. Chem., 2013, 52, 8190](#)
20. *Halogen bonding versus hydrogen bonding: what does the Cambridge Database reveal?*  
T. J. Mooibroek, P. Gamez  
[CrystEngComm, 2013, 15, 4565](#)
19. *Halogen···phenyl supramolecular interactions in the solid state: hydrogen versus halogen bonding and directionality.*  
T. J. Mooibroek, P. Gamez  
[CrystEngComm, 2013, 15, 1802](#)

## 2012

18. *How directional are D-H··· phenyl interactions in the solid state (D = C, N, O)?*  
T. J. Mooibroek, P. Gamez  
[CrystEngComm, 2012, 14, 8462](#)
17. *Mechanistic Study of the L<sub>2</sub>Pd-Catalyzed Reduction of Nitrobenzene with CO in Methanol: Comparative Study between Diphosphane and 1,10-Phenanthroline Complexes.*  
T. J. Mooibroek, E. Bouwman, E. Drent  
[Organometallics, 2012, 11, 4142](#)
16. *Mechanistic Study of the Oxidative Carbonylation of Methanol Catalyzed by Palladium Diphosphane Complexes with Nitrobenzene as Oxidant.*  
T. J. Mooibroek, E. Bouwman, E. Drent  
[Eur. J. Inorg. Chem., 2012, 9, 1403](#)
15. *Directional character of solvent- and anion-pentafluorophenyl supramolecular interactions.*  
T. J. Mooibroek, P. Gamez  
[CrystEngComm, 2012, 11, 3902](#)
14. *Anion-arene and lone pair-arene interactions are directional.*  
T. J. Mooibroek, P. Gamez  
[CrystEngComm, 2012, 3, 1027](#)

## 2011

13. *Towards a sustainable synthesis of aromatic isocyanates by the palladium diphosphane catalyzed reduction of nitrobenzene; a first step.*  
T. J. Mooibroek  
[Doctoral Thesis, Leiden University](#)
12. *Carbonylation of Nitrobenzene in Methanol with Palladium Bidentate Phosphane Complexes: An Unexpectedly Complex Network of Catalytic Reactions, Centred around a Pd-imido Intermediate.*  
T. J. Mooibroek, L. Schoon, E. Bouwman, E. Drent  
[Chem. Eur. J., 2011, 47, 13318](#)
11. *Putting Anion-π Interactions Into Perspective*  
A. Frontera, P. Gamez, M. Mascal, T. J. Mooibroek, J. Reedijk  
[Angew. Chem. Int. Ed., 2011, 41, 9564](#)

## 2010

10. *Structure elucidation of the unprecedented asymmetric bis-chelate complex [Pd(1,3-bis(di(o-methoxy-methylphenyl)phosphino)propane)<sub>2</sub>]<sup>2+</sup> in the solid state and in solution.*  
T. J. Mooibroek, M. Lutz, A. L. Spek, E. Bouwman  
[Dalton Trans., 2010, 45, 11027](#)
9. *Efficient, stable, tunable, and easy to synthesize, handle and recycle luminescent materials: [H<sub>2</sub>NMe<sub>2</sub>]<sub>3</sub>[Ln(III)(2,6-dipicolinate)<sub>3</sub>] (Ln = Eu, Tb, or its solid solutions).*  
T. J. Mooibroek, P. Gamez, A. Pevec, M. Kasunic, B. Kozlevcar, W. T. Fu, Jan Reedijk  
[Dalton Trans., 2010, 28, 6483](#)

## 2009

8. *NMR Spectroscopic Studies of Palladium(II) Complexes of Bidentate Diphenylphosphane Ligands with Acetate and Tosylate Anions: Complex Formation and Structures.*  
T. J. Mooibroek, E. Bouwman, M. Lutz, A. L. Spek, E. Drent  
[Eur. J. Inorg. Chem., 2009, 2, 298](#)
7. *A Mixed-Valent Pentanuclear Cu<sup>II</sup><sub>4</sub>Cu<sup>I</sup> Compound Containing a Radical-Anion Ligand.*  
T. J. Mooibroek, G. Aromi, M. Quesada, O. Roubeau, P. Gamez, S. D. George, J. van Slageren, S. Yasin, E. Ruiz, J. Reedijk  
[Inorg. Chem., 2009, 48, 10643](#)

## 2008

6. *Lone pair- $\pi$  interactions: a new supramolecular bond?*  
T. J. Mooibroek, P. Gamez, J. Reedijk  
[CrystEngComm, 2008, 11, 1501](#)
5. *What's new in the realm of anion- $\pi$  binding interactions? Putting the anion- $\pi$  interaction in perspective.*  
T. J. Mooibroek, C. A. Black, P. Gamez, J. Reedijk  
[Cryst. Growth Des., 2008, 4, 1082](#)

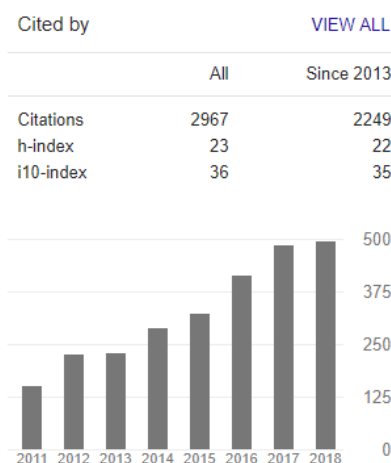
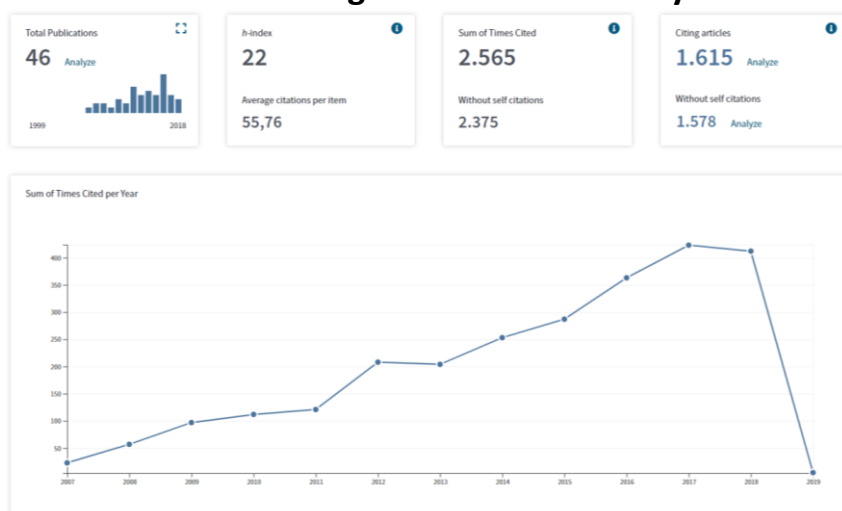
## 2007

4. *Anion binding involving  $\pi$ -acidic heteroaromatic rings.*  
P. Gamez, T. J. Mooibroek, S. J. Teat, J. Reedijk  
[Acc. Chem. Res., 2007, 40, 435](#)
3. *The s-triazine ring, a remarkable unit to generate supramolecular interactions.*  
T. J. Mooibroek, P. Gamez  
[Inorg. Chim. Acta, 2007, 360, 381](#)
2. *Neutral lanthanide complex used for luminescent lamp and luminescent display devices, comprises ligand(s) containing heterocyclic aromatic ring with carboxylic acid group(s).*  
T. J. Mooibroek, P. Gamez, W. T. Fu, J. Reedijk  
[U.S. Patent N° US2008221328\(A1\), 2007](#)

## 2006

1. *Crystallographic and theoretical evidence of acetonitrile- $\pi$  interactions with the electron-deficient 1,3,5-triazine ring.*  
T. J. Mooibroek, S. J. Teat, C. Massera, P. Gamez, J. Reedijk  
[Cryst. Growth Des., 2006, 6, 1569](#)

## Web of Science & Google Scholar data analysis:



# Conferences, symposia and post-graduate courses

19 lectures (9 invited) 25 posters (5 prizes)

- 2018** 6<sup>th</sup> CHAINS, Veldhoven, NL (*host and chair of focus session*)  
21<sup>st</sup> ISHC, Amsterdam, NL (*organizing committee member*)  
Bristol Synthesis meeting, Bristol, UK  
PAC symposium, NL (*invited lecture*)  
19<sup>th</sup> NCCC conference, NL (*poster*)  
*Invited lecture* at the University of Groningen, NL
- 2017** CHAINS, Veldhoven, NL (*poster*)  
22<sup>nd</sup> EuCOMC, Amsterdam, NL (*organizing committee member*)  
NextGenChem@NL, Utrecht, NL (*lecture*)  
18<sup>th</sup> NCCC conference, NL
- 2016** HRSMC symposium, Leiden, NL  
Christianity and the future of our societies, Leuven, BE
- 2015** 10<sup>th</sup> ISMSC, Strasbourg, FR (*two posters*)  
Bristol Synthesis meeting, Bristol, UK  
*Invited lecture* at NovoNordisk, Copenhagen, DK
- 2014** *Lecture* at the University of Amsterdam, NL  
*Lecture* at the University of Utrecht, NL  
*Lecture* at the University of Eindhoven, NL  
9<sup>th</sup> ISMSC, Shanghai, CN (*poster*)  
Bristol Synthetic and Chemical Biology Symposium, Bristol, UK (*invited lecture*)  
Bristol Synthesis meeting, Bristol, UK  
RSC Dynamic glyco- and nanosciences meeting, Namur, BE (*poster*)
- 2013** RCS macrocyclic and supramolecular chemistry meeting, Glasgow, UK (*poster*)  
Chemical and Physical Biology Symposium, Bristol, UK (*lecture*)  
8<sup>th</sup> ISMSC, Arlington (Virginia), US (*poster*)  
Bristol Synthesis Meeting, Bristol, UK  
E-WISPOC winter school on supramolecular chemistry, Bressanone, IT (*poster*)
- 2012** RCS macrocyclic and supramolecular chemistry meeting, London, UK (*poster*);  
Chemical and Physical Biology Symposium, Bristol, UK (*lecture*);  
Bristol Synthesis Meeting, Bristol, UK
- 2011** H.E.L. conference on flow and batch processes, Cambridge, UK (*invited lecture*)  
Symposium interface chemistry – biochemistry, Bristol, UK (*lecture*)  
Christian Philosophy Conference 2011, Amsterdam, NL (*invited lecture*)
- 2010** 11<sup>th</sup> NCCC conference, NL (*lecture* and *poster*)  
17<sup>th</sup> ISHC symposium, Poznan, PL (*poster prize*)

- 2009** HRSMC symposium, NL (poster)  
10<sup>th</sup> NCCC conference, NL (two posters)  
Gratama symposium, NL (poster)  
18<sup>th</sup> EuCOMC conference, Gothenburg, SE (poster prize)
- 2008** HRSMC symposium, NL (poster prize)  
9<sup>th</sup> NCCC conference, NL (poster)  
4<sup>th</sup> EuCheMS conference, Garmisch-Partenkirchen, DE (lecture)  
HRSMC course in molecular modelling, NL  
Invited lecture at Shell Global solutions B.V., Amsterdam, NL  
Guest lecture at the University of Budapest, HU  
Guest lecture at the University van Vienna, AT
- 2007** HRSMC symposium, NL (poster prize)  
8<sup>th</sup> NCCC conference, NL (poster)  
Conference 'Academic freedom and Religious freedom', NL  
6<sup>th</sup> International School of Organometallic Chemistry, Camerino, IT (poster)  
Master class 'the evolution of morality', NL
- 2006** PAC symposium, NL (poster prize)  
7<sup>th</sup> NCCC conference, NL (KNCV grant, poster)  
NIOK course 'Catalysis, an integrated approach', NL  
HRSMC summer school molecular chemistry, NL  
Lecture series 'medical calculus', academic medical centre Leiden, NL  
Invited lecture coordination chemistry, Polytechnical school Leiden, NL
- 2005** PAC symposium, NL (poster)  
6<sup>th</sup> NCCC conference, NL (KNCV grant, poster)  
Invited lecture coordination chemistry, Polytechnical school Leiden, NL