

April 2018

Introducing Inge Meijerink



My name is Inge (age not important :-)), I live in Bedum (for the football fans; the place where Arjen Robben grew up!) a village 10 kilometers from Groningen. I live there with my husband (Marcel) and two sons (Koen who is 15 years old and Milan, he is 12 years old). Everyday (except Fridays) I go to work by bike. Since March 1st, I am the new secretary of prof. Feringa. Mainly I am taking care of his travel arrangements (and that are many!). Other activities here are: agenda management, IQBS, finance, Hora Finita, Peoplesoft (sick and better notifications) and so on.....! Please, if there is anything I can do for you, let me know!

Besides work I like to ski, to read, I love to watch my kids when they are playing a football game; I am their most loyal supporter. Regularly I help (as a volunteer) in the football canteen and I am a member of the "activities committee"; together we organize the parties for the football club "SV Bedum". And sometimes I work in my husband's company (he is mortgage advisor). I am not often quiet watching t.v. and sitting on the sofa but I have a wonderful life!

I look forward to a pleasant cooperation.

Dowine de Bruijn classifies second in the first ever UG Three Minute PhD Thesis Competition!

Since its beginnings at the University of Queensland, 3MT competitions are now held at universities all over the world. On 14 March 2018, the University of Groningen (UG) held its very first 3MT Competition. Twelve enthusiastic PhD students were selected to present their research in only 3 minutes, with just one slide, to a non-specialist audience and a panel of judges in an understandable, convincing and fascinating way.

First Prize: Vakil Takhaveev - Science and Engineering

Second Prize: Dowine de Bruijn - Science and Engineering

People's Choice: Jaap Waverlijn - Faculty of Law

After the UG competition, a video of the winning pitch will be sent to the Coimbra Group. From the submitted video's, their Doctoral Studies Working Group will

choose the top three entries by April 16th 2018. These three shortlisted candidates will compete at the Coimbra Group Annual Conference in Salamanca from May 30th till June 1st 2018.

No deal with RSC Publishing - alternatives full text articles

The negotiations between the Dutch universities (VSNU) and the Royal Society of Chemistry (RSC) on online access to the RSC journals, including publishing open access, didn't succeed. This means that the newest articles will not be accessible for staff of Dutch universities from 1 April 2018 onward.

For researchers who use the journals and have published in them this could be a problem. As a result of the failed negotiations, it has been decided that Dutch universities won't subscribe to any of the RSC journals.

Some alternatives to get the full text of the most recent articles are listed [here](#).

Highlights by Prof. dr. Jan B.F.N.Engberts

- Ben Feringa, with six coworkers from our Stratingh Institute, the Zernike Institute, the Tokyo Institute of Technology and the Riken Spring-8 Center, Hyogo, Japan, published a remarkable paper in which they show that hierarchical supramolecular assembly of photo-responsive molecular motors can lead to artificial muscle-like function. They describe a supramolecular system (comprising 95% water) formed from hierarchical self-assembly of a photoresponsive amphiphilic molecular motor which can undergo macroscopic contractile muscle-like motion. Detailed research shows that the molecular motor first assembles into nanofibers. This is followed by formation of aligned bundles in the form of centimeter-long, muscle-like strings. Rotary motion of the molecular motors is then induced by irradiation, followed by propagation and accumulation of this motion leading to contraction of the fibres towards the light source. It is clear that the system supports large-amplitude motion, fast response, precise control over shape and also weight-lifting experiments in water and air. The authors conclude that their present findings can be viewed as an important step towards artificial mechanical materials and soft robotics. *Chen, J., King-Chi Leung, F., Stuart, M.C.A., Kajitani, T., Fukushima, T., van der Giessen, E., Feringa, B.L., Nature Chem., 2018, DOI 10.1038/nchem.2887.*
- Vicinal diamines are important compounds, not only in organic chemistry, but also in biology and in pharmacy. Their synthesis has remained a challenge, but now Lin and two coworkers at Cornell University have developed an electrocatalytic diazidation of olefins. It is a general, selective, and sustainable method, powered by electricity and regulated by a Mn catalyst. A broad range of 1,2-diazides and 1,2-diamines with excellent reactivity and a large substrate generality was obtained. NaN₃ was used as the nitrogen source and MnBr₂ was found to be an effective catalyst. Two likely reaction mechanisms were proposed. *Parry, J.B., Fu, N., Lin, S., Synlett, 2018, DOI 10.1055/s-0036-1591749.*
- Biological membranes often have an asymmetric distribution of lipids in the two bilayer leaflets. A loss of this asymmetry was found to occur in tumor cells. Fiedler at the University of Toronto and five coworkers from the University of Freiburg, have now designed a

quantitative method for engineering asymmetric lipid vesicles. The method allows a prediction of the fraction of exchanged lipid which can be determined by zeta potential measurements. The exchange strategy is employable for different lipids and not only improves our understanding of lipid exchange processes but also enhances the applicability, impact, and predictive power of model membranes. *Markones, M., Drechsler, C., Kaiser, M., Kalie, L., Heerklotz, H., Fiedler, S., Langmuir, 2018, DOI 10.1021/acs.langmuir.7b03189.*

- In a recent issue of *J.Am.Chem.Soc.*, Doyle and three coworkers from Princeton University describe the photochemistry and photophysics of Ni(II) aryl halide complexes that are used in cross-coupling and Ni/photoredox reactions. These complexes feature long-lived metal-to-ligand charge-transfer (3-MLCT) excited states which implicate Ni as an under-explored alternative for the precious metal photocatalysts. Interestingly, the authors also showed that 3MLCT engages in bimolecular electron transfer with ground-state Ni(II). This makes it possible to obtain Ni(III) in the absence of external oxidants or photoredox catalysts. Ni-catalyzed C-O bond formation can now be facilitated just by visible light irradiation, which is a useful alternative for catalyst activation in Ni cross-coupling reactions. *Shields, B.J., Kudisch, B., Scholles, G.D., Doyle, A.G., J.Am.Chem.Soc. 2018, DOI 10.1021/jacs.7b13281.*
- Phosphate ester hydrolysis is a fundamental reaction in organic chemistry and particularly in biochemistry. However, the mechanistic details have often remained a problem, both experimentally and computationally. Kamerlin, with two coworkers at the University of Uppsala, Sweden, have now published a paper that highlights a number of technical issues that play a part in several computationally challenging reactions. Attention is given to biological and non-biological phosphate hydrolysis, phosphate transfer in key systems and to the fine details of molecular evolution. It is demonstrated that the advances are largely due to the increased computer power and to new computational approaches. Accuracies of ca. 1 kcal mol⁻¹ are now the best results. Several mechanistic controversies can now be resolved and new biological problems can be tackled, as, for example, the design of novel phosphatases with tailored catalytic properties. *Petrovic, D., Szeler, K., Kamerlin, S.C.L., Chem.Comm., 2018, DOI 10.1039/c7cc09504.*
- Nakao and two colleagues from Kyoto University have demonstrated that denitration of nitroarenes can be achieved by direct cleavage of the C-NO₂ bonds. They used the first example of a palladium-catalyzed reductive denitration, employing a combination of the Pd(acac)₂/BrettPhos/K₃PO₄ catalyst and appropriate reductants. This process has a satisfactory functional-group tolerance, a broad substrate scope and the denitration occurs in yields of 60-86%. The competitive formation of anilines is suppressed by the use of inexpensive propan-2-ol as a mild reductant. Preliminary mechanistic studies suggest that alcohols serve as efficient hydride donors in the conversion, possibly through β-hydride elimination from palladium alkoxides. *Kashihara, M., Yadav, M.R., Nakao, Y., Org.Lett. 2018, DOI 10.1021/acs.orglett.8b00430.*
- George Whitesides, a famous (physical)-organic chemist, now at Harvard University, wrote in *Angew.Chem.Int.Ed.* an interesting brief article about the importance of curiosity-driven research in the physical sciences. Curiosity has been defined by Philip Ball as eagerness to know or learn something. Whitesides claims that curiosity is an essential contributor to creativity in science, and a start in forcing novel ideas into inflexible professional orthodoxies. But, in general, curiosity can include many different questions, from “why does my wife prefer coffee with sugar”, to “what is the nature of dark matter”. According to Whitesides, in science it is more individual than collective, more artistic than scientific, more an itch than a calculation. The pa-

per makes it clear that curiosity may be rather personal, but “simply knowing more” is always interesting and almost always a pleasure. Whitesides is interested in the question “why has the beetle six legs, and the spider eight?” But, fortunately, the curiosity of different people may be quite different. The final question in the paper is: “would science dry up without curiosity?” It is guessed that this is not the case. Pressing practical problems will always remain and people will try to solve these problems. Finally I like to refer to the extensive and beautiful study of curiosity through the ages, written by Philip Ball. *Whitesides, G.M., Angew.Chem.Int.Ed., 2018, DOI 10.1002/anie.201800684. Ball, P., “Curiosity. How Science Became Interested in Everything”, Vintage Books, London, 2013.*

Jan Engberts

New appointments:



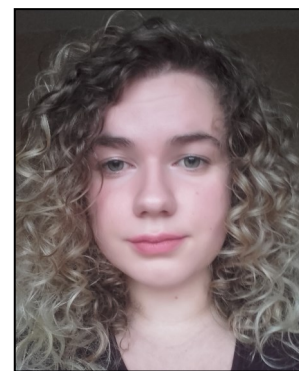
Inge Meijerink
Secretary—group Feringa
1-2-2018



Falk Wachowius
PostDoc—group Otto
1-2-2018



Lur Alonso-Cotchico
PostDoc—group Roelfes
1-3-2018



Alissa Leurs
Stagiaire with Theodora Tiersma
12-2-2018



Taegeun Jo
PhD Student—group Klein
1-3-2018



Jaime Mateos Gil
PostDoc—group Feringa
1-2-2018

Werkbespreking: Thursday morning 8.30 hrs, room 5111.0080

April 5th— Mickel Hansen

April 12th— Ruben Maaskant

April 19th— Reinder de Vries “Bio-orthogonal Chemical Modification of Peptide Antibiotics”

April 26th— Xingchen Yan “Cu-catalyzed direct asymmetric 1,4-addition of Grignard reagents to α,β -unsaturated carboxylic acids enabled by in situ formation of silyl ester”

May 3rd— Diederik Roke

May 17th— Jinling Chen

Keep the date: Monday July 2nd Stratingh Day

On Monday July 2nd, the Stratingh Institute will held its first Stratingh Scientific Day.

More information about the organization of the day will follow in due corse. Please make sure you block the day in your diary.

If you have items for the next issue of this Newsletter, please send an e mail to the Stratingh Institute office: Stratingh@rug.nl