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PROFILE: Early Excellence in *Physical Organic Chemistry*

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Michael Pittelkow

Date of birth: December 31, 1977
Position: Associate Professor, Department of Chemistry, University of Copenhagen.
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Education: Master of chemistry, 2003, University of Copenhagen. Master's thesis supervisor: Jørn B. Christensen. During my undergraduate years I spent six months at CSIRO in Melbourne, Australia working with Kevin Winzenberg and six months at the Technical University of Eindhoven, The Netherlands working with E. W. Meijer.
PhD in chemistry, 2006, University of Copenhagen, Supervisor: Jørn B. Christensen, "On chiral PAMAM dendrimers, naphthalenes, and dynamic combinatorial chemistry'. During my PhD I spent six months at the University of Cambridge, UK working with Jeremy K. M. Sanders.
Postdoctoral position, 2006–2008, Cambridge, UK, Supervisor: Jeremy K. M. Sanders.

Awards: Lundbeck Foundation Talent Rrize (2007).

Current research Interests: I am interested in molecular recognition, synthetic organic chemistry, and the study of reaction mechanisms. Currently the main efforts in my group center around studies of molecular recognition in water using dynamic combinatorial chemistry, the synthesis of heterocyclic anti-aromatic [8]circulenes, the development of new reactions to incorporate selenols into organic substrates, and the design and synthesis of colorless (near-infrared) dyes.

Hobbies: Football, chemistry, cooking

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Synthesis takes many forms in the Pittelkow group, from traditional target oriented breakthroughs like the [8] circulenes to the templated synthesis of anion receptors. In 2013, he was promoted to Associate Professor.

The holygrail in modern chemistry is … to understand molecular recognition and reactivity well enough to design and create functional systems such as artificial enzymes (catalysts) and artificial cells (life).

The biggest problem that young scientists face is … to have the courage to explore fundamental research questions in a time where politicians push for applied research (because politicians think they know better).

I chose chemistry as a career because … it challenges my imagination. It is creative and practical.

If I were not a scientist, I would be … bored. Maybe I would have a small start-up company.

My most exciting discovery to date has been … the latest result.

The most important thing I learned from my parents is … to treat people the same way you want them to treat you.

If I could change one thing in my scientific career, I would … do another postdoc.

The first thing that comes to mind when I think back to my college days is … great friends.

My favorite means of escape is… a long walk in the Tasmanian wilderness.

The most surprising thing I've realized since starting my career in academics is … how few academics are willing to discuss new exciting results before they are published.

I would have liked to have discovered … Bohr's atomic model, the tetravalent carbon atom, and the Grignard reaction.

The room where I spend most my time at home is … the kitchen.

A good day begins with … black coffee, and it ends with a cold beer.

My favorite tv show is … *The West Wing*.

My favorite music is … Guns N' Roses, Nirvana, and The National.

My 3 top papers:

1. "The Conversion of Phenols to Selenophenols: The Seleno Newman-Kwart Rearrangement," A. Sørensen, B. Rasmussen, S. Agarwal, M. Schau-Magnussen, T. I. Sølling, M. Pittelkow. *Angew. Chem. Int. Ed.*, **2013**, *52*, 12346–12349. In this paper we descibe a completely new chemical reaction that we *de novo* designed and then established its reaction mechanism. I think this is really fundamental!
2. "Discovery of a cyclic 6+6 hexamer of D-Biotin and formaldehyde," M. Lisbjerg, B. M. Jessen, B. Rasmussen, B. E. Nielsen, A. Oe. Madsen, M. Pittelkow. *Chem. Sci.*, **2014**, DOI:10.1039/C4SC00990H. In this paper we describe a one-pot, anion-templated reaction yielding in high yield a single 6+6 macrocycle between formaldehyde and D-Biotin. The chiral macrocycle binds halide anions in water in its hydrophobic cavity.
3. "Diazadioxa[8]circulenes: Planar Antiaromatic Cyclooctatetraenes," T. Hensel, D. Trpcevski, C. Lind, R. Grosjean, P. Hammershøj, C. B. Nielsen, T. Brock-Nannestad, B. E. Nielsen, M. Schau-Magnussen, B. Minaev, G. V. Baryshnikov, M. Pittelkow. *Chem. Eur. J.*, **2013**, *19*, 17097–17102. In this publication we describe the first synthesis of antiaromatic planar-cyclooctatetraene-containing diazadioxa[8]circulenes. I am excited about the prospect of using the diazadioxa[8]circulene as a platform to study π- π interactions between the antiaromatic planar cyclooctatetraene and other aromatic motifs.