



FRIEDRICH-SCHILLER-  
UNIVERSITÄT  
JENA

JCSM  
Jena Center for Soft Matter

Chemisch-Geowissenschaftliche Fakultät

Universität Jena · JCSM Jena · Philosophenweg 7 · D-07743 Jena

Jena Center for Soft Matter (JCSM)

Univ.-Prof. Dr. habil.  
**Ulrich S. Schubert**

Philosophenweg 7  
07743 Jena

Telefon: 0 36 41 9-48 236

Telefax: 0 36 41 9-48 202

E-Mail: [ulrich.schubert@uni-jena.de](mailto:ulrich.schubert@uni-jena.de)

<http://www.jcsm.uni-jena.de/>

Jena, 6. November 2018

## EINLADUNG

Am Montag, 7. Januar 2019, spricht um **14:00 Uhr**  
im Hörsaal des ZAF, Philosophenweg 7, 07743 Jena

***Herr Prof. Dr. Pol Besenius***

Institut für Organische Chemie  
Johannes-Gutenberg-Universität Mainz

zum Thema

***“Multicomponent Supramolecular Polymers:  
From Viromimetic Assemblies to Subunit Antitumour Vaccines”***

Alle Interessenten sind herzlich eingeladen.

gez. Prof. Dr. Ulrich S. Schubert

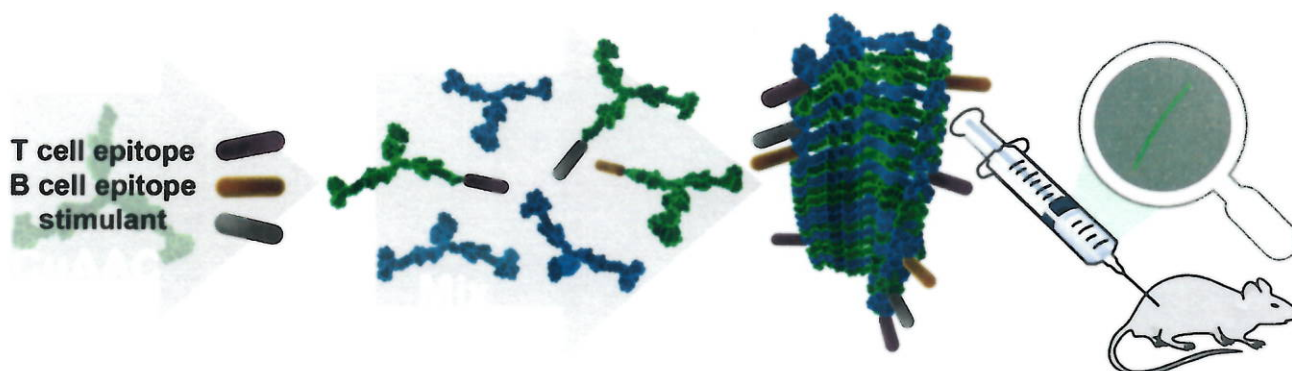
Es handelt sich um eine Veranstaltung des SFB 1278 - POLYTARGET

## Multicomponent Supramolecular Polymers: From Viromimetic Assemblies to Subunit Antitumour Vaccines

Prof. Dr. Pol Besenius  
Institute of Organic Chemistry,  
Johannes Gutenberg-University Mainz  
[www.besenius-lab.com](http://www.besenius-lab.com)

Aqueous self-assembly of molecular building blocks into ordered architectures, polymers and materials opens exciting avenues for fundamental developments in nanoscience and applications in biomedical technologies (*Chem. Rev.* **2016**). I will highlight my group's recent efforts in controlling peptide and glycopeptide supramolecular polymerisations in solution and off surfaces (*Angew. Chem.* **2016**, *Angew. Chem.* **2018**), mention recent efforts on self-assembled Au(I)-metallopeptides (*Chem. Commun.* **2018**, *J. Am. Chem. Soc.* **2018**), and will largely focus on the preparation and evaluation of fully synthetic antitumour vaccines using the modular approach of multifunctional supramolecular copolymers.

Inspired by protein functionality in their biological setting, we have produced electrostatic- and redox-regulated supramolecular polymerisations in water (*Angew. Chem.* **2013**, *Chem. Eur. J.* **2015**, *Polym. Chem.* **2015**). The synthons are based on  $\beta$ -sheet encoded anionic and cationic peptides that form anisotropic supramolecular copolymers with a nanorod-like morphology. The materials are designed for on-off polymerization in response to pH-, as well as redox-triggers. The pH-triggered monomer-polymer transition is simply tuned via thermodynamically controlled comonomer affinities, whereas kinetically controlled assemblies are achieved only by coupling multiple equilibria through enzyme catalysed redox-processes, leading to temporal resolution in aqueous supramolecular polymerisations (*Angew. Chem.* **2017**). Balancing out positive non-covalent interactions with repulsive forces produces well-defined peptidic nanorods (*Chem. Eur. J.* **2015**, *Macromolecules* **2017**). In view of recent reports that anisotropic shapes in the design of biomedical carrier materials outperform conventional isotropic structures, we are particularly interested in the development of supramolecular multifunctional glycopeptide materials and their biomedical applications.





Pol Besenius was born in Wiltz, Luxembourg in 1981, where he grew up and completed secondary school education. In 2000 Pol started his Chemistry studies at the Vienna University of Technology, being awarded a '1. Diplomprüfung' in 2003. As an exchange student he spent a year at the University of Strathclyde in Glasgow, Scotland, and graduated as a BSc with 1st Class Honours in 2004. From autumn 2004 until early 2008 Pol completed his PhD studies at the University of Strathclyde and WestCHEM Research School in Glasgow, under the supervision of Prof. Peter Cormack and Prof. David C. Sherrington FRS, in collaboration with Prof. Sijbren Otto and Prof. Jeremy K. M. Sanders FRS at the University of Cambridge.

In 2008 Pol took up a Postdoctoral Research Assistant position at the Eindhoven University of Technology with Dr. Anja Palmans and Prof. E. W. "Bert" Meijer, being awarded a Marie-Curie Fellowship in the Laboratory for Macromolecular and Organic Chemistry and the Institute for Complex Molecular Systems.

From 2011 to 2014 Pol was as Group Leader (Habilitation), in the Organic Chemistry Institute at the University of Münster and the Center for Nanotechnology under the mentorship of Prof. Bart Jan Ravoo, and supported by a Liebig Fellowship from the 'Fonds der Chemischen Industrie' (FCI). In December 2015 Pol completed the Habilitation and received the *venia legendi* in Organic Chemistry.

In January 2015 Pol was appointed as Professor (W2) for Macromolecular Chemistry in the Institute of Organic Chemistry at the University of Mainz.

### **Awards and Honours**

Fudan University State Key Laboratory Senior Visiting Scholar, 2017-2018

JSP Fellow, 48th Bürgenstock Conference, 2013

Member (2013-2014) and deputy speaker (2014) of the 'Junges Kolleg der Nordrhein-Westfälischen Akademie der Wissenschaften und der Künste'

Thieme Chemistry Journal Award, 2013

Liebig-Fellow, Fonds der Chemischen Industrie (FCI), 2011-2014

Marie Curie Intra-European Fellow (IEF), 2009-2011

Hamilton-Barrett Prize, 2006

JLS Allan Memorial Prize, 2004