

# >>> ANNOUNCEMENT



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## Tailor-made proteins for interactive materials

### ABSTRACT

Protein engineering by directed protein evolution and semi-rational design has become in biocatalysis and in chemical/pharmaceutical industries a widely accepted and broadly applied method for tailoring of enzymes to application demands. Advances in mutagenesis technologies and screening systems are fuelling progress and enabling novel reengineering strategies [1] by (I.) focused mutagenesis (selected residues are randomized; e.g. 3.2 million protein variants generated [2] and screened [3] in two days), (II.) random mutagenesis (mutations are randomly introduced over the whole gene), and (III.) gene recombination (stretches of genes are mixed to chimeras in a random or rational manner [4]). These methods offer in combination with computation methods robust options to shape protein properties to demands in material science. After introducing concepts and limitations of protein engineering technologies, the potential will be outlined on the example of two  $\beta$ -barrel proteins (FhuA and nitro-bindin). Protein-hybrids comprise examples on triggered release systems (reduction trigger [5] and light trigger [6]), hybrid catalyst design [7], elongating  $\beta$ -strands to match thickness of polymer membranes, increase channel diameter of FhuA, and development of a production technology in gram scale.

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### BIO

<b>Since 2013</b>	Visiting Professorship of Senior International Scientists of the Chinese Academy of Science, Beijing, China
<b>Since 2010</b>	Board Member within the DWI-Leibniz Institute for Interactive Materials Aachen
<b>Since 2010</b>	Member of the Excellence Cluster 'Tailor Made Fuels from Biomass'
<b>Since 2010</b>	Managing Director of the Bio Economy Science Center, Jülich
<b>Since 2009</b>	Professor for Biotechnology and Head of the Institute of Biotechnology, RWTH Aachen University
<b>2006 – 2009</b>	Associate Professor of Biochemical Engineering at the International University Bremen (IUB) (since 2006 Jacobs University Bremen)
<b>2002 – 2006</b>	Assistant Professor of Biochemical Engineering at the International University Bremen (IUB)
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<b>1996 – 1999</b>	Doctoral Thesis, University of Stuttgart
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January 23, 2015 at 10 am

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