

Brief CV Steffen B. Petersen (SBP)

Full Professor, Biostructure and Protein Engineering, University of Aalborg, Denmark (2001- Present).

Full Research Professor, SUNY at Buffalo, New York USA (2005-present)

Head of Institute of Biotechnology, University of Aalborg, Denmark, (1998-2002);

Research Professor, University of Aalborg, Denmark (1997-1999)

Associate, INL Biophotonics Group, Braga, Portugal (2012-2013).

Professor II, Norwegian Institute of Technology, Trondheim, Norway (1991-1997).

Director of the MR Center, SINTEF, Trondheim, Norway (1990-1997)

Extramural Professor, Biostructure , University of Aarhus, Denmark (1985-1990).

Director of Protein Engineering, Novo Industries, Denmark (1983-1990)

PostDoc at Department of Chemistry, SUNY at Stony Brook, New York, USA. (1981-1983).

Ph.D. Physical Chemistry. University of Copenhagen. (1981).

SBP research focused very early on various aspects of Biophysics of macromolecules. SBP received his PhD from University of Copenhagen in 1981. He spent 1 year as a visiting scientist at Department of Chemistry at University of Utah, USA. He went back to USA to do a 2 year post doc with Professor Paul C. Lauterbur. who received the Nobel price in 2001 for his ground breaking work on MRI, Magnetic Resonance Imaging. 3 of the papers cited by Lauterbur in his Nobel lecture are co-authored by SBP. SBP collaborated closely with the WHO office for Appropriate Technology for Health for several years. SBP served as a president for the European Society for Magnetic Resonance in Medicine and Biology (~1400 members), as well as for International Protein Engineering Centers. He has organized a large number of international conferences and symposia. He has been an invited speaker at numerous conferences around the world. SBP served as the Head of the coordination for the 23 laboratory EU BIOTECH Lipase programme. He was also Head of the Steering Committee for the 42 mill DKK 12 laboratory Protein Engineering Program under the Nordic Industrial Foundation. He has served as a reviewer for research councils in Norway, Sweden, Finland, UK, France, Austria, USA , Singapore and Hong Kong. He took part in an international evaluation of Swedish Biotechnology Research. He worked at Novo Nordisk as a director protein engineering, for 7 years. He served as the director of the MR Center, SINTEF, Norway for a period of 7 years. He is on the editorial board of 7 international journals. He is a member of both the Danish and Norwegian Academies for Technological Sciences.

SBP has published 170 peer reviewed papers (33 proceedings), as indexed by Web of Science. The papers have been cited 3600 times (only 200 self citations), 7 of them are cited more than 100 times each. The resulting h-index is 31. He has published 7 books that are available at more than 400 libraries across the world , and he authored/coauthored 24 book chapters.

SBP's most significant contributions to science are

1)Early seminal papers on use neural networks in protein structure prediction, together with Søren Brunak, Benny Lautrup, Henrik and Jakob Bohr and Rodney Cotterill I published the first European papers on neural network prediction of alpha helices.

2)Discovery of scale free organization of amino acid pairs in proteins

After establishing an 8 dimensional data cube of relevant parameters for amino acid pairwise interaction I realized that the interaction is scale free. This I expect will become an important insight for future ab initio folding strategies.

3)3-Photon breakage of SS bonds in Protein. Together with ICFO in Barcelona we showed that 3 IR photons can induce SS breakage near nanostructures on a surface.

4)We uncovered the central biophysical parameters for the UV induced breakage of SS bonds

5)Careful analysis of a 50 pm resolved image of graphene led to determination of subpicometer structural details

UV-Light Exposure of Insulin: Pharmaceutical Implications upon Covalent Insulin Dityrosine Dimerization and Disulphide Bond Photolysis

PLOS ONE , Volume 7 ,12 , Article Number: e50733 DOI: 10.1371

(2012) .

"Photonic Immobilization of High Density Protein Arrays Using Fourier Optics". *Proteomics*, *Proteomics* 9, 1–4 (2009).

Sub-picometer structural information of graphene hidden in a 50 pm resolved image, *NANOSCALE* (2013) Volume: 5

Issue: 19 Pages: 8874

Hyperdimensional Analysis of Amino Acid Pair Distributions in Proteins

PLOS ONE (2012) Volume: 6 Issue: 12 Article Number: e25638 DOI: 10.1371

"Flash photolysis of cutinase: identification and decay kinetics of transient intermediates formed upon UV excitation of aromatic residues" *Biophysical Journal* Jul 8;97(1):211-26 (2009).

"Immobilization of biomolecules onto functionalized surfaces according to UV Diffraction Patterns" *Applied Optics* Vol. 49, Iss. 28, pp. 5344–5350 (2010).