

- **Personal details:** Martin Hof

Born 21.9.1962 in Friedberg/Germany;

German citizen; Permanent resident in the Czech Republic since 1996

Married to Mgr. Iveta Hofova, November 25, 1995; 1 child, Maxim (born May 28, 1997)

Research ID: F-5134-2014; URL for web site: <http://hof-fluorescence-group.weebly.com/>

- **Scientific education**

2009 Full Professor for Physical Chemistry named by the Czech President

2006 Doctor of Science (DSc.), Academy of Sciences of the Czech Republic

1999 Habilitation at the Faculty for Chemistry and Pharmacy of the Julius-Maximilians-University Würzburg (Germany)

1990 Dissertation in Physical Chemistry at the University Würzburg ("with excellence (1.0)"); Advisor: Prof. Dr. F. W. Schneider

1987 "Diplom-Chemiker" at the University Würzburg; ("with excellence (1.0)")

- **Current positions**

2007- Vice-Director of the J. Heyrovský Institute of Physical Chemistry; Academy of Sciences of the Czech Republic (CAS)

2006- Head of the newly founded Department of Biophysical Chemistry at that Institute

2001- Lecturer and PhD advisor at

Faculty of Nature Sciences of the Palacky University Olomouc (Czech Republic),

Faculties of the Charles University Prague

Faculties of the Czech Technical University in Prague, and

Biological Faculty of the South Bohemian University Ceske Budejovice (Czech Republic)

2000- Senior Scientist at the J. Heyrovský Institute of Physical Chemistry; Start-up of own scientific group

- **Previous positions**

1997-1999 Scientist at the J. Heyrovský Institute of Physical Chemistry, CAS

1997-1999 Assistant Professor at the Department of Physical Chemistry, Würzburg

1996 Visiting scientist at the University of Patras, Greece (Prof. P. Lianos)

1993-1995 Liebig Fellow at the Department of Physical Chemistry/Charles University Prague (Prof. V. Fidler)

1991-1993 Postdoctoral Fellow at the University of North Carolina at Chapel Hill (USA) (Prof. N. L. Thompson) and University Würzburg (Prof. F. W. Schneider)

- **Fellowships and awards**

1997-99 Habilitation Fellowship by Deutsche Forschungsgemeinschaft (University Würzburg and J. Heyrovský Institute of Physical Chemistry, CAS)

1993-95 Liebig-Fellowship for habilitation by Fonds der Deutschen Chemischen Industrie (Charles University Prague)

1991-93 Post-Doctoral Fellowship by Deutsche Forschungsgemeinschaft (DFG; Chapel Hill, Würzburg)

1987-89 PhD Fellowship by Fonds der Deutschen Chemischen Industrie (University Würzburg)

2011 Praemium Academie award by the CAS (1.2 M Euro).

2007 Award of the CAS for exceptionally successful solution of program and grant projects

1991 Dissertation awarded by the "Unterfränkische Gedenkjahresstiftung"

- **Supervision of graduate students and postdoctoral fellows; teaching activities**

- 2001- advisor of 11 Postdocs/ 17 PhD students/ 7 Master students at the J. Heyrovský Institute of Physical Chemistry, CAS, in the framework of study programs of the above mentioned Czech Universities; Teaching regular courses in spectroscopy and microscopy at those universities.
- 1993-2000 co-advisor of 3 PhD Students (Department of Physical Chemistry, Würzburg); Teaching regular courses in physical chemistry at the Faculty of Chemistry and Pharmacy, Würzburg

- **Organisation of scientific meetings (listed only if M. Hof served as chairman)**

- 2001-2011 6 Biannual Seminars on Biophysics of Lipids; Prague/Wroclaw 50-70 participants
- 2003 "Methods and Applications of Fluorescence" (MAF); Prague; 300 participants

- **Institutional responsibilities (listed only if M. Hof served as chairman/coordinator)**

- 2007-2012 Chairman of the Board of the J. Heyrovský Institute of Physical Chemistry
- 2006-2011 Coordinator of the Research Centre "Advanced Fluorescence Microscopy in Biosciences" financed by the Czech Ministry of education (3.2 M Euro for 4 institutions)
- 2004-2006 Chairman of the Scientific Board of the J. Heyrovský Institute of Physical Chemistry

- **Commissions of trust and memberships of scientific societies**

- 2008- Reviewer for international grant agencies (e.g. Austrian Science Foundation, Wallenberg foundation Sweden, German Science Foundation, Cancer Research UK, ERC)
- 2005- External PhD examiner at international Universities (e.g. University Umea, University Leuven, KTH Stockholm, Humboldt University Berlin, University Singapore, University Limoges, Technical University Lisbon, University Oxford)
- 2009-11 Panel member of Czech Science Foundation (Physical Chemistry)
- 2014 - Editorial Board member "Biophysical Chemistry"
- 2011- Elected Fellow of the Learned Society of the Czech Republic
- 2011- Series Editor of the "Springer Series on Fluorescence"
- 2013-14 Editorial Board member "Methods and Applications of Fluorescence"
- 2008-11 Editor in Chief for Europe of "Journal of Fluorescence"

- **Major collaborations (recent joint papers or grants)**

Sweden: Jerker Widengren (Stockholm), Lennart Johannsson and Gerhrad Groebner (both from Umea); Finland: Paavo Kinnunen (Helsinki) and Ilpo Vattulainen (Tampere); Austria: Albin Hermetter (Graz) and Gerhard Schütz (Vienna); Czech Republic: Pavel Jungwirth, Michal Hocek, David Stanek, Petr Svoboda (all from Prague) and Jiri Damborsky, Robert Vacha (both from Brno); Germany: Walter Nickel (Heidelberg) and Jörg Enderlein (Göttingen); Portugal: Manuel Prieto (Lisbon); Israel: Raz Jelinek (Beer-Sheva); France: Burkhardt Bechinger (Strasbourg); The Netherlands: Andreas kros (Leiden).

- **Brief summary of carrier development and research accomplishments**

After his PhD in Würzburg and a DFG-funded postdoc at UNC Chapel Hill, M. Hof won a prestigious "Habilitation Liebig-Stipendium" in 1993. Rather than moving to one of the leading western universities, he decided due to family reasons to transfer the award to the Charles University in Prague. He was planning to launch an ambitious research program aimed at developing new fluorescence methods to study the blood coagulation process at the molecular level. Given the lamentable state of experimental equipment and support in freshly post-communist Czechia this was an almost impossible task. However, M. Hof succeeded in part due to his true grit and in part by performing parts of his research in Chicago (with

Graham Fleming) and Würzburg (here he completed his habilitation in 1999). With conditions for science gradually improving in the Czech Republic, he accepted a position of group leader at the J. Heyrovsky Institute of Physical Chemistry (CAS) in 2000. His remarkable success in acquiring third-party funds allowed him to gradually build up his lab for development of novel fluorescence (F-) techniques.

Development of F-techniques: Methods like the time-dependent fluorescence shift approach (TDFS) for membrane (e.g. Sykora Langmuir 2002) and enzyme (Jesenska JACS 2009) sciences, the first calibration-free Fluorescence Correlation Spectroscopy technique (z-scan FCS; Benda Langmuir 2003), or F lifetime CS (FLCS; e.g. Benda Rev Sci Instr 2005) were developed in Prague and are the reason for the international recognition of M. Hof. Within the last years two novel single-molecule F-techniques (F Spectral Correlation Spectroscopy; Benda Optics Express 2014 and Dynamic Saturation Optical Microscopy; Humpolickova PCCP 2010) were presented. Moreover, he recently succeeded in putting forward fluorescence lifetime imaging and energy transfer for quantitative size determination of nanodomains (FLIM-FTRE/MC; e.g. Sachl Biophys J 2011), fluorescence antibunching for membrane-associated aggregation phenomena (Sachl BBA-Mol Cell Res 2015) and 2-foci FCS (Stefl Optics Express 2014). Naturally, these unique techniques developed in Prague have been applied to answer significant questions in biophysics and biology.

Applications of F-techniques: Concerning biophysics, M. Hof made fundamental contribution to the influence of solid support (e.g. Przybylo Langmuir 2006), ions (e.g. Jurkiewicz BBA Biomembranes 2012), or oxidised lipids (e.g. Volinsky Biophys J 2011) and sterols (e.g. Kulig Free Rad Biol Med 2015) on the physical chemical properties of lipid bilayers. In terms of application of these F techniques in biology, the first usage of FLCS in living cells might serve as an interesting example (Huranova J Cell Biol 2010). Very recently M. Hof further increased the complexity of the addressed questions. One can highlight his contributions to rational enzyme design (Sykora Nat Chem Biol 2014; Amaro JACS 2015), development of TDFS dyes for DNA sciences (Dziuba Chemical Sciences 2016), application of new molecular rotors in live cell imaging (Dziuba Angewandte Chemie 2016; Hot paper), and the recent seminal single-molecule study on the membrane-mediated oligomerisation of the β -amyloid peptide (Amaro Angewandte Chemie 2016; VIP paper).