

Short Biography

Prof. Dr. Alfred Vogel, Ph.D.



Prof. Alfred Vogel is Senior Professor at the Institute of Biomedical Optics (BMO), University of Luebeck, Germany. From 2010 – 2019 he served as Director of the BMO and Deputy CEO of the Medical Laser Center Luebeck GmbH.

Dr. Vogel is fellow of Optica (formerly OSA) and of SPIE. He published 101 peer-reviewed papers, 6 book chapters, and 52 proceedings papers (15500 citations, h = 51 according to Google Scholar), and reviewed for 62 international journals and 32 institutions. He holds 15 patents and has filed another 7 patent applications. He has delivered more than 200 plenary, key note, and invited talks.

Dr. Vogel was editorial board member for the *Journal of Biomedical Optics* from 2002-2019, served as associate editor of *Optics Express* from 2006-2009, and is advisory editor of *Biomedical Optics Express* since its launching in 2010.

Dr. Vogel has made major experimental and theoretical contributions to linear and nonlinear pulsed laser interactions with water, biomolecules, cells and biological tissues. He developed comprehensive theoretical frameworks for pulsed laser interactions ranging from free-electron-mediated photochemical modifications through photothermal alterations to laser-induced breakdown. He invented new technologies for ultra-high-speed imaging and probe-beam characterization of laser-induced plasmas, shock waves, cavitation bubbles, and ablation plume dynamics. His biomedical research encompasses tissue ablation through linear absorption of UV and IR laser pulses, ablation processes in a liquid environment, as well as plasma-mediated surgery and molecular modifications within ocular tissues and cells. His work in these areas has led to innovative strategies for improving cellular micro/nano surgery, intraocular surgery, and refractive surgery.