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Introduction

This volume is a collection of technical papers presented at the 2009 European Conferences on Biomedical Optics held in Munich, Germany from June 14–18. These collected papers were given in the technical conference of Advanced Microscopy Techniques (AMT).

The technical conference was divided into 8 topical sessions and one poster session. The papers in these sessions covered a wide range of topics: confocal/3D microscopy, photophysics, holographic methods, non-linear optical microscopy, optical sectioning methods, and localization and high precision microscope methods. These topics have a common thread in that the technology was developed to meet long-standing problems in biology where, for example, methods were developed for faster imaging with better viability, label-free imaging, and for higher resolution to obtain better structural level data. As you will find in the roster, members of the program committee represent the emerging microscopy methods discussed in these sessions.

The technical conference included three excellent invited presentations:

"Controlling fluorescent proteins by manipulating the local density of photonic states" by Christian Blum, et al., Biophysical Engineering, Univ. of Twente, Netherlands. (73670C)

"3D tracking and multi-wavelength techniques for digital holographic microscopy based cell analysis" by Bjoern Kemper, et al., Center for Biomedical Optics and Photonics (CeBOP), Univ. of Muenster, Germany (736714)

"Light sheet based fluorescence microscopes (LSFM, SPIM, DSLM) reduce phototoxic effects by several orders of magnitude" by Philipp Keller, Cell Biology and Biophysics Unit and Developmental Biology Unit, EMBL Heidelberg, Germany (presentation only)

We would like to thank authors and presenters of this year's conference for their contributions. The outstanding conference program was put together by the fine effort of the program committee and we are thankful to the members of the program committee for their contributions.

We are sure that readers will find this proceedings volume useful and informative.

Paul Campagnola
Ernst Stelzer
Gert von Bally