

# Bibliographical Sketch

## Dr.-Ing. Rainer Bornemann

<b>Date of Birth</b>	July, 13 <sup>th</sup> 1971
<b>Academic Education</b>	<b>1992 –98:</b> Studies in Chemistry (Diploma), University of Siegen <b>1999 –05:</b> PhD studies in Chemistry, research area Physical Chemistry, University of Siegen
<b>Professional Career</b>	<b>1999 –03:</b> Researcher at the Institute for Physical Chemistry and at the Center for Sensor Systems (ZESS), University of Siegen <b>2003 –06:</b> Researcher at the Institute for Light Technologies, Technical University Karlsruhe <b>Since April 2005:</b> Researcher at the Institute of High Frequency Technology and Quantum Electronics and at the Center for Sensor Systems (ZESS), University of Siegen
<b>Research and Scientific Interests</b>	<ul style="list-style-type: none"> <li>• Confocal Microscopy (Raman and Fluorescence)</li> <li>• Temporal and Spectral Resolved Mikroskopy with organic Emitter-Materials</li> <li>• Development of Polymer Laser Devices</li> <li>•</li> </ul>
<b>Awards</b>	<ul style="list-style-type: none"> <li>• 2003 Innovation Award University contest „Patente Erfinder“, Science and Research Ministry, NRW</li> <li>•</li> </ul>
<b>Fundings</b>	<b>2008 – 09:</b> „DLD Dye-Laser Disc - Breitabstimmbare Festkörperlaser auf Polymerbasis“ (BMBF Project)
<b>Patents</b>	<ul style="list-style-type: none"> <li>• „Dauerstrich-Polymerlaser“. German Patent DE102006001308 / WO002007080089.</li> <li>• „Verfahren zur Detektion der durch einen Umwelteinfluss hervorgerufenen Eigenschaftsänderung einer Probe“, German patent application DE10337877 / WO2005019808.</li> <li>• „Konfokale 3D-Scanning Absorption“. German Patent DE10231543 / WO2004008217.</li> </ul>
<b>Internet</b>	<a href="https://www.zess.uni-siegen.de/">https://www.zess.uni-siegen.de/</a>

## Publications (since 2002)

1. Bornemann, R. ; Thiel, E. ; Lemmer, U.: Polymerlaser - Dauerstrich-Laserlicht aus Speziallack. In: *Photonik*, 2006, Nr. 5, S. 66-68.
2. Briviba, K. ; Bornemann, R. ; Lemmer, U.: Visualization of astaxanthin localization in HT29 human colon adenocarcinoma cells by combined confocal resonance Raman and fluorescence microspectroscopy. In: *Molecular Nutrition & Food Research* 50, 2006, Nr. 11. – DOI: 10.1002/mnfr.200600056, S. 991-995.
3. Bornemann, R. ; Lemmer, U. ; Thiel, E.: Continuous-wave solid-state dye laser. In: *Optics Letters* 31, 2006, Nr. 11. - URL: <http://ol.osa.org/abstract.cfm?URI=ol-31-11-1669>, S. 1669-1671.
4. Gerken, M. ; Boschert, R. ; Bornemann, R. ; Lemmer, U. ; Schelle, D. ; Augustin, M. ; Kley, E.-B. ; Tünnermann, A.: Transmission measurements for the optical characterization of 2D-photonics crystals. In: *Proceedings of the SPIE: Optical Fabrication, Testing, and Metrology II* 5965, 5650F, 2005. - DOI: 10.1117/12.625661.
5. Bornemann, R. ; Walk-Laufer, B. ; Raupach, M.: Bestimmung der Polymerverteilung in textilbewehrtem Beton mittels konfokaler Raman-Mikroskopie. In: *Photonik*, 2005, Nr. 4, S. 60-63.
6. Bornemann, R.: *Dreidimensionale konfokale Absorptionsmessungen zur räumlichen Strukturaufklärung*. Siegen, Universität, Dissertation, 2005.
7. Bornemann, R. ; Thiel, E.: dCAM - Dreidimensionale konfokale Laser-Absorptionsmikroskopie zur räumlichen Strukturaufklärung. In: *Photonik*, 2005, Nr. 1, S. 44-46.
8. Lindner, M. ; Kolb, A.: Calibration of the intensity-related distance error of the PMD-TOF-camera. In: *Proceedings of SPIE, Intelligent Robots and Computer Vision* 6764OW, 2007. - DOI: 10.1117/12.752808.
9. Walk-Laufer, B. ; Bornemann, R. ; Knöfel, D. ; Thiel, E.: In Situ Observation of Hydrating Cement-Clinker-Phases by Means of Confocal Scanning Microscopy - First Results. In: *24th International Congress on Cement Microscopy*, San Diego, USA, 2002, S. 95-106.