



#### **Terahertz Liquid Photonics**

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#### **ABOUT THE BOOK**

As a bridge between electronics and photonics, terahertz science and technology has made tremendous progress in the past decades. While terahertz wave generation from gas, solid and plasma with femtosecond laser excitation has been widely used, terahertz liquid photonics is a newly emerging topic in recent years. This book includes the most recent experimental results, theoretical analysis, and simulated calculations on terahertz emission and detection from liquid materials under ultrashort-pulse laser excitation, providing readers a comprehensive understanding of current developments in terahertz liquid photonics. By comparing with traditional sources, distinctive properties of terahertz wave generation from liquids are discussed in detail, which provides a new perspective in exploring laser-matter interactions.

#### READERSHIP

Academics, researchers, lecturers, and graduate students in universities and institutes in terahertz photonics and spectroscopy, laser physics, AMO physics, ultrafast science, and related areas such as semiconductors, photochemistry and physical chemistry.

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#### **ABOUT THE EDITORS**

**Dr Xi-Cheng Zhang** is Endowed Parker Givens Chair Professor of Optics at the University of Rochester, USA, where he is also Professor of Physics and Distinguished Scientist at the Laboratory for Laser Energetics. He is Honorary Professor at Jilin University, China and Lomonosov Moscow State University, Russia. He is an Elected Fellow of the American Physical Society (APS), American Association for the Advancement of Science (AAAS), Institute of Electrical and Electronics Engineers (IEEE), Society of Photo-Optical Instrumentation Engineers (SPIE) and Optical Society of America (OSA), as well as a Foreign Member of the Russian Academy of Sciences. He is co-Editor-in-Chief for *Light, Science, and Applications*, ranked 3rd out of 99 journals in the optics category.

Professor Zhang's research interests center around terahertz waves, in particular the generation, detection, and applications of free-space THz beams with ultrafast optics. He has published >350 peer-reviewed papers, delivered >700 talks, owns 29 patents and wrote 28 books and book chapters, with a h-index of 94 (June 2022). He has received many awards and honors over the years, including the Alexander von Humboldt Foundation Prize (2018), the International Society of Infrared, Millimeter, and Terahertz Waves Kenneth F Button Prize (2014), the OSA William F Meggers Award (2012), the IEEE Photonics Society William Streifer Scientific Achievement Award (2011), and Rensselaer's William H Wiley Award (2009).

**Dr Yiwen E** is Research Associate at the University of Rochester, USA. Her research experience includes THz wave generation from ionized gas/liquid/solid, EM waves interaction with metamaterials/biomaterials, phonon-polariton regulated propagation of THz waves in crystals, and THz time domain spectroscopy systems. She received the Institute Director Scholarship (2012–2015) and Excellent Graduate Award (2012–2014) from the University of Chinese Academy of Sciences, China, where she holds a PhD in Optics.

**Dr Liangliang Zhang** is Professor at the Capital Normal University, China. Her main research interests are intense THz sources, THz aqueous & air photonics, as well as THz spectroscopy and imaging technologies. She has published more than 80 papers in leading academic journals such as *Physical Review Letters, Light: Science and Applications, Applied Physics Letters*, and *Optics Letters*, and owns 12 Chinese invention patents. She received the First Prize of Scientific and Technological Progress of China Instrument and Control Society (2021), First Prize of Scientific Research Excellence Award (Science and Technology) of the Chinese Ministry of Education (2013), National Excellent Doctoral Dissertation of China (2011), Excellent Doctoral Dissertation of Beijing (2010), and Wang Daheng Prize of the Chinese Optical Society (2007).

**Dr Anton Tcypkin** is Associate Professor at the Faculty of Photonics, ITMO University, Russia. He was the Chairman of the organizing committee of the international conference *Fundamental Problems of Optics* (2017–2020). He has published more than 80 papers, delivered more than 70 talks, and owns 5 patents. He received the Medal V S Letohova (2017), Scholarship of the President of the Russian Federation (2015–2017), and the title of Best Student of ITMO University (2009).

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