

1. Record Nr.	UNISA996466730703316
Autore	Mosley Connor Devyn William
Titolo	Enhanced polarisation control and extreme electric fields : advances in terahertz spectroscopy applied to anisotropic materials and magnetic phase transitions // Connor Devyn William Mosley
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021]
ISBN	3-030-66902-5
Descrizione fisica	1 online resource (xv, 115 pages) : illustrations
Collana	Springer theses
Disciplina	543.5
Soggetti	Terahertz spectroscopy Materials - Magnetic properties Phase transformations (Statistical physics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Doctoral thesis accepted by University of Warwick, Coventry, England."
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- Supervisor's Foreword -- Abstract -- Publications -- Acknowledgements -- Contents -- 1 Introduction -- 1.1 Crystal Optics -- 1.1.1 The Dielectric Tensor -- 1.1.2 Principal Axes and the Index Ellipsoid -- 1.1.3 Plane Wave Propagation Through an Anisotropic Medium -- 1.1.4 Effects of an Anisotropic Medium on the Polarisation State of Light -- 1.2 Describing the Polarisation State of Electromagnetic Waves -- 1.2.1 Ellipticity and Orientation Angle -- 1.2.2 Alternative Descriptions of the Polarisation State -- 1.3 Electromagnons in Improper Ferroelectrics -- 1.3.1 Magnons -- 1.3.2 Electromagnons -- 1.3.3 Improper Ferroelectricity and Electromagnons in CuO -- 1.4 Structure of This Thesis -- References -- 2 Terahertz Time-Domain Spectroscopy -- 2.1 Generation of Broadband Terahertz Radiation -- 2.1.1 Photoconductive Emitters -- 2.1.2 Optical Rectification -- 2.2 Electro-optic Sampling -- 2.2.1 Polarisation-Resolved Electro-optic Sampling -- 2.3 THz-TDS Experimental Setup -- 2.3.1 Performing a THz-TDS Experiment -- 2.4 Extracting Sample Properties and Polarisation Information ... -- 2.4.1 Complex Refractive Index -- 2.4.2 Ellipticity and Orientation Angle -- 2.5 Summary -- References -- 3 Rotatable-Polarisation Terahertz Time-Domain Spectroscopy of Anisotropic Media -- 3.1 Investigating Anisotropy at Terahertz Frequencies -- 3.1.1 Disambiguating Spectral Features Using

Polarisation-Resolved Detection Methods -- 3.1.2 Terahertz  
Polarimetry and Ellipsometry -- 3.1.3 Methods of Terahertz Polarisation  
Rotation -- 3.2 Rotatable-Polarisation Terahertz Time-Domain  
Spectrometer -- 3.2.1 Rotating the Terahertz Polarisation State --  
3.2.2 Polarisation-Resolved Detection Method and Alignment -- 3.2.3  
Calibration of the Terahertz Emission Strength -- 3.2.4 Polarisation  
State of the Rotated Terahertz Pulses.  
3.3 Comparison of Rotatable Polarisation to Projection via Wire-Grid  
Polarisers -- 3.4 Experimental Implementation of RP-THz-TDS -- 3.4.1  
Sample Details -- 3.4.2 Mapping Birefringence and Identifying  
Polarisation Eigenvectors Using RP-THz-TDS -- 3.4.3 Extracting the  
Full Complex Refractive Index Using RP-THz-TDS -- 3.4.4 Anisotropic  
Absorption and Chromatic Dispersion in CuO -- 3.5 Summary --  
References -- 4 Scalable Interdigitated Photoconductive Emitters for  
the Electrical Modulation of Terahertz Beams with Arbitrary Linear  
Polarisation -- 4.1 Photoconductive Emitter Geometry and Terahertz  
Polarisation State -- 4.1.1 Electric Dipole Radiation from  
Photoconductive Emitters -- 4.1.2 Controlling the Terahertz  
Polarisation State with the Emitter Geometry -- 4.2 Multi-Pixel  
Interdigitated Photoconductive Emitters -- 4.2.1 Emitter Concept and  
Design -- 4.2.2 Device Fabrication -- 4.2.3 Simulated Device  
Performance -- 4.3 Experimental Device Performance -- 4.3.1 Initial  
Electrical Biasing Tests -- 4.3.2 Generating Arbitrary Linear polarisation  
States via Electrical Control -- 4.4 Rapid Modulation of Circular  
Polarisation States for Circular ... -- 4.4.1 Converting from Linear to  
Circular Polarisation via a Prism -- 4.4.2 Stokes Parameters -- 4.4.3  
Experimental Setup -- 4.4.4 Experimental Results -- 4.5 Summary --  
References -- 5 High-Field Terahertz Time-Domain Spectroscopy of  
Single-Walled Carbon Nanotubes and CuO -- 5.1 Terahertz  
Spectroscopy Using Extreme Electric Fields -- 5.1.1 Generating High-  
Field Terahertz Radiation -- 5.1.2 Choosing the Right High-Field THz  
Source for You -- 5.2 High-Field Terahertz Time-Domain Spectrometer  
-- 5.2.1 Tilted Pulse-Front Pumping in LiNbO<sub>3</sub> -- 5.2.2 Experimental  
Setup -- 5.2.3 Controlling the Electric Field Strength of Terahertz  
Pulses -- 5.3 A Test Case of Nonlinear THz Transmission: Indium  
Antimonide.  
5.3.1 Experimental Results -- 5.4 Nonlinear THz Transmission in  
Single-Walled Carbon Nanotube Films -- 5.4.1 Experimental Results --  
5.5 Electric Field-Dependent THz Transmission of CuO -- 5.5.1 Electric  
Field-Dependence of the Electromagnon Response in CuO -- 5.6  
Summary -- References -- 6 Conclusions -- 6.1 Outlook and Future  
Work -- Appendix Tracking Disorder Broadening and Hysteresis in  
First-Order Phase Transitions via the Electromagnon Response in  
Improper Ferroelectrics.

---

2. Record Nr.	UNINA9910367565003321
Autore	Gerssen Arjen
Titolo	Emerging Marine Biotoxins / Arjen Gerssen, Ana Gago-Martínez
Pubbl/distr/stampa	MDPI - Multidisciplinary Digital Publishing Institute, 2019 Basel, Switzerland : , : MDPI, , 2019
ISBN	9783039213498 3039213490
Descrizione fisica	1 electronic resource (206 pages)
Soggetti	Biology, life sciences Murntuluk / Catfish (Central NT, North NT SE52-03)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>The emergence of marine and freshwater toxins in geographical areas where they have never been reported before is a concern due to the considerable impact on (sea)food contamination, and consequently, on public health. Several groups of marine biotoxins, in particular tetrodotoxins, ciguatoxins, and palytoxins, are included among the relevant marine biotoxins that have recently emerged in several coastal areas. A similar situation has been observed in freshwater, where cyanobacterial toxins, such as microcystins, could end up in unexpected areas such as the estuaries where shellfish are cultivated. Climate change and the increased availability of nutrients have been considered as the key factors in the expansion of all of these toxins into new areas; however, this could also be due to more intense biological invasions, more sensitive analytical methods, or perhaps even an increased scientific interest in these natural contaminations. The incidences of human intoxications due to the consumption of seafood contaminated with these toxins have made their study an important task to accomplish in order to protect human health. This Special Issue has a focus on a wide variety of emerging biotoxin classes and techniques to identify and quantify them.</p>

