

Thomas Elsaesser

Publications in refereed journals and books

February 25, 2019

494. **Concepts and Applications of Nonlinear Terahertz Spectroscopy**
T. Elsaesser, K. Reimann, and M. Woerner, IOP Concise Physics, Morgan & Claypool, San Rafael (2019)
493. **Self-imaging of tailored vortex pulse arrays and spectral Gouy rotation echoes**
M. Liebmann, A. Treffer, M. Bock, T. Seiler, J. Jahns, T. Elsaesser, and R. Grunwald
Opt. Lett. **44**, 1047 (2019)
492. **Phonon driven charge dynamics in polycrystalline acetylsalicylic acid mapped by ultrafast x-ray diffraction**
C. Hauf, A. Hernandez Salvador, M. Holtz, M. Woerner, and T. Elsaesser
Struct. Dyn. **6**, 014503 (2019, Feature Article)
491. **Book review: Structures on different time scales. T. Woike, D. Schaniel (Eds.). De Gruyter, 2018**
T. Elsaesser
J. Appl. Cryst. **52**, 245 (2019)
490. **Phosphate–magnesium ion interactions in water probed by ultrafast two-dimensional infrared spectroscopy**
J. Schauss, F. Dahms, B. F. Fingerhut, and T. Elsaesser
J. Phys. Chem. Lett. **10**, 238 (2019)
489. **Soft x-ray absorption spectroscopy of aqueous solutions using a table top femtosecond soft x-ray source**
C. Kleine, M. Ekimova, G. Goldsztejn, S. Raabe, C. Strüber, J. Ludwig, S. Yarlaga, S. Eisebitt, M. J. J. Vrakking, T. Elsaesser, E. T. J. Nibbering, and A. Rouzée
J. Phys. Chem. Lett. **10**, 52 (2019)
488. **Resonant second-order nonlinear terahertz response of gallium arsenide**
A. Ghalgaoui, K. Reimann, M. Woerner, and T. Elsaesser
Phys. Rev. Lett. **121**, 266602 (2018)
487. **Ultrafast vibrational relaxation and energy dissipation of hydrated excess protons in polar solvents**
A. Kundu, F. Dahms, B. P. Fingerhut, E. T. J. Nibbering, E. Pines, and T. Elsaesser
Chem. Phys. Lett. **713**, 111 (2018)
486. **Generation of millijoule few-cycle pulses at 5 μm by indirect spectral shaping of the idler in an optical parametric chirped pulse amplifier**
M. Bock, L. von Grafenstein, U. Griebner, and T. Elsaesser
J. Opt. Soc. Am B **35**, C18 (2018)

485. **Macroscopic electric polarization and microscopic electron dynamics: quantitative insight from femtosecond x-ray diffraction**
C. Hauf, M. Woerner, and T. Elsaesser
Phys. Rev. B **98**, 054306 (2018, Editor's Suggestion)
484. **Ultrafast carrier dynamics in a GaN/Al_{0.18}Ga_{0.82}N superlattice**
F. Mahler, J. W. Tomm, K. Reimann, M. Woerner, T. Elsaesser, C. Flytzanis, V. Hoffmann, and M. Weyers
Phys. Rev. B **97**, 161303(R) (2018)
483. **Soft-mode driven polarity reversal in ferroelectrics mapped by ultrafast x-ray diffraction**
C. Hauf, A.-A. Hernandez Salvador, M. Holtz, M. Woerner, and T. Elsaesser
Struct. Dyn. **5**, 024501 (2018)
482. **Multidimensional terahertz spectroscopy**
M. Woerner, K. Reimann, and T. Elsaesser
in: Encyclopedia of Modern Optics, 2nd ed., R. D. Guenther, D. G. Steel (Eds.), vol. 2, pp. 197-206 (2018)
481. **Vibrational dynamics and couplings of the hydrated RNA backbone - a two-dimensional infrared study**
E. M. Bruening, J. Schauss, T. Siebert, B. F. Fingerhut, and T. Elsaesser
J. Phys. Chem. Lett. **9**, 583 (2018)
480. **Spectral anomalies and Gouy rotation around the singularity of ultra-short vortex pulses**
M. Liebmann, A. Treffer, M. Bock, T. Elsaesser, and R. Grunwald
Opt. Express **25**, 26076 (2017)
479. **Editorial: Im Atomkino**
T. Elsaesser
Physik in unserer Zeit **48**, 263 (2017)
478. **5 μm , few-cycle pulses with multi-gigawatt peak power at a 1 kHz repetition rate**
L. von Grafenstein, M. Bock, D. Ueberschaer, K. Zawilski, P. Schunemann, U. Griebner, and T. Elsaesser
Opt. Lett. **42**, 3796 (2017)
477. **Water librations in the hydration shells of phospholipids**
G. Folpini, T. Siebert, M. Woerner, S. Abel, D. Laage, and T. Elsaesser
J. Phys. Chem. Lett. **8**, 4492 (2017)
476. **Strong local-field enhancement of the nonlinear soft-mode response in a molecular crystal**
G. Folpini, K. Reimann, M. Woerner, T. Elsaesser, J. Hoja, and A. Tkatchenko
Phys. Rev. Lett. **119**, 097404 (2017)
475. **Water dynamics in the hydration shells of biomolecules**
D. Laage, T. Elsaesser, and J. T. Hynes
Chem. Rev. **117**, 10694 (2017)

474. **Introduction: Ultrafast processes in chemistry**
T. Elsaesser
Chem. Rev. **117**, 10621 (2017)
473. **Large-amplitude motion of hydrated excess protons mapped by ultrafast 2D IR spectroscopy**
F. Dahms, B. P. Fingerhut, E. T. J. Nibbering, E. Pines, and T. Elsaesser
Science **357**, 491 (2017)
472. **Towards shot-noise limited diffraction experiments with table-top femtosecond hard x-ray sources**
M. Holtz, C. Hauf, J. Weisshaupt, A. A. Hernandez Salvador, M. Woerner, and T. Elsaesser
Struct. Dyn. **4**, 054304 (2017)
471. **Molecular couplings and energy exchange between DNA and water mapped by femtosecond infrared spectroscopy of backbone vibrations**
Y. Liu, B. Guchhait, T. Siebert, B. P. Fingerhut, and T. Elsaesser
Struct. Dyn. **4**, 044015 (2017)
470. **Perspective: Structure and ultrafast dynamics of biomolecular hydration shells**
D. Laage, T. Elsaesser, and J. T. Hynes
Struct. Dyn. **4**, 044018 (2017)
469. **Ultrafast modulation of electronic structure by coherent phonon excitations**
J. Weisshaupt, A. Rouzée, M. Woerner, M. J. J. Vrakking, T. Elsaesser, E. L. Shirley, and A. Borgschulte
Phys. Rev. B **95**, 081101(R) (2017)
468. **Nonlinear terahertz spectroscopy on multilayer graphene**
M. Woerner, T. Elsaesser, and K. Reimann
in: Optical Properties of Graphene, R. Binder (Ed.), p. 269, World Scientific, Singapore 2016
467. **Ho:YLF chirped pulse amplification at kilohertz repetition rates - 4.3 ps pulses at 2 μm with GW peak power**
L. von Grafenstein, M. Bock, D. Ueberschaer, U. Griebner, and T. Elsaesser
Opt. Lett. **41**, 4668 (2016)
466. **Predominance of short range Coulomb forces in phosphate-water interactions - a theoretical analysis**
B. P. Fingerhut, R. Costard, and T. Elsaesser
J. Chem. Phys. **145**, 115101 (2016)
465. **Shift-current induced strain waves in LiNbO_3 mapped by femtosecond x-ray diffraction**
M. Holtz, C. Hauf, A. Hernandez-Salvador, R. Costard, M. Woerner, and T. Elsaesser
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464. **Range, magnitude and ultrafast dynamics of electric fields at the hydrated DNA surface**
T. Siebert, B. Guchhait, Y. Liu, B. P. Fingerhut, and T. Elsaesser
J. Phys. Chem. Lett. **7**, 3131 (2016, Spotlight paper)
463. **The hydrated excess proton in the Zundel cation H_5O_2^+ : the role of ultrafast solvent fluctuations**
F. Dahms, R. Costard, E. Pines, E. T. J. Nibbering, B. P. Fingerhut, and T. Elsaesser
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462. **Phase-resolved two-dimensional terahertz spectroscopy including off-resonant interactions beyond the $\chi^{(3)}$ limit**
C. Somma, G. Folpini, K. Reimann, M. Woerner, and T. Elsaesser
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461. **Shortwave infrared (SWIR) emission from 450 nm InGaN diode lasers**
R. Kernke, M. Hempel, J. W. Tomm, T. Elsaesser, B. Stojetz, H. König, and U. Strauß
Opt. Mat. Express **6**, 2139 (2016)
460. **Two-phonon quantum coherences in indium antimonide studied by non-linear two-dimensional terahertz spectroscopy**
C. Somma, G. Folpini, K. Reimann, M. Woerner, and T. Elsaesser
Phys. Rev. Lett. **116**, 177401 (2016)
459. **Ultrafast vibrational energy flow in water monomers in acetonitrile**
F. Dahms, R. Costard, E. T. J. Nibbering, and T. Elsaesser
Chem. Phys. Lett. **652**, 50 (2016, Editor's Choice)
458. **Strong amplification of coherent acoustic phonons by intraminiband currents in a semiconductor superlattice**
K. Shinokita, K. Reimann, M. Woerner, T. Elsaesser, R. Hey, and C. Flytzanis
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457. **Transient surface modifications during singular heating events at diode laser facets**
M. Hempel, J. W. Tomm, A. Bachmann, C. Lauer, M. Furitsch, U. Strauß, and T. Elsaesser
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456. **Taming chaos: 16 mJ picosecond Ho:YF regenerative amplifier with 0.7 kHz repetition rate**
L. von Grafenstein, M. Bock, G. Steinmeyer, U. Griebner, and T. Elsaesser
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B. Guchhait, Y. Liu, T. Siebert, and T. Elsaesser
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454. **Long-term aging and quick stress-testing of 980-nm single-spatial mode lasers**
M. Hempel, J. W. Tomm, D. Venables, V. Rossin, E. Zucker, and T. Elsaesser
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453. **Picosecond 34 mJ pulses at kHz repetition rates from a Ho:YLF amplifier at 2 μm wavelength**
L. von Grafenstein, M. Bock, D. Ueberschaer, U. Griebner, and T. Elsaesser
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452. **Ultrafast nonlinear response of bulk plasmons in highly doped ZnO layers**
T. Tyborski, S. Kalusniak, S. Sadofev, F. Henneberger, M. Woerner, and T. Elsaesser
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G. Folpini, D. Morrill, C. Somma, K. Reimann, M. Woerner, T. Elsaesser, and K. Biermann
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T. Siebert, B. Guchhait, Y. Liu, R. Costard, and T. Elsaesser
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C. Somma, G. Folpini, J. Gupta, K. Reimann, M. Woerner, and T. Elsaesser
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448. **Kinetics of catastrophic optical damage in GaN-based diode lasers**
M. Hempel, J. W. Tomm, B. Stojetz, H. König, U. Strauss, and T. Elsaesser
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447. **High-energy multi-kilohertz Ho-doped regenerative amplifiers around 2 μm**
L. von Grafenstein, M. Bock, U. Griebner, and T. Elsaesser
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446. **Focus: Phase-resolved nonlinear terahertz spectroscopy - from charge dynamics in solids to molecular excitations in liquids**
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445. **Nanoscale transport of surface excitons at the interface between ZnO and a molecular monolayer**
S. Friede, S. Kuehn, S. Sadofev, S. Blumstengel, F. Henneberger, and T. Elsaesser
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444. **Theoretical analysis of hard x-ray generation by nonperturbative interaction of ultrashort light pulses with a metal**
J. Weisshaupt, V. Juvé, M. Holtz, M. Woerner, and T. Elsaesser
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443. **Ultrafast phosphate hydration dynamics in bulk H_2O**
R. Costard, T. Tyborski, B. P. Fingerhut, and T. Elsaesser
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442. **Non-instantaneous polarization dynamics in dielectric media**
M. Hofmann, J. Hyyti, S. Birkholz, M. Bock, S. K. Das, R. Grunwald, M. Hoffmann, T. Nagy, A. Demircan, M. Jupé, D. Ristau, U. Morgner, C. Brée, M. Woerner, T. Elsaesser, and G. Steinmeyer
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441. **Wasser und Biomoleküle: Ultraschnelle Dynamik von Strukturen und Schwingungen**
T. Elsaesser
Chemie in unserer Zeit **49**, 48 (2015)
440. **Hydrated phospholipid surfaces probed by ultrafast 2D spectroscopy of phosphate vibrations**
R. Costard, I. A. Heisler, and T. Elsaesser
in: *Ultrafast Phenomena XIX*, K. Yamanouchi, S. Cundiff, R. de Vivie-Riedle, M. Kuwata-Gonokami, L. DiMauro (Eds.), Springer, Heidelberg 2015, p. 301
439. **Ultrafast terahertz response of lithium niobate in the nonperturbative regime**
C. Somma, K. Reimann, C. Flytzanis, M. Woerner, T. Elsaesser
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438. **Sub-100 fs mid-infrared pulses as driver for a table-top hard x-ray source**
J. Weisshaupt, V. Juvé, M. Holtz, S. Ku, M. Woerner, T. Elsaesser, S. Alisauskas, A. Pugzlys, A. Baltuska
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437. **Field-induced dynamics of correlated electrons in LiH and NaBH₄**
V. Juvé, M. Holtz, F. Zamponi, M. Woerner, T. Elsaesser, A. Borgschulte
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436. **High-brightness table-top hard x-ray source driven by sub-100 fs mid-infrared pulses**
J. Weisshaupt, V. Juvé, S. Ku, M. Holtz, M. Woerner, T. Elsaesser, S. Alisauskas, A. Pugzlys, and A. Baltuska
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435. **Femtosecond x-ray diffraction maps field-driven charge dynamics in ionic crystals**
M. Woerner, M. Holtz, V. Juvé, T. Elsaesser, and A. Borgschulte
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434. **Spatio-temporal coherence mapping of few-cycle vortex pulses**
R. Grunwald, T. Elsaesser, and M. Bock
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433. **Nano-optical analysis of GaN-based diode lasers**
S. Friede, S. Kuehn, J. W. Tomm, V. Hoffmann, U. Zeimer, M. Weyers, M. Kneissl, and T. Elsaesser
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431. **Ultrafast vibrational dynamics of BH_4^- ions in liquid and crystalline environments**
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430. **High field terahertz bulk photovoltaic effect in lithium niobate**
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428. **Structural dynamics of hydrated phospholipid surfaces probed by ultrafast 2D spectroscopy of phosphate vibrations**
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427. **Terahertz radiative coupling and damping in multilayer graphene**
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426. **Perspective: Structural dynamics in condensed matter mapped by femtosecond x-ray diffraction**
T. Elsaesser and M. Woerner
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425. **Femtosecond OH bending dynamics of water nanopools confined in reverse micelles**
R. Costard and T. Elsaesser
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424. **Field-driven dynamics of correlated electrons in LiH and NaBH_4 revealed by femtosecond x-ray diffraction**
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423. **Ultrafast two-dimensional infrared spectroscopy of guanine-cytosine base pairs in DNA oligomers**
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422. **Surface excitons on a ZnO (000-1) thin film**
S. Kuehn, S. Friede, S. Sadofev, S. Blumstengel, F. Henneberger, and T. Elsaesser
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M. Hempel, J. W. Tomm, F. La Mattina, I. Ratschinski, M. Schade, I. Shorubalko,
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420. **Ultrafast inter-ionic charge transfer of transition-metal complexes mapped
by femtosecond x-ray powder diffraction**
B. Freyer, F. Zamponi, V. Juve, J. Stingl, M. Woerner, T. Elsaesser, and M. Chergui
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419. **Ultrafast vibrational dynamics of hydrogen bonded dimers and base pairs**
T. Elsaesser
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418. **Ultrafast two-dimensional terahertz spectroscopy of elementary excitations
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417. **An environmental cell for transient spectroscopy on solid samples in
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J. Dwyer, L. Szyc, E. T. J. Nibbering, and T. Elsaesser
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416. **N-H stretching vibrations of guanosine-cytidine base pairs in solution:
ultrafast dynamics, couplings and lineshapes**
H. Fidder, M. Yang, E. T. J. Nibbering, T. Elsaesser, K. Röttger, and F. Temps
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415. **N-H stretching excitations in adenosine-thymidine base pairs in solution:
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C. Greve, N. Prekretes, H. Fidder, R. Costard, B. Koeppe, I. Heisler, S. Mukamel,
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S. Kuehn, S. Friede, M. Zastrow, K. Schiebler, K. Rueck-Braun, and T. Elsaesser
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413. **Ultrafast structural and vibrational dynamics of the hydration shell
around DNA**
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412. **Ultrafast vibrational dynamics of water confined in phospholipid reverse
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R. Costard, C. Greve, N. E. Levinger, E. T. J. Nibbering, and T. Elsaesser
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411. **Ultrafast IR pump-probe and 2D-IR photon echo spectroscopy of adenosine-thymidine base pairs**
C. Greve, N. K. Preketes, R. Costard, B. Koeppel, H. Fidder, E. T. J. Nibbering, F. Temps, S. Mukamel, and T. Elsaesser
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410. **Ultrafast charge relocation in an ionic crystal probed by femtosecond x-ray powder diffraction**
M. Woerner, F. Zamponi, P. Rothhardt, J. Stingl, and T. Elsaesser
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409. **Femtosecond x-ray diffraction using the rotating crystal method**
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407. **Transition from ballistic to drift motion in high-field transport in GaAs**
P. Bowlan, W. Kuehn, K. Reimann, M. Woerner, T. Elsaesser, R. Hey, and C. Flytzanis
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404. **Ultrahigh single-spatial-mode pulses power from 980 nm emitting diode lasers**
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F. Zamponi, J. Stingl, M. Woerner, and T. Elsaesser
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396. **Nonlinear electron transport in an electron-hole plasma**
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