

Thomas Elsaesser

Publications in refereed journals and books

November 10, 2017

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 nonlinear 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 LiNbO₃ mapped by femtosecond x-ray diffraction**
M. Holtz, C. Hauf, A. Hernandez-Salvador, R. Costard, M. Woerner, and T. Elsaesser
Phys. Rev. B **94**, 104302 (2016)
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 H₅O₂⁺: the role of ultrafast solvent fluctuations**
F. Dahms, R. Costard, E. Pines, E. T. J. Nibbering, B. P. Fingerhut, and T. Elsaesser
Angewandte Chemie Int. Ed. **55**, 10600 (2016)
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
J. Chem. Phys. **144**, 184202 (2016)
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
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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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455. **Ultrafast vibrational dynamics of the DNA backbone at different hydration levels mapped by two-dimensional infrared spectroscopy**
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
J. Lightwave Technol. **33**, 4450 (2015)
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
Opt. Express **23**, 33142 (2015)
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
Phys. Rev. Lett. **115**, 147401 (2015)
451. **Nonresonant coherent control: Intersubband excitations manipulated by a nonresonant terahertz pulse**
G. Folpini, D. Morrill, C. Somma, K. Reimann, M. Woerner, T. Elsaesser, and K. Biermann
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450. **Anharmonic backbone vibrations in ultrafast processes at the DNA-water interface**
T. Siebert, B. Guchhait, Y. Liu, R. Costard, and T. Elsaesser
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449. **Ultra-broadband terahertz pulses generated in the organic crystal DSTMS**
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
Opt. Express **23**, 14744 (2015)
446. **Focus: Phase-resolved nonlinear terahertz spectroscopy - from charge dynamics in solids to molecular excitations in liquids**
T. Elsaesser, K. Reimann, and M. Woerner
J. Chem. Phys. **142**, 212301 (2015, invited paper)
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
Phys. Rev. B **91**, 121415(R) (2015)
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 H₂O**
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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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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432. **Short-wavelength infrared defect emission as a probe of degradation processes in 980 nm single mode diode lasers**
M. Hempel, J. W. Tomm, F. Yue, M. A. Bettiati, and T. Elsaesser
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431. **Ultrafast vibrational dynamics of BH₄⁻ ions in liquid and crystalline environments**
T. Tyborski, R. Costard, M. Woerner, and T. Elsaesser
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430. **High field terahertz bulk photovoltaic effect in lithium niobate**
C. Somma, K. Reimann, C. Flytzanis, T. Elsaesser, and M. Woerner
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429. **Ultrafast terahertz response of multi-layer graphene in the non-perturbative regime**
P. Bowlan, E. Martinez-Moreno, K. Reimann, T. Elsaesser, and M. Woerner
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R. Costard, I. A. Heisler, and T. Elsaesser
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427. **Terahertz radiative coupling and damping in multilayer graphene**
P. Bowlan, E. Martinez-Moreno, K. Reimann, M. Woerner, and T. Elsaesser
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426. **Perspective: Structural dynamics in condensed matter mapped by femtosecond x-ray diffraction**
T. Elsaesser and M. Woerner
J. Chem. Phys. **140**, 020901 (2014, invited paper)
425. **Femtosecond OH bending dynamics of water nanopools confined in reverse micelles**
R. Costard and T. Elsaesser
J. Phys. Chem. B **117**, 15338 (2013) (M. D. Fayer Festschrift)
424. **Field-driven dynamics of correlated electrons in LiH and NaBH₄ revealed by femtosecond x-ray diffraction**
V. Juvé, M. Holtz, F. Zamponi, M. Woerner, T. Elsaesser, and A. Borgschulte
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423. **Ultrafast two-dimensional infrared spectroscopy of guanine-cytosine base pairs in DNA oligomers**
C. Greve and T. Elsaesser
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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, M. Stiefel, H. S. Leipner, F. M. Kießling, and T. Elsaesser
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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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T. Elsaesser
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M. Woerner, W. Kuehn, P. Bowlan, K. Reimann, and T. Elsaesser
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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: pair geometries, infrared line shapes and ultrafast vibrational dynamics**
C. Greve, N. Prekretes, H. Fidder, R. Costard, B. Koeppe, I. Heisler, S. Mukamel, F. Temps, E. T. J. Nibbering, and T. Elsaesser
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S. Kuehn, S. Friede, M. Zastrow, K. Schiebler, K. Rueck-Braun, and T. Elsaesser
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T. Elsaesser, L. Szyc, and M. Yang
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412. **Ultrafast vibrational dynamics of water confined in phospholipid reverse micelles**
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**
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410. **Ultrafast charge relocation in an ionic crystal probed by femtosecond x-ray powder diffraction**
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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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406. **Ultrafast two-dimensional THz spectroscopy of graphene**
P. Bowlan, E. Martinez Moreno, K. Reimann, M. Woerner, and T. Elsaesser
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R. Costard, C. Greve, I. A. Heisler, and T. Elsaesser
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404. **Ultrahigh single-spatial-mode pulses power from 980 nm emitting diode lasers**
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403. **Reconstruction of defect creation sequences in diode lasers**
M. Hempel, J. W. Tomm, V. Hortelano, N. Michel, J. Jimenez, M. Krakowski, and T. Elsaesser
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401. **X-rays inspire electron movies**
M. J. J. Vrakking and T. Elsaesser
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400. **N-H stretching modes of adenosine monomer in solution studied by ultrafast nonlinear infrared spectroscopy and ab-initio calculations**
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Physical Chemistry Chemical Physics (PCCP) **14**, 6156 (2012)
396. **Nonlinear electron transport in an electron-hole plasma**
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W. Kuehn, K. Reimann, M. Woerner, T. Elsaesser, R. Hey, and U. Schade
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S. K. Das, C. Schwenke, A. Pfuch, W. Seeber, M. Bock, G. Steinmeyer, T. Elsaesser, and R. Grunwald
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M. Yang, L. Szyc, K. Röttger, H. Fidder, E.T.J. Nibbering, T. Elsaesser, and F. Temps
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