

List of publications: THz generation and Detection using our THz generators: DAST, DSTMS and OH1

DSTMS

Terahertz-based retrieval of the spectral phase and amplitude of ultrashort laser pulses

A. Curcio, V. Dolci, S. Lupi, and M. Petrarca
Optics Letters **2018** Vol. 43, 783.

Generation of narrowband, high-intensity, carrier-envelope phase-stable pulses tunable between 4 and 18 THz

B. Liu, H. Bromberger, A. Cartella, T. Gebert, M. Först, and A. Cavalleri
Optics Letters **2017** Vol. 42, 129.

A Broadband THz-TDS System based on DSTMS emitter and LTG InGaAs/InAlAs Photoconductive Antenna Detector

Ying Zhang, Xiaoling Zhang, Shaoxian Li, Jianqiang Gu, Yanfeng Li, Zhen Tian, Chunmei Ouyang, Mingxia He, Jiaguang Han and Weili Zhang
Scientific Reports **2016** 6:26949 DOI: 10.1038/srep26949 1

Coherent two dimensional-terahertz-terahertz-Raman spectroscopy

I-A. Finneran, R. Welsch, M.A. Allodi, T.F. Miller III, and Geoffrey Blake
PNAS **2016** Vol. 113, 6857-6861, doi:10.1073/PNAS.1605631113;

High-performing nonlinear visualization of terahertz radiation on a silicon charge-coupled device,

M. Shalaby, C. Vicario, and C.P. Hauri
Nat. Commun. **2015**, 6, 8439.

Ultra-broadband terahertz pulses generated in the organic crystal DSTMS

C. Somma, G. Folpini, J. Gupta, K. Reimann, M. Woerner, and T. Elsaesser
Optics Letters **2015**, 40, 3404.

Demonstration of a low-frequency three-dimensional terahertz bullet with extreme brightness

M. Shalaby, C.P. Hauri
Nature Comm. **2015**, 6, No. 5976, doi:10.1038/ncomms 6976.

High efficiency THz generation in DSTMS, DAST and OH1 pumped by Cr:forsterite laser

C. Vicario, M. Jazbinsek, A.V. Ovchinnikov, O.V. Chefonov, S.I. Ashitkov, M.B. Agranat, and C.P. Hauri
Opt. Express, **2015**, 23, 4573-4580.

Terahertz brightness at the extreme: demonstration of 5 GV/m low frequency λ^3 terahertz bullet

M. Shalaby, C.P. Hauri
<http://arxiv.org/pdf/1407.1656v1.pdf> (2014).

GV/m Single-Cycle Terahertz Fields from a Laser-Driven Large-Size Partitioned Organic Crystal

C. Vicario B. Monoszlai, C. P. Hauri
Phys. Rev. Lett., **2014**, 112, 213901.

Terahertz emission in organic crystals pumped by conventional laser wavelength

C. Vicario, B. Monoszlai, B. ruiz, M. Jazbinsek, C. Medrano and C.P. Hauri
SPIE OPTO 89850, 89850C (2014).

High-energy terahertz pulses from organic crystals: DAST and DSTMS pumped at Ti:sapphire wavelength

B. Monoszlai, C. Vicario, M. Jazbinsek, C.P. Hauri.
Opt. Lett., **2013**, 38, No. 23, 5106.

Spatiotemporal Focusing Dynamics of Intense Supercontinuum THz Pulses

Ruchert, C.; Vicario, C; Hauri, C.P.

Phys. Rev. Lett., **2013**, *110*, 123902

High field broadband THz generation in organic materials

Vicario, C; Ruchert, C.; Hauri, C.P.

J. Mod. Opt., **2013**, DOI: 10.1080/09500340.2013.800242

Optical properties of 4-N,N-dimethylamino-4'-N'-methyl-stilbazolium 2,4,6-trimethylbenzenesulfonate crystals at terahertz frequencies

Stillhart, M.; Schneider, A. and Gunter, P.

J. Opt. Soc. Am. B, **2008**, *25*, 1914-1919

Linear and nonlinear optical properties of the organic crystal DSTMS

Mutter, L.; Brunner, F. D. J.; Yang, Z.; Jazbinsek, M. and Gunter, P.

J. Opt. Soc. Am. B, **2007**, *24*, 2556-2561

Large-size bulk and thin-film stilbazolium-salt single crystals for nonlinear optics and THz generation

Yang, Z.; Mutter, L.; Stillhart, M.; Ruiz, B.; Aravazhi, S.; Jazbinsek, M.; Schneider, A.; Gramlich, V. and Gunter, P.

Adv. Funct. Mater., **2007**, *17*, 2018-2023

DAST

Generation of 1.5-octave intense infrared pulses by nonlinear interactions in DAST crystal

C. Vicario, B. Monzlai, G. Arisholm and C.P. Hauri

J. Opt. **2015**, *17* 094005.

High efficiency THz generation in DSTMS, DAST and OH1 pumped by Cr:forsterite laser

C. Vicario, M. Jazbinsek, A.V. Ovchinnikov, O.V. Chefonov, S.I. Ashitkov, M.B. Agranat, and C.P. Hauri

Opt. Express, **2015**, *23*, 4573-4580.

Strong-field single-cycle THz pulses generated in an organic crystal

Hauri, C. P.; Ruchert, C.; Vicario, C. and Ardana, F.

Appl. Phys. Lett., **2011**, *99*, 161116

Laser driven generation of intense single-cycle THz field

Hauri, C. P.; Ruchert, C.; Vicario, C. and Ardana, F.

Proc. SPIE, **2012**, *8261*, 82610Z

Comparison of GaAs and DAST electro-optic crystals for THz time domain spectroscopy using 1.55 μm fiber laser pulses

Martin, M.; Mangeney, J.; Crozat, P. and Mounaix, P.

Terahertz Technology and Applications Iv, **2011**, 7938, 793807

Optical properties of DAST in the THz range

Cunningham, P. D. and Hayden, L. M.

Opt. Express, **2010**, *18*, 23620-23625

Optical phase detection in a 4-N,N-dimethylamino-4'-N'-methyl-stilbazolium tosylate crystal for terahertz time domain spectroscopy system at 1.55 μm wavelength

Martin, M.; Mangeney, J.; Crozat, P. and Mounaix, P.

Appl. Phys. Lett., **2010**, *97*, 111112

Generation of widely tunable Fourier-transform-limited terahertz pulses using narrowband near-infrared laser radiation

Liu, J. J.; Schmutz, H. and Merkt, F.

J. Mol. Spectrosc., **2009**, *256*, 111-118

Generation of tunable Fourier-transform-limited terahertz pulses in 4-N, N-dimethylamino-4'-N'-methyl stilbazolium tosylate crystals

Liu, J. J. and Merkt, F.

Appl. Phys. Lett., **2008**, 93, 131105

Photonic Applications With the Organic Nonlinear Optical Crystal DAST

Jazbinsek, M.; Mutter, L. and Gunter, P.

IEEE J. Sel. Top. Quantum Electron., **2008**, 14, 1298-1311

Wideband 15 THz response using organic electro-optic polymer emitter-sensor pairs at telecommunication wavelengths

McLaughlin, C. V.; Hayden, L. M.; Polishak, B.; Huang, S.; Luo, J. D.; Kim, T. D. and Jen, A. K. Y.

Appl. Phys. Lett., **2008**, 92, 151107

Determination of the refractive index over a wide wavelength range through time-delay measurements of femtosecond pulses

Schneider, A.; Brunner, F. D. J. and Gunter, P.

Opt. Commun., **2007**, 275, 354-358

Organic broadband terahertz sources and sensors

Zheng, X. M.; McLaughlin, C. V.; Cunningham, P. and Hayden, L. M.

J. Nanoelectron. Optoelectron., **2007**, 2, 58-76

Improved emission and coherent detection of few-cycle terahertz transients using laser pulses at 1.5 μm

Schneider, A.; Stillhart, M.; Yang, Z.; Brunner, F. and Gunter, P.

Nonlinear Optics and Applications II, **2007**, 6582, 658211

Generation of terahertz pulses through optical rectification in organic DAST crystals: theory and experiment

Schneider, A.; Neis, M.; Stillhart, M.; Ruiz, B.; Khan, R. U. A. and Gunter, P.

J. Opt. Soc. Am. B, **2006**, 23, 1822-1835

High efficiency generation and detection of terahertz pulses using laser pulses at telecommunication wavelengths

Schneider, A.; Stillhart, M. and Gunter, P.

Opt. Express, **2006**, 14, 5376-5384

Spectrum of terahertz pulses from organic DAST crystals

Schneider, A. and Gunter, P.

Ferroelectrics, **2005**, 318, 83-88

Electro-optic sampling system with a single-crystal 4-N,N-dimethylamino-4'-N'-methyl-4-stilbazolium tosylate sensor

Zheng, X.; Wu, S.; Sobolewski, R.; Adam, R.; Mikulics, M.; Kordos, P. and Siegel, M.

Appl. Phys. Lett., **2003**, 82, 2383-2385

Rainbow Photonics - Growth of nonlinear optical DAST crystals

Laveant, P.; Medrano, C.; Ruiz, B. and Gunter, P.

Chimia, **2003**, 57, 349-351

OH1

THz Generation and Detection by Fluorenone Based Organic Crystals

Matteo Savoini, Lucas Huber, Herma Cuppen, Elsa Abreu, Martin Kubli, Martin J. Neugebauer, Yulong Duan, Paul Beaud, Jialiang Xu, Theo Rasing
ACS Photonics **2018**, 5, 671–677

Two–frequency pulsed YLiF out of the principal axes and THz generation

Alain Brenier
Opt. Letters, **2015**, 40, 4496-4499.

Terahertz source at 9.4 THz based on a dual-wavelength infrared laser and quasi-phase matching in organic crystals OH1

A. Majkic, M. Zgonik, A. Petelin, M. Jazbinsek, B. Ruiz, C. Medrano, and P. Günter
Appl. Phys. Lett., **2014**, 105, 141115

Demonstration of a low-frequency three-dimensional terahertz bullet with extreme brightness

M. Shalaby, C.P. Hauri
Nature Comm. **2015**, 6, No. 5976, doi:10.1038/ncomms 6976.

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M. Shalaby, C.P. Hauri
<http://arxiv.org/pdf/1407.1656v1.pdf> (2014)

Generation of broadband THz pulses in organic crystal OH1 at room temperature and 10 K

A.G. Stepanov, C. Ruchert, J. Levallois, C. Erny, and C.P. Hauri
Opt. Mat. Express **2014** 4, 870

Scaling submillimeter single-cycle transients toward megavolts per centimeter field strength via optical rectification in the organic crystal OH1

Ruchert, C.; Vicario, C.; Hauri, C. P.
Opt. Letters, **2012**, 37, 899-901

Configurationally locked, phenolic polyene organic crystal 2-3-(4-hydroxystyryl)-5,5-dimethylcyclohex-2-enylidenemalononitrile: linear and nonlinear optical properties

Hunziker, C.; Kwon, S. J.; Figi, H.; Juvalta, F.; Kwon, O. P.; Jazbinsek, M. and Gunter, P.
J. Opt. Soc. Am. B, **2008**, 25, 1678-1683

A hydrogen-bonded organic nonlinear optical crystal for high-efficiency terahertz generation and detection

Brunner, F. D. J.; Kwon, O. P.; Kwon, S. J.; Jazbinsek, M.; Schneider, A. and Gunter, P.
Opt. Express, **2008**, 16, 16496-16508

Organic Phenolic Configurationally Locked Polyene Single Crystals for Electro-optic and Terahertz Wave Applications

Kwon, O. P.; Kwon, S. J.; Jazbinsek, M.; Brunner, F. D. J.; Seo, J. I.; Hunziker, C.; Schneider, A.; Yun, H.; Lee, Y. S. and Gunter, P.
Adv. Funct. Mater., **2008**, 18, 3242-3250