

## Journal Publications - Prof. J. Jahns

1. J. Jahns, A. W. Lohmann, The Lau effect (a diffraction experiment with incoherent illumination), Opt. Comm. 28 (1979) 263-267.
2. H. O. Bartelt, J. Jahns, Interferometry based on the Lau effect, Opt. Comm. 30 (1979) 268-274.
3. J. Jahns, Concepts of optical digital computing - a survey, Optik 57 (1980) 429-449
4. J. Götz, J. Jahns, An opto-electronical nonlinear component, Opt. Comm. 40 (1982) 325-328.
5. J. Jahns, A. W. Lohmann, OTF synthesis: low pass and band pass filtering realized by periodic replication of the pupil function, Opt. Comm. 42 (1982) 231-236.
6. He Kaijun, J. Jahns, A. W. Lohmann, Talbot interferometry with a vibrating phase object, Opt. Comm. 45 (1983) 295-300.
7. J. Jahns, A. W. Lohmann, Opto-electronical bandpass filtering applied to incoherent image subtraction, Opt. Comm. 46 (1983) 85-88.
8. J. Jahns, Efficient Hadamard transformation of large images. Signal Processing 5 (1983) 75-80.
9. J. Ojeda-Castaneda, J. Jahns, A. W. Lohmann, Talbot and Lau effects: a parageometrical approach, Optica Acta 31 (1983) 313-317.
10. H. Lechner, J. Jahns, Color recognition system for automation engineering, Siemens Forsch.- u. Entwicklungsber. 13 (1984) 28-32.
11. M. J. Murdocca, A. Huang, J. Jahns, N. Streibl, A digital design technique for optical computing, Appl. Opt. 27 (1988) 1651-1660.
12. J. Jahns, M. J. Murdocca, Crossover networks and their optical implementation, Appl. Opt. 27 (1988) 3155-3160.
13. J. Jahns, A. Huang, Planar integration of free-space optical components, Appl. Opt. 28 (1989) 1602-1605.
14. J. Jahns, M. M. Downs, N. Streibl, M. E. Prise, S. J. Walker, Dammann gratings for laser beam shaping, Opt. Eng. 28 (1989) 1267-1275.
15. N. Streibl, K.-H. Brenner, A. Huang, J. Jahns, J. L. Jewell, A. W. Lohmann, D.A.B. Miller, M. J. Murdocca, M. E. Prise, T. Sizer II, Digital Optics (invited paper), Proc. IEEE 77 (1989) 1954-1969.
16. J. Jahns, S. J. Walker, Two-dimensional array of diffractive microlenses fabricated by thin-film deposition, Appl. Opt. 29 (1990) 931-936.
17. J. Jahns, Integrated-optical imaging system, Appl. Opt. 29 (1990) 1998.
18. J. Jahns, S. J. Walker, Imaging with planar optical systems, Opt. Comm. 76 (1990) 313-317.
19. J. Jahns, B. A. Brumback, Integrated-optical split-and-shift module based on planar optics, Opt. Comm. 76 (1990) 318-320.
20. J. Jahns, Optical implemenation of the Banyan network, Opt. Comm. 76 (1990) 321-324.
21. M. M. Downs, J. Jahns, An integrated-optical array generator, Opt. Lett. 15 (1990) 769-770.
22. S. J. Walker, J. Jahns, Array generation with multilevel phase gratings, J. Opt. Soc. Am. A 7 (1990) 1509-1513.
23. J. Jahns, W. Däschner, Optical cyclic shifter using diffractive lenslet arrays, Opt. Comm. 79 (1990) 407-410.
24. N. Streibl, U. Nölscher, J. Jahns, S. Walker, Array generation with lenslet arrays, Appl. Opt. 30 (1991) 2739-2742.
25. J. Jahns, K.-H. Brenner, W. Däschner, C. Doubrava, Th. Merklein, Replication of diffractive microoptical elements using a PMMA molding technique, Optik 89 (1992) 98-100.

26. J. Jahns, Y. H. Lee, Ch. A. Burrus, J. L Jewell, Optical interconnects using planar optics and microlasers, *Appl. Opt.* 31 (1992) 592-597.
27. J. Jahns, W. Däschner, Precise alignment through thick wafers using an optical copying technique, *Opt. Lett.* 17 (1992) 390-392.
28. S. J. Walker, J. Jahns, Optical clock distribution using integrated free-space optics, *Opt. Comm.* 90 (1992) 359-371.
29. J. Jahns, R. A. Morgan, H. N. Nguyen, J. A. Walker, S. J. Walker, Y. M. Wong, Hybrid integration of surface-emitting microlaser chip and planar optics substrate for interconnection applications, *IEEE Phot. Techn. Lett.* 4 (1992) 1369-1372.
30. S. J. Walker, J. Jahns, L. Lifeng, W. T. Mansfield, C. Roberts, L. C. West, D. Tenant, D. Pastalon, N. Ailawadi, High frequency gratings as efficient beam splitters and beam deflectors, *Appl. Opt.* 32 (1993) 2494-2501.
31. J. Jahns, B. Acklin, Integrated planar optical imaging system with high interconnection density, *Opt. Lett.* 18 (1993) 1594-1596.
32. F. Sauer, J. Jahns, A. Y. Feldblum, C. Nijander, W. P. Townsend, Refractive-diffractive microoptics for permutation interconnects, *Opt. Eng.* 33 (1994) 1550-1560.
33. B. Acklin, J. Jahns, Packaging considerations for planar optical interconnection systems, *Appl. Opt.* 33 (1994) 1391-1397.
34. J. Jahns, F. Sauer, B. Tell, K. F. Brown-Goebeler, A. Y. Feldblum, C. R. Nijander, W. P. Townsend, Parallel optical interconnections using surface-emitting microlasers and a hybrid imaging system, *Opt. Comm.* 109 (1994) 328-337
35. J. Jahns, Planar packaging of free-space optical interconnections (invited paper), *Proc. IEEE* 82 (1994) 1623-1631.
36. S. Sinzinger, J. Jahns, Planar integration of microoptical systems, *Entropie* 31 (1995) 5-8.
37. M. Testorf, J. Jahns, N. A. Khilo, A. M. Goncharenko, Talbot effect for oblique angle of light propagation, *Opt. Comm.* 129 (1996) 167-172
38. M. Testorf, J. Jahns, N. A. Khilo, A. M. Goncharenko, Design of Talbot array illuminators for planar optics, *Opt. Comm.* 132 (1996) 205-211
39. B. Lunitz, J. Jahns, Tolerant design of a planar-optical clock distribution system, *Opt. Comm.* 134 (1997) 281-288
40. J. Jahns, Digitale Optik, *Phys. Bl.* 53 (1997) 529-534
41. M. Testorf, J. Jahns, Paraxial theory of planar integrated systems, *J. Opt. Soc. Am. A* 14 (1997) 1569-1575.
42. J. Jahns, J. A. Cox, M. G. Moharam, Diffractive optics and micro-optics: introduction to the feature issue, *Appl. Opt.* 36 (1997) 4633-4634.
43. S. Sinzinger, J. Jahns, Integrated microoptical imaging system with high interconnection capacity, *Appl. Opt.* 36 (1997) 4729-4735.
44. M. Testorf, J. Jahns, Planar-integrated Talbot array illuminator, *Appl. Opt.* 37 (1998) 5399-5407.
45. Ch. Gimkiewicz, D. Hagedorn, J. Jahns, E. B. Kley, F. Thoma, Fabrication of microprisms for planar-optical interconnections using analog gray-scale lithography with high energy beam sensitive glass, *Appl. Opt.* 38 (1999) 2986-2990.
46. M. Testorf, J. Jahns, Imaging properties of planar-integrated micro-optics, *J. Opt. Soc. Am. A* 16 (1999) 1175-1183.
47. W. Eckert, V. Arrizón, S. Sinzinger, J. Jahns, Compact planar-integrated optical correlator for spatially incoherent signals, *Appl. Opt.* 39 (2000) 759-765.
48. D. Fey, H. Bartelt, W. Erhard, G. Grimm, M. Gruber, L. Hoppe, J. Jahns, S. Sinzinger, Optical interconnects for neural and reconfigurable VLSI architectures (invited paper), *Proc. IEEE* 88 (2000) 838-848.
49. J. Jahns, S. Sinzinger, Microoptics for biomedical applications, *American Biotechn. Lab.* 18 (Oct. 2000) 52-54.

50. M. Gruber, J. Jahns, S. Sinzinger, Planar-integrated optical vector-matrix-multiplier, *Appl. Opt.* 39 (2000) 5367-5373.
51. W. Eckert, V. Arrizón, S. Sinzinger, J. Jahns, Compact discrete correlators with improved design, *Opt. Comm.* 186 (2000) 83-86.
52. V. Arrizón, M. Testorf, S. Sinzinger, J. Jahns, Iterative optimization of phase-only diffractive optical elements based on a lenslet array, *J. Opt. Soc. Am. A* 17 (2000) 2157-2164.
53. M. Gruber, J. Jahns, E. ElJoudi, S. Sinzinger, Practical realization of massively parallel fiber-free-space optical interconnects, *Appl. Opt.* 40 (2001) 2902.
54. J. Jahns, E. ElJoudi, D. Hagedorn, S. Kinne, Talbot interferometer as a time filter, *Optik* 112 (2001) 295-298.
55. J. Jahns, M. Gruber, S. Sinzinger, Entwurf und Aufbau integrierter freiraumoptischer Mikrosysteme, *Photonik* 34 (2002) 84-86.
56. Q. Cao, J. Jahns, Focusing analysis of pinhole photon sieve: individual far-field model, *J. Opt. Soc. Am. A* 19 (2002) 2387-2393.
57. P. Lukowicz, J. Grzyb, R. B. Carrera, G. Tröster, S. Fancey, M. Gruber, J. Jahns, W. F. Tichy, Opto-electronic multichip modules: making optical interconnection packaging compatible with electronic assembly technology, *Optical Memory & Neural Networks (Information Optics)* 11 (2002) 239-244.
58. J. Jahns, M. Gruber, B. Lunitz, M. Stölzle, Optical interconnection and clocking using planar-integrated free-space optics (invited paper), *J. Opt. Soc. Korea* 7 (2003) 1-6.
59. S. Sinzinger, Q. Cao, M. Gruber, J. Jahns, Integrierte opto-elektronische Crossbar-Architekturen in planar-integrierter Freiraumoptik, *it-Information Technology* 45 (2003) 87-91.
60. Q. Cao, J. Jahns, Nonparaxial model for the focusing of high-numerical-aperture photon sieves, *J. Opt. Soc. Am. A* 20 (2003) 1005-1012.
61. Q. Cao and J. Jahns, Modified Fresnel zone plates that produce sharp, Gaussian focal spots, *J. Opt. Soc. Am. A* 20 (2003) 1576-1581.
62. J. Jahns, H. Knuppertz, A. W. Lohmann, Montgomery self-imaging using computer-generated diffractive optical elements, *Opt. Comm.* 225 (2003) 13-17.
63. P. Lukowicz, J. Jahns, R. Barbieri, P. Benabes, T. Bierhoff, A. Gauthier, M. Jarczynski, G. A. Russell, J. Schrage, W. Süllau, J. F. Snowdon, M. Wirz, G. Tröster, Optoelectronic Interconnection Technology in the HOLMS System (invited paper), *IEEE J. Sel. Top. Quant. El.* 9 (2003) 624-635.
64. Q. Cao, J. Jahns, Comprehensive focusing analysis of various Fresnel zone plates, *J. Opt. Soc. Am. A* 21 (2004) 561-571.
65. G. Méndez-Vega, J. Jahns, Temporal processing with the Montgomery interferometer, *Opt. Comm.* 236 (2004) 45-52.
66. Q. Cao, M. Gruber, J. Jahns, Generalized confocal imaging systems for free-space optical interconnections, *Appl. Opt.* 43 (2004) 3306-3309.
67. J. Jahns, A. W. Lohmann, Temporal filtering by double diffraction, *Appl. Opt.* 43 (2004) 4339-4344.
68. M. Gruber, R. Kerssenfischer, J. Jahns, Planar-integrated free-space optical fan-out module for MT-connected fiber-ribbons, *J. Lightwave Techn.* 22 (2004) 2218-2222.
69. G. Méndez-Vega, M. Gruber, J. Jahns and J. Lancis, Achromatic optical Fourier transformer with planar-integrated free-space optics, *Appl. Opt.* 44 (2005) 229-235.
70. Q. Cao, J. Jahns, Azimuthally polarized surface plasmons as effective terahertz waveguides, *Opt. Express* 13 (2005) 511-518.
71. T. Müther, J. Nes, A.-L. Gehrman, M. Volk, W. Ertmer, G. Birkl, M. Gruber, J. Jahns, "Atomic quantum systems in optical micro-structures, *Journal of Physics: Conference Series* 19 (2005) 97-101.
72. A. W. Lohmann, H. Knuppertz, J. Jahns, Fractional Montgomery effect: a self-imaging phenomenon, *J. Opt. Soc. Am. A* 22 (2005) 1500-1508.

73. Q. Cao, J. Jahns, Apodized multilevel diffractive lenses that produce desired diffraction-limited focal spots, *J. Opt. Soc. Am. A* 23 (2006) 179-186.
74. J. Jahns, A. W. Lohmann, Diffractive-optical processing of temporal signals, part I: basic principles, *Chin. Opt. Lett.* 4 (2006) 259-261
75. J. Jahns, A. W. Lohmann, Diffractive-optical processing of temporal signals, part II: optical tapped delay-line, *Chin. Opt. Lett.* 4 (2006) 262-264
76. J. Jahns, A. W. Lohmann, M. Bohling, Talbot bands and temporal processing of optical signals, *JEOS-RP* 1 (2006) 06001
77. M. Jarczynski, Th. Seiler, J. Jahns, Integrated three-dimensional optical multilayer using free-space optics, *Appl. Opt.* 45 (2006) 6335-6341
78. A. Sabatyan, J. Jahns, Retroreflector array as tapped delay-line filter for ultra-short optical pulses, *JEOS-RP* 1 (2006) 06022
79. H. Knuppertz, J. Jahns, R. Grunwald, Temporal impulse response of the Talbot interferometer, *Opt. Comm.* 277 (2007) 67-73
80. An-Chi Wei, Matthias Gruber, Manfred Jarczynski, Jürgen Jahns, Han-Ping D. Shieh, Plastic planar-integrated free-space optical interconnector, *Jpn. J. Appl. Phys. - part 1*, 46 (2007) 5504-5507
81. R. Barbieri, Ph. Benabes, Th. Bierhoff, J. J. Caswell, A. Gauthier, J. Jahns, M. Jarczynski, P. Lukowicz, J. Oksman, G. A. Russell, J. Schrage, J. F. Snowdon, O. Stübbe, G. Tröster, M. Wirz, Design and construction of the high-speed optoelectronic memory system demonstrator, *Appl. Opt.* 47 (2008) 3500-3512
82. J. Jahns, Q. Cao, S. Sinzinger, Micro- and nanooptics - an overview, *Laser & Photonics Reviews* 2 (2008) 249-263
83. R. Heming, L.-C. Wittig, P. Dannberg, M. Gruber, J. Jahns, E.-B. Kley, Efficient planar-integrated free-space optical interconnects fabricated by a combination of binary and analog lithography, *J. Lightwave Techn.* 26 (2008) 2136-214
84. J. Jahns, A. W. Lohmann, Optical wavefields with lateral and longitudinal periodicity, *Appl. Opt.* 48 (2009) 3438-3445
85. S. Helfert, B. Huneke, J. Jahns, Self-imaging effect in multimode waveguides with longitudinal periodicity, *J. Eur. Opt. Soc.- RP* 4 (2009) 09031
86. J. Jahns, H. Knuppertz, M. Bohling, All-reflective planar-integrated free-space microoptical femtosecond pulse shaper, *Opt. Eng.* 48 (2009) 123001
87. A. G. Edelmann, S. Helfert, J. Jahns, Analysis of the self-imaging effect in plasmonic multimode waveguides, *Appl. Opt.* 49 (2010) A1-A10
88. A. Edelmann, S. Helfert, J. Jahns, Transmission characteristics in plasmonic multimode waveguides, *Opt. Quantum Electron.* 43 (2011)
89. U. Lohmann, J. Jahns, Photonic network on a chip, *SPIE Newsroom* (2011) DOI: 10.1117/2.1201102.003495
90. A. Edelmann, S. F. Helfert, J. Jahns, Transmission characteristics in plasmonic multimode waveguides, *Opt. Quant Electron.* 42 (2011) 531-540
91. R. Grunwald, M. Bock, J. Jahns, Temporal multiplexing and shaping of few-cycle pulses with microoptical retroreflector arrays, *Adv. Opt. Techn.* 1 (2012) 97-99. [mehr]
92. M. Bohling, Th. Seiler, B. Wdowiak, J. Jahns, J. Mohr, M. Börner, Highly precise micro-retroreflector array fabricated by the LIGA process and its application as tapped delay line filter, *Appl. Opt.* 51 (2012) 5989-5995
93. M. Bock, J. Jahns, R. Grunwald, Few-cycle high-contrast vortex pulses, *Opt. Lett.* 37 (2012) 3804-3806
94. A. Edelmann, S. Helfert, J. Jahns, Beam-splitting in plasmonic multimode waveguides based on the self-imaging effect, *Adv. Radio Sci.* 10 (2012) 29-32.
95. C. A. Jones, S. F. Helfert, J. Jahns, S. Limmer, D. Fey, Wave guiding properties of ribbed surface waveguides in three frequency domains, *Opt. Quant. El.* 44 (2012) 245-255.
96. A. Edelmann, L. Moeller, J. Jahns, Coupling of Terahertz radiation to metallic wire using end-fire technique, *Electronics Lett.* 49 (2013) 884-886.

97. T. Vierke, J. Jahns, Diffraction theory for azimuthally structured Fresnel zone plate, *J. Opt. Soc. Am. A* 31, 363-372 (2014).
98. N. Koukourakis, R. Kuschmierz, M. Bohling, J. Jahns, A. Fischer, J. Czarske, Miniaturization of an interferometric distance sensor employing diffractive optics, *Adv. Opt. Tech.* 3 (2014) 387-394
99. M Musigmann, J. Jahns, M. Bock, R. Grunwald, Refractive-diffractive dispersion compensation for optical vortex beams with ultrashort pulse durations, *Appl. Opt.* 53 (2014) 7304-7311
100. S. F. Helfert, A. Edelmann, J. Jahns, Hollow waveguides as polarization converting elements: a theoretical study, *J. Eur. Opt. Soc.-RP* 10 (2015)
101. M Musigmann, J. Jahns, Refractive-diffractive generation of ultrashort Airy-Bessel wave packets with orbital angular momentum: a comprehensive analysis, *J Opt. Soc. Am B* 33 (2016) 574-582
102. J. Jahns, Continuous and discrete diffractive elements with polar symmetries, *Appl Opt.* 56, A1-A7 (2017).
103. S. F. Helfert, Th. Seiler, J. Jahns, J. Becker, P. Jakobs, A. Bacher, Numerical simulation of hollow waveguide arrays as polarization converting elements and experimental verification, *Opt. Quant. El.* 49, 313 (2017)
104. J. Jahns, Continuous and discrete diffractive elements with polar symmetries, *Appl Opt.* 56, A1-A7 (2017).
105. S. Supp, J. Jahns, Coaxial superposition of Bessel beams by discretized spiral axicons, *J. Eur. Opt. Soc.- RP* (2018) 14:18
106. M. Liebmann, A. Treffer, M. Bock, T. Seiler, J. Jahns, T. Elsaesser, R. Grunwald, Self-imaging of tailored vortex pulse arrays and spectral Gouy rotation echoes, *Opt. Lett.* 44, 1047-1050 (2019)
107. S. Belle, S. F. Helfert, R. Hellmann, J. Jahns, Hollow waveguide array with subwavelength dimensions as a space-variant polarization converter, *J. Opt. Soc. Am. B* 36, D119-D125 (2019)
108. S. F. Helfert, J. Jahns, Structured illumination of a sub-wavelength hollow-waveguide array, *Opt. Quant. Electron.* 51, 67 (2019)
109. W. Spiller, S. F. Helfert, J. Jahns, The numerical investigation of colliding optical solitons as an all-optical-gate using the method of Lines, *Opt. Quant. Electron.* 51, 131 (2019).
110. J. Jahns, S. Supp, Design considerations for multimodel optical vortex beams, *Asian J. Physics* 30 (2021).
111. S. Belle, S. F. Helfert, S. Kefer, R. Hellmann, J. Jahns, Space-variant polarization conversion with artificial birefringent metallic elements, *Opt. Lett.* 47, 2024-2027 (2022).