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An Australian Research Council Centre of Excellence

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Journal Publications


26. Lamont MRE, Fu L, Rochette M, Moss DJ, Eggleton BJ, 2R optical regenerator in As2Se3 chalcogenide fiber characterized by a frequency-resolved optical gating analysis, APPLIED OPTICS 45, 7904-7907 (2006)


2006 Publications


52. Morrison S, Kivshar YS, Tamam States and nonlinear surface modes in photonic crystals, OPTICS COMMUNICATIONS 266, 323-326 (2006)

57. Motzké K, Sukhorukov AA, Kivshar YS. Photonic bandgap structures with long period gratings in photonic bandgap fibers, OPTICS COMMUNICATIONS 263, 207-213 (2006)


76. Tomljenovic-Hanic S, Steiner CM, Steel MJ. Design of high-Q cavities in photonic crystal slab heterostructures by air-holes infiltration, OPTICS EXPRESS 14, 12451-12456 (2006)


Gu M. Tuning three-dimensional polymer-based photonic crystals, Photonic 2006, Hydroabad, India, December 2006 (invited)

Gu M. Serbin J. Superprism effects, negative refraction and radiation dynamics in three-dimensional polymer photonic crystals, ICG Topical Meeting on Optoinformatics/Information Photonics, St Petersburg, Russia, September 2006


Ha S, Sukhorukov AA. Kivshar YS. Slow-light modes in Bragg grating couplers, Australian Institute of Physics 17th National Congress, Brisbane, Australia, December 2006

Hoa XD, Nicovicli NA, McPhedran RC. Botten LC, Kirk AG. Rigorous Modal Method for the Analysis of Lattice and Metallic Gratings on Surface Plasmon Resonance Sensing, IEEE Lasers and Electrooptics (LEOS), Montreal, Quebec, November 2006

Jia B, Gu M. Multimode-induced three-dimensional polymer photonic crystals, 1st International Workshop on Multiphoton Processes in Glass and Glassy Materials, Sydney, Australia, December 2006 (invited)

Jia B, Li J, Gu M. Direct mapping of dynamics of three-dimensional woodpile photonic crystals fabricated with two-photon polymerisation, 90th Annual Meeting of Optical Society of America, Rochester, USA, October 2006

Johnston BF, Withford MJ. Topographical electrodes for poling lithium niobate, Pacific International Conference on Appl. Of Lasers and Optics, Melbourne, Australia, April 2006

Kivshar Y. All-optical switching in photonic structures infiltrated with liquid crystals, European Optics 2006, Bergen, Norway, June 2006

Kivshar Y. Localization of matter matter waves and light in optical lattices, International Seminar on Progress and Excitement in AMO Physics, Tokyo, Japan, January 2006 (invited)

Kivshar Y. Nonlinear optics and gap solitons in periodic photonic structures, Nonlinear Physics and Mathematics, Kiev, May 2006 (invited)

Matthews A, Zhou G, Gu M, Kivshar Y. Analysis of three-dimensional photonic crystal fabricated by the microexplosion method, Photonics Europe, Strasbourg, France, April 2006

Miroshnichenko AE, Kivshar YS. All optical switching in photonic structures with liquid-crystal defects, CLEO/QELS 2006, Long Beach, CA, May 2006

Miroshnichenko AE, Kivshar YS, Optical tunability of liquid-crystal defects in photonic devices, Conference on Lasers and Electro-Optics, (CLEO), Long Beach, CA, May 2006

Mikov T, de Sterke CM, Kivshar YS. Enhancement of emission due to local density of states (LDOS) effects in 2-D photonic crystal tapered optical fibre, Conference for Lasers and Electro-Optics (CLEO), Long Beach, CA, May 2006


Moss DJ, Lamont MRE, Tahedd VG, Madden S, Luther-Davies B, Eggleton BJ. All optical wavelength conversion via cross-phase modulation in chalcogenide glass rib waveguides, IEEE Lasers and Electro-Optics Society (LEOS) Annual Meeting, Montreal, Quebec, November 2006


Moss DJ, Tahedd VG, Grillot C, Shokoh-Sarem S, Fu LB, Rochette M, Magi E, Littler IC, Luther-Davies B, Photonic integrated circuits in chalcogenide glass for all-optical signal processing, Photonics West, San Jose, CA, January 2006 (Invited)


Neshov D. Optical lattices as nonlinear photonic crystals, School on Quantum Electronics, Sunny Beach, Bulgaria, September 2006 (Invited)

Neshov D. Optical lattices as tunable nonlinear photonic crystals, International Conference on Micro and Nanophotonics, Romania, August 2006 (Invited)


Nguyen HC, Finsterbusch K, Moss DJ, Eggleton BJ. Dispersion in the Nonlinear Figure of Merit of As2Se3 Chalcogenide Fiber, ACOFT, Melbourne, Australia, July 2006

Orbons S, Freeman D, Luther-Davies B, Gibson J, Huntingdon S, Jamieson D, Roberts A, Nanophotonic metamaterials, Australian Institute of Physics 17th National Congress, Brisbane, Australia, December 2006

Orbons SM, Freeman D, Gibson BC, Huntingdon ST, Luther-Davies B, Jamieson DN, Roberts A, Optical Properties of Nanoscale Annular Array Metamaterials, Optics and Photonics, San Diego, August 2006


Matthews A, Zhou G, Gu M, Kivshar Y. Analysis of three-dimensional photonic crystal fabricated by the microexplosion method, Photonics Europe, Strasbourg, France, April 2006

Miroshnichenko AE, Kivshar YS. All optical switching in photonic structures with liquid-crystal defects, CLEO/QELS 2006, Long Beach, CA, May 2006

Miroshnichenko AE, Kivshar YS, Optical tunability of liquid-crystal defects in photonic devices, Conference on Lasers and Electro-Optics (CLEO), Long Beach, CA, May 2006

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Moss DJ, Tahedd VG, Grillot C, Shokoh-Sarem S, Fu LB, Rochette M, Magi E, Littler IC, Luther-Davies B, Photonic integrated circuits in chalcogenide glass for all-optical signal processing, Photonics West, San Jose, CA, January 2006 (Invited)


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Nguyen HC, Finsterbusch K, Moss DJ, Eggleton BJ. Dispersion in the Nonlinear Figure of Merit of As2Se3 Chalcogenide Fiber, ACOFT, Melbourne, Australia, July 2006

Orbons S, Freeman D, Luther-Davies B, Gibson J, Huntingdon S, Jamieson D, Roberts A, Nanophotonic metamaterials, Australian Institute of Physics 17th National Congress, Brisbane, Australia, December 2006

Orbons SM, Freeman D, Gibson BC, Huntingdon ST, Luther-Davies B, Jamieson DN, Roberts A, Optical Properties of Nanoscale Annular Array Metamaterials, Optics and Photonics, San Diego, August 2006
Orbons SM, Freeman D, Luther-Davies B, Gibson BC, Huntington ST, Jamieson DN, Roberts A, Optical Properties of silver composite metamaterials, ETOPIM 7, Sydney, Australia, July 2006


Sebijn J, Gu M, Supercrism phenomena and spontaneous emission dynamics in 2D photonic crystals fabricated by two-photon polymerisation, Second Pacific International Conference on Applications of Lasers and Optics, Melbourne, Australia, April 2006

Smith C, Characterisation of Chalcogenide 2D Photonic Crystal Waveguides Using Silica Fibre Nanowires, ACOFT, Melbourne, Australia, July 2006


Sternzelvul P, Moore ED, Mägi EC, Eggleton BJ, Tunable long period gratings in fluid-filled photonic bandgap fiber, LEOS Summer Topical Meeting, Québec City, Canada, July 2006


Stewart L, Marshall GD, Dawes JM, Withford M, Fabricating opals to control the flow of light, Australian Institute of Physics 17th National Congress, Brisbane, Australia, December 2006

Sukhorukov AA, Johannsson M, Kivshar YS, Reduced-symmetry Solitons in Square and Triangular Photonic Lattices, SIAM Conference on Nonlinear Waves, Seattle, USA, September 2006


Sukhorukov AA, Kivshar YS, Slow-light diffraction management and optical bullets in nonlinear Bragg-grating waveguide arrays, XII Conference on Laser Optics, St Petersburg, Russia, June 2006 (Invited)

Sukhorukov AA, Kivshar YS, Spatiotemporal control of slow light in nonlinear Bragg-grating waveguide arrays, Australian Institute of Physics 17th National Congress, Brisbane, Australia, December 2006

Sukhorukov AA, Motzek K, Garanovich IL, Kivshar YS, Polychromatic discrete solitons in nonlinear photonic lattices, Dynamic Days Europe, Crete, Greece, September 2006

Sukhorukov AA, Motzek K, Garanovich IL, Kivshar YS, Shaping and controlling polychromatic beams in nonlinear photonic structures, XII Conference on Laser Optics, St Petersburg, Russia, June 2006

Ta’eed VG, Fu L, Pelusi M, Rochette M, Littler ICM, Moss DJ, Eggleton BJ, Error Free Wavelength Conversion in As-Se Singlemode Chalcogenide Fiber, ACOFT, Melbourne, Australia, July 2006


Tomljenovic-Hanic S, Steel M, de Sterke CM, Design of diamond-based photonic crystal microcavities, ETOPIPM 7, Sydney, Australia, July 2006

Tomljenovic-Hanic S, Steel M, de Sterke CM, High-Q Photonic Crystal Microcavities in Diamond, Progress in Electromagnetics Research Symposium (PIERS), Cambridge, Massachusetts, USA, 2006 (Invited)

Tomljenovic-Hanic S, Steel MJ, de Sterke CM, Moss DJ, Novel hetero-structures formed by the interaction of photonic crystal quantum dots in chalcogenide glasses, ACOFT, Melbourne, Australia, July 2006

Tsay EN, Analysis of the dispersive localized waves in optical media with non-linear gain, 12th Conference on Laser Optics, St Petersburg, Russia, June 2006 (poster)

Tsay EN, de Sterke CM, Influence of higher order dispersion on soliton dynamics, Australian Institute of Physics 17th National Congress, Brisbane, Australia, December 2006 (poster)

Tsay EN, de Sterke CM, Suppression of Raman shift in fibres near zero-dispersion point, ACOFT, Melbourne, Australia, July 2006 (poster)

Ventura MJ, Bullen C, Gu M, Modification of the effective dynamics of PhSe quantum dots embedded in three-dimensional photonic crystals, Second Pacific International Congress on Applications of Lasers and Optics, Melbourne, Australia, April 2006

Ventura MJ, Bullen C, Gu M, Radiation dynamics of PhSe quantum dots embedded in two-dimensional photonic crystals, Photonics Europe, Strasbourg, France, April 2006


Zhou G, Gu M, 3D photonic crystals fabrication in lithium niobate: towards nonlinear and three-dimensional functionality, 30th Annual Meeting of the Optical Society of America, Rochester, USA, October 2006

Zhou G, Gu M, Adaptive compensation of spherical aberration and 3D photonic crystal fabrication in a high reflective index lithium niobate crystal, 2006 International Conference on Contour Microscopy, Perth, Australia, April 2006

Zhou G, Gu M, Void generation and three-dimensional photonic crystal fabrication in a bulk polycrystalline material by use of microwave-explosion, Second Pacific International Congress on Applications of Lasers and Optics, Melbourne, Australia, April 2006

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