

### **High-Power 1.5 $\mu\text{m}$ Tapered Distributed Bragg Reflector Laser Diodes for Eye-Safe LIDAR**

Aho, A. T., Viheriälä, J., Koskinen, M., Uusitalo, T., Reuna, J. & Guina, M., 1 Oct 2020, In : IEEE Photonics Technology Letters. 32, 19, p. 1249-1252 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Tree species classification using structural features derived from terrestrial laser scanning**

Terry, L., Calders, K., Disney, M., Origo, N., Malhi, Y., Newnham, G., Raunonen, P., Åkerblom, M. & Verbeeck, H., 1 Oct 2020, In : ISPRS Journal of Photogrammetry and Remote Sensing. 168, p. 170-181 12 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Fusionsense: Emotion classification using feature fusion of multimodal data and deep learning in a brain-inspired spiking neural network**

Tan, C., Ceballos, G., Kasabov, N. & Subramaniam, N. P., 17 Sep 2020, In : Sensors (Switzerland). 20, 18, 27 p., 5328.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Optically induced crossover from weak to strong coupling regime between surface plasmon polaritons and photochromic molecules**

Asamoah, B. O., Mohamed, S., Datta, S., Karvinen, P., Rekola, H., Priimagi, A. & Hakala, T. K., 31 Aug 2020, In : Optics Express. 28, 18, p. 26509-26518 10 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **ClothFace: A Batteryless RFID-Based Textile Platform for Handwriting Recognition**

He, H., Chen, X., Mehmood, A., Raivio, L., Huttunen, H., Raunonen, P. & Virkki, J., 28 Aug 2020, In : Sensors (Basel, Switzerland). 20, 17, 12 p., 4878.

Research output: Contribution to journal › Article › Scientific › peer-review

### **High-Power 760 nm VECSEL Based on Quantum Dot Gain Mirror**

Nechay, K., Mereuta, A., Paranthoen, C., Brevalle, G., Levallois, C., Alouini, M., Chevalier, N., Perrin, M., Suruceanu, G., Caliman, A., Kapon, E. & Guina, M., 1 Aug 2020, In : IEEE journal of quantum electronics. 56, 4, 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Edge-enhanced optical parametric generation in periodically poled $\text{LiNbO}_3$**

Prytz, N. B., Qvarngård, D., Härkönen, A., Guina, M. & Gallo, K., 6 Jul 2020, In : Optics Express. 28, 14, p. 20879-20887 9 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Selective hydrogen production at Pt(111) investigated by Quantum Monte Carlo methods for metal catalysis**

Sharma, R. O., Rantala, T. T. & Hoggan, P. E., 5 Jun 2020, In : International Journal of Quantum Chemistry. 120, 11, e26198.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Low-noise octave-spanning mid-infrared supercontinuum generation in a multimode chalcogenide fiber**

Eslami, Z., Ryczkowski, P., Salmela, L. & Genty, G., 1 Jun 2020, In : Optics Letters. 45, 11, p. 3103-3106 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Zinc-indiffused MgO:PPLN waveguides for blue/UV generation via VECSEL pumping**

Gray, A. C., Woods, J. R. C., Carpenter, L. G., Kahle, H., Berry, S. A., Tropper, A. C., Guina, M., Apostolopoulos, V., Smith, P. G. R. & Gawith, C. B. E., 1 Jun 2020, In : Applied Optics. 59, 16, p. 4921-4926 6 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Lensless hyperspectral phase imaging in a self-reference setup based on Fourier transform spectroscopy and noise suppression**

Shevkunov, I., Katkovnik, V. & Egiazarian, K., Jun 2020, In : Optics Express. 28, 12, p. 17944-17956 13 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Hyperspectral phase imaging based on denoising in complex-valued eigensubspace**

Shevkunov, I., Katkovnik, V., Claus, D., Pedrini, G., Petrov, N. V. & Egiazarian, K., 1 Apr 2020, In : Optics and Lasers in Engineering. 127, 10 p., 105973.

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### **Temporal ghost imaging with random fiber lasers**

Wu, H., Han, B., Wang, Z., Genty, G., Feng, G. & Liang, H., 30 Mar 2020, In : Optics Express. 28, 7, p. 9957-9964 8 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Instabilities in a dissipative soliton-similariton laser using a scalar iterative map**

Meng, F., Lapre, C., Billet, C., Genty, G. & Dudley, J. M., 1 Mar 2020, In : Optics Letters. 45, 5, p. 1232-1235 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **High-dimensional quantum gates using full-field spatial modes of photons**

Brandt, F., Hiekkamäki, M., Bouchard, F., Huber, M. & Fickler, R., 20 Feb 2020, In : Optica. 7, 2, p. 98-107 10 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Single exposure lensless subpixel phase imaging: Optical system design, modelling, and experimental study**

Kocsis, P., Shevkunov, I., Katkovnik, V. & Egiazarian, K., 17 Feb 2020, In : Optics Express. 28, 4, p. 4625-4637 13 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Precise length definition of active GaAs-based optoelectronic devices for low-loss silicon photonics integration**

Tuorila, H., Viheriälä, J., Zia, N., Cherchi, M., Harjanne, M., Isoaho, R., Aalto, T. & Guina, M., 15 Feb 2020, In : Optics Letters. 45, 4, p. 943-946 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Comparative Analysis of Injection Microdisk Lasers Based on InGaAsN Quantum Wells and InAs/InGaAs Quantum Dots**

Moiseev, E. I., Maximov, M. V., Kryzhanovskaya, N. V., Simchuk, O. I., Kulagina, M. M., Kadinskaya, S. A., Guina, M. & Zhukov, A. E., 1 Feb 2020, In : Semiconductors. 54, 2, p. 263-267 5 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Goos-Hänchen and Imbert-Fedorov shifts for epsilon-near-zero materials**

Nieminen, A., Marini, A. & Ornigotti, M., 28 Jan 2020, In : Journal of Optics. 22, 3, 035601.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Sequential Collinear Photofragmentation and Atomic Absorption Spectroscopy for Online Laser Monitoring of Triatomic Metal Species**

Viljanen, J., Kalmankoski, K., Contreras, V., Sarin, J. K., Sorvajärvi, T., Kinnunen, H., Enestam, S. & Toivonen, J., 18 Jan 2020, In : Sensors (Basel, Switzerland). 20, 2, 14 p., 533.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Backscattering-based wireless communication and power transfer to small biomedical implants**

Ukkonen, L., Sydänheimo, L., Ma, S. & Björninen, T., 2020, *Microfluidics, BioMEMS, and Medical Microsystems XVIII*. Gray, B. L. & Becker, H. (eds.). SPIE, 112350A. (Progress in Biomedical Optics and Imaging - Proceedings of SPIE; vol. 11235).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

### **Controlling the plasmon resonance via epsilon-near-zero multilayer metamaterials**

Habib, M., Briukhanova, D., Das, N., Yildiz, B. C. & Caglayan, H., 2020, In : Nanophotonics. 9, 11, 8 p., 20200245.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Features of correlation measurements of the parameters of pulsed hyperspectral optical fields using an asymmetric interferometer**

Kulya, M. S., Katkovnik, V. Y., Egiazarian, K. & Petrov, N. V., 2020, In : Quantum Electronics. 50, 7, p. 679-682 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Full-field mode sorter using two optimized phase transformations for high-dimensional quantum cryptography**

Fickler, R., Bouchard, F., Giese, E., Grillo, V., Leuchs, G. & Karimi, E., 2020, In : *Journal of Optics (United Kingdom)*. 22, 2, 7 p., 024001.

Research output: Contribution to journal > Article > Scientific > peer-review

### **Harmonic mode-locking fiber ring laser with a pulse repetition rate up to 12 GHz**

Korobko, D. A., Stoliarov, D. A., Itrin, P. A., Odnoblyudov, M. A., Petrov, A. B. & Gumenyuk, R. V., 2020, In : *Optics and laser technology*. 133, 6 p., 106526.

Research output: Contribution to journal > Article > Scientific > peer-review

### **Multiphoton microscopy of the dermoepidermal junction and automated identification of dysplastic tissues with deep learning**

Huttunen, M. J., Hristu, R., Dumitru, A., Floroiu, I., Costache, M. & Stanciu, S. G., 2020, In : *Biomedical Optics Express*. 11, 1, p. 186-199 14 p.

Research output: Contribution to journal > Article > Scientific > peer-review

### **Neuromorphic Photonics with Coherent Linear Neurons Using Dual-IQ Modulation Cells**

Mourgias-Alexandris, G., Totovic, A., Tsakyridis, A., Passalis, N., Vyrsokinos, K., Tefas, A. & Pleros, N., 2020, In : *Journal of Lightwave Technology*. 38, 4, p. 811-819 9 p.

Research output: Contribution to journal > Article > Scientific > peer-review

### **Spectral invariance and scaling law for nonstationary optical fields**

Ding, C., Koivurova, M., Setälä, T., Turunen, J. & Friberg, A. T., 2020, In : *Physical Review A*. 101, 3, 7 p., 033808.

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### **Stabilization of passive harmonic mode locking in a fiber ring laser**

Gumenyuk, R. V., Korobko, D. A. & Zolotovskii, I. O., 23 Dec 2019, In : *Optics Letters*. 45, 1, p. 184-187 4 p.

Research output: Contribution to journal > Article > Scientific > peer-review

### **Environmental monitoring with distributed mesh networks: An overview and practical implementation perspective for urban scenario**

Ometov, A., Bezzateev, S., Voloshina, N., Masek, P. & Komarov, M., 2 Dec 2019, In : *Sensors (Switzerland)*. 19, 24, 19 p., 5548.

Research output: Contribution to journal > Article > Scientific > peer-review

### **Eco-friendly flexible wireless platforms by 3D printing pen**

Mehmood, A., Chen, X., He, H., Ukkonen, L. & Virkki, J., 1 Dec 2019, *2019 Photonics and Electromagnetics Research Symposium - Fall, PIERS - Fall 2019 - Proceedings*. IEEE, p. 2422-2425 4 p. 9021887. (2019 Photonics and Electromagnetics Research Symposium - Fall, PIERS - Fall 2019 - Proceedings).

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

### **Embroidered and e-textile conductors embedded inside 3D-printed structures**

Khan, Z., He, H., Chen, X., Ukkonen, L. & Virkki, J., 1 Dec 2019, *2019 Photonics and Electromagnetics Research Symposium - Fall, PIERS - Fall 2019 - Proceedings*. IEEE, p. 1675-1680 6 p. 9021681

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

### **Maintenance-free moisture sensor on dishcloth substrate**

Chen, X., He, H., Yang, Y., Gou, M., Sydanheimo, L., Ukkonen, L. & Virkki, J., 1 Dec 2019, *2019 Photonics and Electromagnetics Research Symposium - Fall, PIERS - Fall 2019 - Proceedings*. IEEE, p. 2418-2421 4 p. 9021487

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

### **Passive UHF RFID-based user interface on a wooden surface**

Mehmood, A., Vianto, V., He, H., Chen, X., Buruk, O. O., Ukkonen, L. & Virkki, J., 1 Dec 2019, *2019 Photonics and Electromagnetics Research Symposium - Fall, PIERS - Fall 2019 - Proceedings*. IEEE, p. 1760-1763 4 p. 9021441

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

### **Resolution and contrast in terahertz pulse time-domain holographic reconstruction**

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Research output: Contribution to journal › Article › Scientific › peer-review

### **Terahertz pulse time-domain holography with balance detection: Complex-domain sparse imaging**

Kulya, M., Petrov, N. V., Katkovnik, V. & Egiazarian, K., 1 Dec 2019, In : Applied Optics. 58, 34, p. G61-G70  
Research output: Contribution to journal › Article › Scientific › peer-review

### **Spectral object recognition in hyperspectral holography with complex-domain denoising**

Shevkunov, I., Katkovnik, V., Claus, D., Pedrini, G., Petrov, N. V. & Egiazarian, K., 26 Nov 2019, In : Sensors (Switzerland). 19, 23, 10 p., 5188.

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### **Path-integral description of quantum nonlinear optics in arbitrary media**

Difallah, M., Szameit, A. & Ornigotti, M., 20 Nov 2019, In : Physical Review A. 100, 5, 053845.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Statistical evaluation of barkhausen noise testing (BNT) for ground samples**

Tomkowski, R., Sorsa, A., Santa-Aho, S., Lundin, P. & Vippola, M., 1 Nov 2019, In : Sensors (Switzerland). 19, 21, 4716.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Near-perfect measuring of full-field transverse-spatial modes of light**

Hiekkamäki, M., Prabhakar, S. & Fickler, R., 28 Oct 2019, In : Optics Express. 27, 22, p. 31456-31464 9 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### **High Power 1.5 $\mu$ m Pulsed Laser Diode with Asymmetric Waveguide and Active Layer Near p-cladding**

Hallman, L. W., Ryykin, B. S., Avrutin, E. A., Aho, A. T., Viheriälä, J., Guina, M. & Kostamovaara, J. T., 15 Oct 2019, In : IEEE Photonics Technology Letters. 31, 20, p. 1635-1638

Research output: Contribution to journal › Article › Scientific › peer-review

### **Double-asymmetric-structure 1.5 $\mu$ m high power laser diodes**

Hallman, L., Ryykin, B. S., Avrutin, E. A., Aho, A. T., Viheriälä, J., Guina, M. & Kostamovaara, J. T., 1 Oct 2019, *Proceedings of the 2019 IEEE High Power Diode Lasers and Systems Conference, HPD 2019 - Co-located with Photonex 2019*. IEEE, p. 19-20 2 p.

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### **Realization of Free-Space Long-Distance Self-Healing Bessel Beams**

Vetter, C., Steinkopf, R., Bergner, K., Ornigotti, M., Nolte, S., Gross, H. & Szameit, A., 1 Oct 2019, In : Laser and Photonics Reviews. 13, 10, 1900103.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Observation of PT-symmetric quantum interference**

Klauck, F., Teuber, L., Ornigotti, M., Heinrich, M., Scheel, S. & Szameit, A., 16 Sep 2019, In : Nature Photonics.

Research output: Contribution to journal › Article › Scientific › peer-review

### **Short-range supercontinuum-based lidar for temperature profiling**

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Research output: Contribution to journal › Article › Scientific › peer-review

### **High power GaInNAs superluminescent diodes emitting over 400 mW in the 1.2 $\mu$ m wavelength range**

Aho, A., Viheriälä, J., Virtanen, H., Zia, N., Isoaho, R. & Guina, M., 22 Aug 2019, In : Applied Physics Letters. 115, 8, 4 p., 081104 .

Research output: Contribution to journal › Article › Scientific › peer-review

#### **AlGaAs/AlGaInP VECSELs with Direct Emission at 740-770 nm**

Nechay, K., Kahle, H., Penttinen, J-P., Rajala, P., Tukiainen, A., Ranta, S. & Guina, M., 1 Aug 2019, In : IEEE Photonics Technology Letters. 31, 15, p. 1245-1248 4 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Bayesian inversion of a forest reflectance model using Sentinel-2 and Landsat 8 satellite images**

Schraik, D., Varvia, P., Korhonen, L. & Rautiainen, M., 1 Aug 2019, In : JOURNAL OF QUANTITATIVE SPECTROSCOPY AND RADIATIVE TRANSFER. 233, p. 1-12 12 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Influence of pump coherence on the generation of position-momentum entanglement in optical parametric down-conversion**

Zhang, W., Fickler, R., Giese, E., Chen, L. & Boyd, R. W., 22 Jul 2019, In : Optics Express. 27, 15, p. 20745-20753 9 p.

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#### **Temporal ghost imaging using wavelength conversion and two-color detection**

Wu, H., Ryczkowski, P., Friberg, A. T., Dudley, J. M. & Genty, G., 20 Jul 2019, In : Optica. 6, 7, p. 902-906 5 p.

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#### **Methods for simultaneous robot-world-hand-eye calibration: A comparative study**

Ali, I., Suominen, O., Gotchev, A. & Morales, E. R., 2 Jun 2019, In : Sensors (Switzerland). 19, 12, 2837.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Bioimpedance Sensor Array for Long-Term Monitoring of Wound Healing from Beneath the Primary Dressings and Controlled Formation of H<sub>2</sub>O<sub>2</sub> Using Low-Intensity Direct Current**

Kekonen, A., Bergelin, M., Johansson, M., Kumar Joon, N., Bobacka, J. & Viik, J., 31 May 2019, In : Sensors. 19, 11

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#### **Double-side pumped membrane external-cavity surface-emitting laser (MECSEL) with increased efficiency emitting > 3 W in the 780 nm region**

Kahle, H., Phung, H-M., Penttinen, J-P., Rajala, P., Tukiainen, A., Ranta, S. & Guina, M., 1 May 2019, *2019 Conference on Lasers and Electro-Optics, CLEO 2019 - Proceedings*. IEEE

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#### **Frequency Comb Generation in a Continuous-Wave Pumped Second-Order Nonlinear Waveguide Resonator**

Abdallah, Z., Stefszky, M., Ulvila, V., Silberhorn, C. & Vainio, M., 1 May 2019, *2019 Conference on Lasers and Electro-Optics, CLEO 2019 - Proceedings*. IEEE

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#### **GaInAsSb/AlGa(In)AsSb type I quantum wells emitting in 3µm range for application in superluminescent diodes**

Kurka, M., Dyksik, M., Suomalainen, S., Koivusalo, E., Guina, M. & Motyka, M., 1 May 2019, In : Optical Materials. 91, p. 274-278 5 p.

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#### **High-Q resonance train in a plasmonic metasurface**

Saad-Bin-Alam, M., Reshef, O., Huttunen, M. J., Carlow, G., Sullivan, B., Menard, J. M., Dolgaleva, K. & Boyd, R. W., 1 May 2019, *2019 Conference on Lasers and Electro-Optics, CLEO 2019 - Proceedings*. IEEE

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#### **Optical Frequency Comb Photoacoustic Spectroscopy**

Sadiek, I., Mikkonen, T., Vainio, M., Toivonen, J. & Foltynowicz, A., 1 May 2019, *2019 Conference on Lasers and Electro-Optics, CLEO 2019 - Proceedings*. IEEE

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#### **Alpha radiation-induced luminescence by am-241 in aqueous nitric acid solution**

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#### **Positioning information privacy in intelligent transportation systems: An overview and future perspective**

Ometov, A., Bezzateev, S., Davydov, V., Shchesniak, A., Masek, P., Lohan, E. S. & Koucheryavy, Y., 1 Apr 2019, In : *Sensors*. 19, 7, 1603.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Noise measurements from reconstructed digital breast tomosynthesis**

Vimieiro, R. B., Borges, L. R., Caron, R. F., Barufaldi, B., Bakic, P. R., Maidment, A. D. A. & Vieira, M. A. C., 1 Mar 2019, *Medical Imaging 2019: Physics of Medical Imaging*. Schmidt, T. G., Chen, G-H. & Bosmans, H. (eds.). SPIE, IEEE, 109480C. (Progress in Biomedical Optics and Imaging - Proceedings of SPIE; vol. 10948).

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#### **Layered approach for improving the quality of free-viewpoint depth-image-based rendering images**

Smirnov, S., Battisti, F. & Gotchev, A., 27 Feb 2019, In : *Journal of Electronic Imaging*. 28, 1, 013049.

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#### **Experimental realization of wave-packet dynamics in cyclic quantum walks**

Nejadsattari, F., Zhang, Y., Bouchard, F., Larocque, H., Sit, A., Cohen, E., Fickler, R. & Karimi, E., 20 Feb 2019, In : *Optica*. 6, 2, p. 174-180 7 p.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Supercontinuum generation: Introduction**

Dubietis, A., Couairon, A. & Genty, G., 1 Feb 2019, In : *Journal of the Optical Society of America B: Optical Physics*. 36, 2, p. SG1-SG3

Research output: Contribution to journal › Editorial › Scientific

#### **Additional lossless compression of JPEG images based on BPG**

Ponomarenko, M., Miroshnichenko, O., Lukin, V. & Egiazarian, K., 13 Jan 2019, *Image Processing: Algorithms and Systems XVII*. (IS and T International Symposium on Electronic Imaging Science and Technology).

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#### **Combined no-reference IQA metric and its performance analysis**

Ieremeiev, O., Lukin, V., Ponomarenko, N. & Egiazarian, K., 13 Jan 2019, *Image Processing: Algorithms and Systems XVII*. (IS and T International Symposium on Electronic Imaging Science and Technology).

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### **Phosphate glasses with blue persistent luminescence prepared using the direct doping method**

Ojha, N., Tuomisto, M., Lastusaari, M. & Petit, L., Jan 2019, In : *Optical Materials*. 87, p. 151-156

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#### **Comparison of single-side and double-side pumping of membrane external-cavity surface-emitting lasers**

Kahle, H., Penttinen, J. P., Phung, H. M., Rajala, P., Tukiainen, A., Ranta, S. & Guina, M., 2019, In : *Optics Letters*. 44, 5, p. 1146-1149 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Efficient nonlinear metasurfaces by using multiresonant high-Q plasmonic arrays**

Huttunen, M. J., Reshef, O., Stolt, T., Dolgaleva, K., Boyd, R. W. & Kauranen, M., 2019, In : Journal of the Optical Society of America B: Optical Physics. 36, 7, p. E30-E35

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Flip-chip Wafer-fused OP-VECSELs emitting 3.65 W at the 1.55- $\mu\text{m}$ waveband**

Mereuta, A., Nechay, K., Caliman, A., Suruceanu, G., Rudra, A., Gallo, P., Guina, M. & Kapon, E., 2019, In : IEEE Journal of Selected Topics in Quantum Electronics. 25, 6

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Hyperspectral data denoising for terahertz pulse time-domain holography**

Kulya, M., Petrov, N. V., Tsyppkin, A., Egiazarian, K. & Katkovnik, V., 2019, In : Optics Express. 27, 13, p. 18456-18476 21 p.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Interferometric autocorrelation measurements of supercontinuum based on two-photon absorption**

Toenger, S., Mäkitalo, R., Ahvenjärvi, J., Ryczkowski, P., Närhi, M., Dudley, J. M. & Genty, G., 2019, In : Journal of the Optical Society of America B: Optical Physics. 36, 5, p. 1320-1326 7 p.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Large-scale efficient water harvesting using bioinspired micro-patterned copper oxide nanoneedle surfaces and guided droplet transport**

Sharma, V., Yiannacou, K., Karjalainen, M., Lahtonen, K., Valden, M. & Sariola, V., 2019, In : Nanoscale Advances. 1, 10, p. 4025-4040 16 p.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Measuring stem diameters with TLS in boreal forests by complementary fitting procedure**

Pitkänen, T. P., Raunonen, P. & Kangas, A., 2019, In : ISPRS Journal of Photogrammetry and Remote Sensing. 147, p. 294-306 13 p.

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#### **Optical wireless cochlear implants**

Trevlakis, S. E., Boulogeorgos, A. A. A., Sofotasios, P. C., Muhaidat, S. & Karagiannidis, G. K., 2019, In : Biomedical Optics Express. 10, 2, p. 707-730 24 p.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Random lasing control with optical spatial solitons in nematic liquid crystals**

Piccardi, A., Perumbilavil, S., Kauranen, M., Strangi, G. & Assanto, G., 2019, *PHOTOPTICS 2019 - Proceedings of the 7th International Conference on Photonics, Optics and Laser Technology*. Ribeiro, P., Raposo, M. & Andrews, D. (eds.). SCITEPRESS, p. 289-293 5 p.

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#### **Tuning plasmon induced reflectance with hybrid metasurfaces**

Habib, M., Ozbay, E. & Caglayan, H., 2019, In : Photonics. 6, 1, 29.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Intense radioluminescence of NO/N<sub>2</sub>-mixture in solar blind spectral region**

Kerst, T. & Toivonen, J., 24 Dec 2018, In : Optics Express. 26, 26, p. 33764-33771 8 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Towards optical-frequency-comb generation in continuous-wave-pumped titanium-indiffused lithium-niobate waveguide resonators**

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**Cascaded crystalline raman lasers for extended wavelength coverage: Continuous-wave, third-stokes operation**

Casula, R., Penttinen, J-P., Guina, M., Kemp, A. J. & Hastie, J. E., 20 Nov 2018, In : *Optica*. 5, 11, p. 1406-1413 8 p.  
Research output: Contribution to journal > Article > Scientific > peer-review

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Rinne, J., Keskinen, J., Berger, P. R., Lupo, D. & Valkama, M., 16 Nov 2018, In : *Sensors (Basel, Switzerland)*. 18, 11  
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**Tunable Reflection Type Plasmon Induced Transparency with Graphene**

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**Super-resolution microscopy for biological specimens: Lensless phase retrieval in noisy conditions**

Shevkunov, I., Katkovnik, V., Petrov, N. V. & Egiazarian, K., 1 Nov 2018, In : *Biomedical Optics Express*. 9, 11, p. 5511-5523 13 p., #340805.  
Research output: Contribution to journal > Article > Scientific > peer-review

**Metal/Polymer Back Reflectors with Diffraction Gratings for Light Trapping in III-V Solar Cells**

Aho, T., Guina, M., Elsehrawy, F., Cappelluti, F., Raappana, M., Tukiainen, A., Khairul Alam, A. B. M., Vartiainen, I., Kuittinen, M. & Niemi, T., Nov 2018, *2018 IEEE 7th World Conference on Photovoltaic Energy Conversion (WCPEC): A Joint Conference of 45th IEEE PVSC, 28th PVSEC & 34th EU PVSEC*. IEEE, p. 2847-2851 5 p. (CONFERENCE RECORD OF THE IEEE PHOTOVOLTAIC SPECIALISTS CONFERENCE).  
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**Demonstration of optical nonlinearity in InGaAsP/InP passive waveguides**

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**Fluorescence bandwidth of 280nm from broadband Ce<sup>3+</sup>-doped silica fiber pumped with blue laser diode**

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**Accelerated optical solitons in reorientational media with transverse invariance and longitudinally modulated birefringence**  
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**Temporal dynamics of light-written waveguides in unbiased liquid crystals**

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**1.34  $\mu\text{m}$  VECSEL mode-locked with a GaSb-based SESAM**

Härkönen, A., Suomalainen, S., Rantamäki, A., Nikkinen, J., Wang, Y., Griebner, U., Steinmeyer, G. & Guina, M., 15 Jul 2018, In : *Optics Letters*. 43, 14, p. 3353-3356 4 p.

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**Evaluation of screen printed silver trace performance and long-term reliability against environmental stress on a low surface energy substrate**

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**Morphology evolution of PS-b-PDMS block copolymer and its hierarchical directed self-assembly on block copolymer templates**

Rasappa, S., Schulte, L., Borah, D., Hulkkonen, H., Ndoni, S., Salminen, T., Senthamarayanan, R., Morris, M. A. & Niemi, T., 15 May 2018, In : *Microelectronic Engineering*. 192, p. 1-7 7 p.

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**Thermo-optic soliton routing in nematic liquid crystals**

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**Sub-10 optical-cycle passively mode-locked Tm:(Lu<sub>2</sub>/3Sc<sub>1</sub>/3)2O<sub>3</sub> ceramic laser at 2  $\mu\text{m}$**

Wang, Y., Jing, W., Loiko, P., Zhao, Y., Huang, H., Mateos, X., Suomalainen, S., Härkönen, A., Guina, M., Griebner, U. & Petrov, V., 16 Apr 2018, In : *Optics Express*. 26, 8, p. 10299-10304 6 p.

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#### **Comparison of metal/polymer back reflectors with half-sphere, blazed, and pyramid gratings for light trapping in III-V solar cells**

Aho, T., Guina, M., Elsehrawy, F., Cappelluti, F., Raappana, M., Tukiainen, A., Khairul Alam, A. B. M., Vartiainen, I., Kuittinen, M. & Niemi, T., 19 Mar 2018, In : *Optics Express*. 26, 6, p. A331-A340  
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#### **Narrow-linewidth 780 nm DFB lasers fabricated using nanoimprint lithography**

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#### **Investigating solvent effects on aggregation behaviour, linear and nonlinear optical properties of silver nanoclusters**

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#### **Diode-pumped Tm: KY(WO<sub>4</sub>)<sub>2</sub> laser passively modelocked with a GaSb-SESAM**

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#### **High power VECSEL prototype emitting at 625 nm**

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### **Tunable narrow-linewidth VECSELS for atomic and molecular physics**

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Research output: [Other conference contribution](#) › [Paper, poster or abstract](#) › [Scientific](#)

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### **Computational super-resolution phase retrieval from multiple phase-coded diffraction patterns: Simulation study and experiments**

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### **Chiral near-field manipulation in Au-GaAs hybrid hexagonal nanowires**

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### **Dynamic speckle analysis with smoothed intensity-based activity maps**

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### **Broadband Anti-reflective Coatings for Multi-junction Solar Cells**

Reuna, J., Polojärvi, V. (ed.), Aho, T. (ed.), Aho, A. (ed.), Isoaho, R. (ed.), Tukiainen, A. (ed.) & Guina, M. (ed.), 29 May 2017, p. 1. 1 p.

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### **Reply to "comment on 'Spatial optical solitons in highly nonlocal media'"**

Alberucci, A., Jisha, C. P., Smyth, N. F. & Assanto, G., 25 May 2017, In : *Physical Review A*. 95, 5, 057802.

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### **Anisotropic tapered polarization-maintaining large mode area optical fibers**

Ustimchik, V. E., Rissanen, J., Popov, S. M., Chamorovskii, Y. K. & Nikitov, S. A., 1 May 2017, In : *Optics Express*. 25, 9, p. 10693-10703 11 p.

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Turquet, L., Kakko, J. P., Jiang, H., Isotalo, T. J., Huhtio, T., Niemi, T., Kauppinen, E., Lipsanen, H., Kauranen, M. & Bautista, G., 1 May 2017, In : *Optics Express*. 25, 9, p. 10441-10448 8 p.

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### **Universal scaling relations for the energies of many-electron Hooke atoms**

Odrizola, A., Solanpää, J., Kylänpää, I., González, A. & Räsänen, E., 19 Apr 2017, In : *Physical Review A*. 95, 4, 042511.

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### Halogen bonding stabilizes a cis-azobenzene derivative in the solid state: A crystallographic study

Saccone, M., Siiskonen, A., Fernandez-Palacio, F., Priimägi, A., Terraneo, G., Resnati, G. & Metrangolo, P., 1 Apr 2017, In : ACTA CRYSTALLOGRAPHICA SECTION B : STRUCTURAL SCIENCE, CRYSTAL ENGINEERING AND MATERIALS. 73, 2, p. 227-233 7 p.

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### Simulation studies of DFB laser longitudinal structures for narrow linewidth emission

Virtanen, H., Uusitalo, T. & Dumitrescu, M., 23 Mar 2017, In : Optical and Quantum Electronics. 49, 4, 13 p., 160.

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### Diode-pumped mode-locked Tm: LuAG laser at 2 μm based on GaSb-SESAM

Luan, C., Yang, K., Zhao, J., Zhao, S., Li, T., Zhang, H., He, J., Song, L., Dekorsy, T., Guina, M. & Zheng, L., 15 Feb 2017, In : Optics Letters. 42, 4, p. 839-842 4 p.

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### Spin-orbit interactions in optically active materials

Jisha, C. P. & Alberucci, A., 1 Feb 2017, In : Optics Letters. 42, 3, p. 419-422 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### Very high dose electron irradiation effects on photoluminescence from GaInNAs/GaAs quantum wells grown by molecular beam epitaxy

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Research output: Contribution to journal › Article › Scientific › peer-review

### Polarization resolved photoluminescence in GaAs<sub>1-x</sub>Bi<sub>x</sub>/GaAs quantum wells

Balanta, M. A. G., Orsi Gordo, V., Carvalho, A. R. H., Puustinen, J., Alghamdi, H. M., Henini, M., Galeti, H. V. A., Guina, M. & Galvão Gobato, Y., Feb 2017, In : Journal of Luminescence. 182, p. 49-52 4 p.

Research output: Contribution to journal › Article › Scientific › peer-review

### Architectures and codecs for real-time light field streaming

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Research output: Contribution to journal › Article › Scientific › peer-review

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Research output: Contribution to journal › Article › Scientific › peer-review

### BM3D-HVS: Content-Adaptive denoising for improved visual quality

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

### Design of a 25 MWe Solar Thermal Power Plant in Iran with Using Parabolic Trough Collectors and a Two-Tank Molten Salt Storage System

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Research output: Contribution to journal › Article › Scientific › peer-review

### Evaluation of long-term post process inactivation of bioleaching microorganisms

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

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#### **Thermal Modification of ALD Grown Titanium Oxide Ultra Thin Film for Photoanode Applications**

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#### **Fabrication of Ion-Shaped Anisotropic Nanoparticles and their Orientational Imaging by Second-Harmonic Generation Microscopy**

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**Effects of insertion of strain-engineering Ga(In)NAs layers on optical properties of InAs/GaAs quantum dots for high-efficiency solar cells**

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**Effects of thinning and heating for TiO<sub>2</sub>/AlInP junctions**

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**Influence of relative humidity and physical load during storage on dustiness of inorganic nanomaterials: implications for testing and risk assessment**

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**Workplace performance of a loose-fitting powered air purifying respirator during nanoparticle synthesis**

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**Broadband infrared continuum generation in dispersion shifted tapered fiber**

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**Dilute nitride SOAs for high-speed data processing in variable temperature conditions**

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#### **Mode-locked Tm,Ho:KLu(WO<sub>4</sub>)<sub>2</sub> laser at 2060 nm using InGaSb-based SESAMs**

Aleksandrov, V., Gluth, A., Petrov, V., Buchvarov, I., Steinmeyer, G., Paajaste, J., Suomalainen, S., Härkönen, A., Guina, M., Mateos, X., Díaz, F. & Griebner, U., 23 Feb 2015, In : *Optics Express*. 23, 4, p. 4614-4619 6 p.

Research output: Contribution to journal > Article > Scientific > peer-review

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#### **Microfluidic tunable inkjet-printed metamaterial absorber on paper**

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#### **Compact intracavity singly-resonant optical parametric oscillator pumped by GaSb-based vertical external cavity surface-emitting laser: Concept and the main operational characteristics**

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Research output: Contribution to journal > Article > Scientific > peer-review

#### **Generation of a broad IR spectrum and N-soliton compression in a longitudinally inhomogeneous dispersion-shifted fibre**

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Research output: Contribution to journal > Article > Scientific > peer-review

#### **Generation of bound states of pulses in a soliton laser with complex relaxation of a saturable absorber**

Zolotovskii, I. O., Korobko, D. A., Gumenyuk, R. V. & Okhotnikov, O. G., 2015, In : *Quantum Electronics*. 45, 1, p. 26-34 9 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **High-gain 1.3 $\mu$ m GaInNAs semiconductor optical amplifier with enhanced temperature stability for all-optical signal processing at 10 Gb/s**

Fitsios, D., Giannoulis, G., Korpijärvi, V. M., Viheriälä, J., Laakso, A., Iliadis, N., Dris, S., Spyropoulou, M., Avramopoulos, H., Kanellos, G. T., Pleros, N. & Guina, M., 2015, In : *Applied Optics*. 54, 1, p. 46-52 7 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Interstitial photodynamic therapy and glioblastoma: Light fractionation study on a preclinical model: Preliminary results**

Leroy, H. A., Vermandel, M., Tétard, M. C., Lejeune, J. P., Mordon, S. & Reyns, N., 2015, *Optical Techniques in Neurosurgery, Neurophotonics, and Optogenetics II*. SPIE, Vol. 9305. 93050D

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Light-Induced Waveguides in Nematic Liquid Crystals**

Assanto, G. & Smyth, N. F., 2015, In : *IEEE Journal of Selected Topics in Quantum Electronics*. 22, 2, 7128341.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Observation of stable-vector vortex solitons**

Izdebskaya, Y., Assanto, G. & Krolikowski, W., 2015, In : Optics Letters. 40, 17, p. 4182-4185 4 p.

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Research output: Contribution to journal › Article › Scientific › peer-review

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Research output: Contribution to journal › Article › Scientific › peer-review

#### **Theoretical treatment of the interaction between two-level atoms and periodic waveguides**

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Dutta, R., Friberg, A. T., Genty, G. & Turunen, J., 2015, In : Journal of the Optical Society of America A: Optics Image Science and Vision. 32, 9, p. 1631-1637 7 p.

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#### **$\pi$ -Expanded $\alpha,\beta$ -unsaturated ketones: Synthesis, optical properties, and two-photon-induced polymerization**

Nazir, R., Bourquard, F., Balčiūnas, E., Smoleń, S., Gray, D., Tkachenko, N. V., Farsari, M. & Gryko, D. T., 2015, In : ChemPhysChem. 16, 3, p. 682-690 9 p.

Research output: Contribution to journal › Article › Scientific › peer-review

#### **Mode-locked 1.33 $\mu\text{m}$ semiconductor disk laser with a bismuth-doped fiber amplifier**

Rantamäki, A., Heikkinen, J., Gumenyuk, R., Lyytikäinen, J., Saarinen, E. J., Leinonen, T., Melkumov, M., Dianov, E. M. & Okhotnikov, O. G., 16 Dec 2014, *ISLC 2014, IEEE 24th International Semiconductor Laser Conference, 7-10 September, 2014, Mallorca, Spain*. The Institute of Electrical and Electronics Engineers, Inc., p. 123-124 2 p. 6987481. (IEEE International Semiconductor Laser Conference).

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

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Tiihonen, J., 3 Sep 2014, Tampere University of Technology. 50 p.

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Research output: Contribution to journal › Review Article › Scientific › peer-review

#### **Bistable optical propagation in nematic liquid crystals**

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#### **Enhanced nonlinearity by H-bonded polymer-dye complex in liquid crystal for holographic gratings**

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**Influence of the P2O5/Al2O3 co-doping on the local environment of erbium ions and on the 1.5  $\mu\text{m}$  quantum efficiency of Er<sup>3+</sup>-borosilicate glasses**

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Research output: Contribution to journal › Article › Scientific › peer-review

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**An Optical Sensor for Volatile Amines Based on an Inkjet-Printed, Hydrogen-Bonded, Cholesteric Liquid Crystalline Film**

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**Polymer stabilization enhances the orientational optical nonlinearity of oligothiophene-doped nematic liquid crystals**

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**Deflection of nematicons through interaction with dielectric particles**

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**Spoof-plasmon relevant one-way collimation and multiplexing at beaming from a slit in metallic grating**

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Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Study of the field emitted by a source placed inside a two-dimensional left-handed metamaterial**

Bulu, I., Caglayan, H., Aydin, K. & Ozbay, E., 1 Apr 2007, In : *Optics Letters*. 32, 7, p. 850-852 3 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Designing materials with desired electromagnetic properties**

Bulu, I., Caglayan, H. & Ozbay, E., Dec 2006, In : *Microwave and Optical Technology Letters*. 48, 12, p. 2611-2615 5 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Plasmonic structures with extraordinary transmission and highly directional beaming properties**

Caglayan, H., Bulu, I. & Ozbay, E., Dec 2006, In : *Microwave and Optical Technology Letters*. 48, 12, p. 2491-2496 6 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **Experimental demonstration of subwavelength focusing of electromagnetic waves by labyrinth-based two-dimensional metamaterials**

Bulu, I., Caglayan, H. & Ozbay, E., 2006, In : *Optics Letters*. 31, 6, p. 814-816 3 p.

Research output: Contribution to journal > Article > Scientific > peer-review

#### **High power fiber lasers**

Nilsson, J., Sahu, J. K., Jeong, Y., Filippov, V. N., Soh, D. B. S., Codemard, C. A., Dupriez, P., Kim, J., Richardson, D. J., Malinowski, A., Piper, A. N., Price, J. H. V., Furusawa, K., Clarkson, W. A. & Payne, D. N., 2006, *Optics InfoBase Conference Papers*. Optical Society of America

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### **Experimental demonstration of labyrinth-based left-handed metamaterials**

Bulu, I., Caglayan, H. & Ozbay, E., 12 Dec 2005, In : *Optics Express*. 13, 25, p. 10238-10247 10 p.

Research output: Contribution to journal > Article > Scientific > peer-review

**Beaming of light and enhanced transmission via surface modes of photonic crystals**

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Research output: Contribution to journal › Article › Scientific › peer-review

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Research output: Contribution to journal › Article › Scientific › peer-review

**Highly directive radiation and negative refraction using photonic crystals**

Ozbay, E., Bulu, I., Aydin, K., Caglayan, H., Alici, K. B. & Guven, K., Feb 2005, In : Laser Physics. 15, 2, p. 217-224 8 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Walking anisotropic spatial solitons and their steering in nematic liquid crystals**

Peccianti, M., Alberucci, A., Assanto, G., De Luca, A., Coschignano, G. & Umetsu, C., 1 Jan 2005, *Nonlinear Guided Waves and Their Applications, NLGW 2005*. Optical Society of America OSA

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

**Extraordinary grating-coupled microwave transmission through a subwavelength annular aperture**

Caglayan, H., Bulu, I. & Ozbay, E., 2005, In : Optics Express. 13, 5, p. 1666-1671 6 p.

Research output: Contribution to journal › Article › Scientific › peer-review

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Research output: Contribution to journal › Article › Scientific › peer-review

**<sup>129</sup>Xe adsorbed in AlPO<sub>4</sub>-11 molecular sieve: Molecular dynamics simulation of adsorbate dynamics and NMR chemical shift**

Kantola, J. H., Vaara, J., Rantala, T. T. & Jokisaari, J., 22 Oct 1997, In : Journal of Chemical Physics. 107, 16, p. 6470-6478 9 p.

Research output: Contribution to journal › Article › Scientific › peer-review

**Inequivalence of single CH<sub>a</sub> and CH<sub>b</sub> methylene bonds in the interior of a diunsaturated lipid bilayer from a molecular dynamics simulation**

Hyvönen, M., Ala-Korpela, M., Vaara, J., Rantala, T. T. & Jokisaari, J., 4 Apr 1997, In : Chemical Physics Letters. 268, 1-2, p. 55-60 6 p.

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**Diffusion processes and growth on aluminum cluster surfaces**

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### **Effects of repulsion and dispersion forces in liquid crystals: Alignment and deformation of H<sub>2</sub> solute**

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### **Structure of the Si<sub>45</sub> cluster**

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### **Potential energy curves for diatomic molecules calculated with numerical basis functions**

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### **Direct measurement of the kinetic energy shift between the molecular and atomic M<sub>4.5</sub>N<sub>4.5</sub>N<sub>4.5</sub> Auger spectra of iodine**

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