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Wave-guided optical waveguides

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Optics Express, Vol. 20 Issue 3, pp.2004-2014 (2012)
Palima, D; Bañas, A R; Vizsnyiczai, G; Kelemen, L; Ormos, P; Glückstad, J

This work primarily aims to fabricate and use two photon polymerization (2PP) microstructures capable of being optically manipulated into any arbitrary orientation. We have integrated optical waveguides into the structures and therefore have freestanding waveguides, which can be positioned anywhere...

Transformation thermodynamics: cloaking and concentrating heat flux

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Optics Express, Vol. 20 Issue 7, pp.8207-8218 (2012)
Guenneau, Sebastien; Amra, Claude; Veynante, Denis

We adapt tools of transformation optics, governed by a (elliptic) wave equation, to thermodynamics, governed by the (parabolic) heat equation. We apply this new concept to an invisibility cloak in order to thermally protect a region (a dead core) and to a concentrator to focus heat flux in a small...

Dual-frequency pattern scheme for high-speed 3-D shape measurement


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Optics Express, Vol. 18 Issue 5, pp.5229-5244 (2010)
Liu, Kai; Wang, Yongchang; Lau, Daniel L; Hao, Qi; Hassebrook, Laurence G

A novel dual-frequency pattern is developed which combines a high-frequency sinusoid component with a unit-frequency sinusoid component, where the high-frequency component is used to generate robust phase information, and the unit-frequency component is used to reduce phase unwrapping...

Experimental multiplexing of encrypted movies using a JTC architecture

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Optics Express, Vol. 20 Issue 4, pp.3388-3393 (2012)
Barrera, John Fredy; Tebaldi, Myrian; Ríos, Carlos; Rueda, Edgar; Bolognini, Néstor; Torroba, Roberto

We present the first experimental technique to encrypt a movie under a joint transform correlator architecture. We also extend the method to multiplex several movies in a single package. We use a Mach-Zehnder interferometer to encrypt experimentally each movie. One arm of the interferometer is the...

The development and application of femtosecond laser systems

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Optics Express, Vol. 20 Issue 7, pp.6989-7001 (2012)
Sibbett, W; Lagatsky, A A; Brown, C T A

Some background as well as recent progress in the development of femtosecond lasers are discussed together with a brief outline of a few representative emergent applications in biology and medicine that are underpinned by access to such sources. We also provide a short summary of other...

Femtosecond diode-pumped solid-state laser with a repetition rate of 4.8 GHz

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Optics Express, Vol. 20 Issue 4, pp.4248-4253 (2012)
Pekarek, Selina; Klenner, Alexander; Südmeyer, Thomas; Fiebig, Christian; Paschke, Katrin; Erbert, Götz; Keller, Ursula

We report on a diode-pumped Yb:KGW (ytterbium-doped potassium gadolinium tungstate) laser with a repetition rate of 4.8 GHz and a pulse duration of 396 fs. Stable fundamental

modelocking is achieved with a semiconductor saturable absorber mirror (SESAM). The average output power of this compact...

Optical smart packaging to reduce transmitted information

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Optics Express, Vol. 20 Issue 1, pp.158-163 (2012)
Cabezas, Luisa; Tebaldi, Myrian; Barrera, John Fredy; Bolognini, Néstor; Torroba, Roberto

We demonstrate a smart image-packaging optical technique that uses what we believe is a new concept to save byte space when transmitting data. The technique supports a large set of images mapped into modulated speckle patterns. Then, they are multiplexed into a single package. This operation...

Optical coherence tomography for whole eye segment imaging

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Optics Express, Vol. 20 Issue 6, pp.6109-6115 (2012)
Dai, Cuixia; Zhou, Chuanqing; Fan, Shanhuai; Chen, Zhe; Chai, Xinyu; Ren, Qiushi; Jiao, Shuliang

We proposed a dual focus dual channel spectral domain optical coherence tomography (SD-OCT) for simultaneous imaging of the whole eye segments from cornea to the retina. By using dual channels the system solved the problem of limited imaging depth of SD-OCT. By using dual focus the system solved...

Nanoplasmonics: past, present, and glimpse into future

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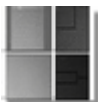
Optics Express, Vol. 19 Issue 22, pp.22029-22106 (2011)
Stockman, Mark I

A review of nanoplasmonics is given. This includes fundamentals, nanolocalization of optical energy and hot spots, ultrafast nanoplasmonics and control of the spatiotemporal nanolocalization of optical fields, and quantum nanoplasmonics (spaser and gain-assisted plasmonics). This article reviews...

Optically generated reconfigurable photonic structures of elastic

quasiparticles in frustrated cholesteric liquid crystals

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Optics Express, Vol. 20 Issue 7, pp.6870-6880 (2012)
Smalyukh, Ivan I; Kaputa, Daniel; Kachynski, Aliaksandr V; Kuzmin, Andrey N; Ackerman, Paul J; Twombly, Christopher W; Lee, Taewoo; Trivedi, Rahul P; Prasad, Paras N

We describe laser-induced two-dimensional periodic photonic structures formed by localized particle-like excitations in an untwisted confined cholesteric liquid crystal. The individual particle-like excitations (dubbed "Torons") contain three-dimensional twist of the liquid crystal director matched...

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The Optical Society
2010 Massachusetts Ave., N.W.
Washington, D.C. 20036 USA
Tel: +1 202.223.8130
Fax: +1 202.223.1096

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