`Liquid Crystal and Fiber Elements for Photonics and Their Theoretical Characterization

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Abstract—A brief editorial overview of the current issue is presented. This special issue of Photonics Letters of Poland devoted to liquid crystal and fiber elements for photonics contains 12 letters showing a wide range of photonics elements, including their theoretical characterization.

The current issue of Photonics Letters of Poland is devoted to a wide range of photonics elements, including their theoretical characterization. Several papers on liquid crystal (LC) applications in photonics were presented in of the Workshop Liquid Crystals for Photonics 2012 (http://lcp2012.ust.hk/index.html) held at the Hong Kong University of Science and Technology (HKUST) from 9th to 11th December 2012. The Workshop had a large number of invited (43) and poster (43) speakers from the USA, Europe, Japan, Taiwan, Hong Kong, Singapore, Russia, China (18 countries in total), to enable cross-fertilization among researchers working in LC materials and devices.

The papers, presented in this issue cover the joint paper Q. Guo et al. of HKUST and University of New South Wales (Australia) devoted to new voltage sensor with wide frequency range using deformed helix ferroelectric LC, the paper of D. Budaszewski et al., from Warsaw University of Technology (WUT) Poland, given the recent results on investigation of ferroelectric liquid crystals molecules orientation inside photonic crystal fibers, which consist of a set of micro capillaries. Several other LC related papers, provide the properties of nematicons in low-birefringence nematic LC (M. Kwaśny et al.), model for simulation of photo-induced charges inside the hybrid LC cells (P. Moszczyński et al.) and tunable filter based on two cascaded photonic liquid crystal fibers (M. Tefelska et al.) as well as nonlinear discrete light propagation in photonic liquid crystal fibers by K. Rutkowska et al.

The theoretical characterization of photonics elements is devoted to tunable apodizers and tunable focalizers using helical pairs and Hyper Gaussian windows with fractional wavefronts by J. Ojeda-Castaneda et al., as well as Gaussian beam evolution in nonlinear media of Kerr type and Gaussian beam diffraction in free space by P.Berczyński and Yu. Kravtsov. The methodology of THz-VIS fused images evaluation was discussed by M. Kowalski et al. and Green upconversion emission in tellurite optical fibre co-doped with Yb^{3+}/Er^{3+} were presented by M. Kowalski et al.

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