Hall 1 ICONO-05/1

14:30-16:00
ITuE ● Nonlinear Space-Time Dynamics, Instabilities, and Patterns I (ICONO-05/1)—Continued

ITuE3 • 15:30-15:45 • ORAL
Nonlinear beats in a bistable VCSEL with near-resonant biharmonic excitation, V. N. Chizhevsky, *Stepanov Inst. of Physics, NASB, Belarus.* An effective approach for detection of weak subthreshold periodic signals in bistable systems based on the response on the frequency of nonlinear beating is experimentally demonstrated in a bistable VCSEL with near-resonant biharmonic excitation.

ITuE4 • 15:45-16:00 • ORAL
Control of spatio-temporal instabilities in class-B broad-area lasers with external optical injection, A.V. Pakhomov, *Samara Univ., Lebedev Physical Inst., Russia.* We study analytically and numerically the spatio-temporal dynamics of class-B broad-area lasers under external optical injection. It is shown, that optical injection can enable effective stabilization of spatio-temporal instabilities inherent for class-B broad-area lasers.

Hall 2 ICONO-07/1

14:30-16:15
ITuF ● Beyond Non-Linear Optics: High & Extreme Optical Field Physics I (ICONO-07/1)—Continued

ITuF2 • 15:15-15:45 • INVITED
Electron acceleration by laser pulse under its output on optical surface section "vacuum-transparent medium". Laser syncrotron, M.Yu. Romanovsky, *Federal Agency for Scietific Organization, Russia.* Relativistic electron dynamics in non-uniform electromagnetic wave of totally reflected laser pulse along the surface is studied. Strong transversal acceleration and energy gain is predicted. Parameters of laser synchrotron are presented

ITuF3 • 15:45-16:00 • ORAL
High-order optical processes: beyond perturbative nonlinear optics, V. V. Strelkov, M.A. Khokhlova, *Prokhorov General Physics Inst., Russia.* We develop an approach describing nonlinear-optical processes in strong-field domain characterized by the nonpertur-bative field-with-matter interaction. It allows deriving and analytically solving propagation equations describing high-order (HO) wave-mixing, HO parametric amplification and HO stimulated scattering.

Hall 3 ICONO-04/1

14:30-16:30
ITuG ● Nonlinear Optics and Novel Phenomena I (ICONO-04/1)—Continued

ITuG3 • 15:15-15:30 • ORAL
Interaction between weak and nonlinear optical waves in fibers in the vicinity of zero-dispersion point, I. Oreshnikov, R. Driben, A.V. Yulin, *Univ. of Paderborn, Germany.* Interaction of high intensity localized nonlinear waves with low intensity radiation can lead to significant modifications of the propagation characteristis of the nonlinear waves. Manipulation of fundamental, high, order solitons, dark solitons and other types of famous nonlinear waves can be effectively achieved by carefull choosing resonant interaction conditions.

ITuG4 • 15:30-15:45 • ORAL
Polarization interaction of singular and Gaussian light beams, D.V. Gorbach, S.A. Nazarov, A.L. Tolstik, *Belarusian State Univ., Belarus.* Coherent interaction of Gaussian and singular light beams with different polarization states has been analyzed; the possibility to control polarization of a singular wave (varying from linear to circular) due to changes in polarization of the interaction-involved waves has been demonstrated.

ITuG5 • 15:45-16:00 • ORAL
Vibrational spectra of carbon dioxide adsorbed in nanoporous glass: from partial coverage of the pore wall to condensation in the pore volume, V.G. Arakcheev, V.B. Morozov, *International Laser Centre & Faculty of Physics, Lomonosov Moscow State Univ., Russia.* Adsorption behavior of carbon dioxide in nanoporous Vycor glass was studied by coherent anti-Stokes Raman scattering spectroscopy. The intensity and profile of the CO_2 band at 1388 cm^{-1} were measured in a wide pressure range providing the transition from partial surface coverage of the pore walls up to complete condensation in the pore volume. The contributions of the gaseous, surface-adsorbed, and liquid-like carbon dioxide have been distinguished in the spectrum even when the three states coexist. The results show that the liquid-like phase appears when the amount of the surface adsorbed fluid is below the monolayer coverage. Developed approach is applicable to characterize the fluid behavior in the pores of transparent nanoporous materials with various pore size, shape, ordering, and interconnection.