**VIETNAM MINISTRY OF EDUCATION AND TRAINING**

**VINH UNIVERSITY**

### ****CONFERENCE ON NONLINEAR OPTICS AND NOVEL MATERIALS****

**( Abstracts and Program)**

**VINH, NOVEMBER 29, 2015**

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| **PART I. SCIENTIFIC PROGRAM****22 NOVEMBER 2015 ( MONDAY)** |
| **Chairperson****Prof. Dinh Xuan Khoa (***Vinh University, VietNam)* |
| 09h00 – 09h15 | **OPENING THE CONFERENCE** **Prof. Dinh Xuan Khoa** |
| 09h15 – 09h30 |  **Prof. Marek Trippenbach** |
| 09h30 – 10h45 | **SUPERCONTINUUM GENERATION IN PHOTONIC CRYSTAL FIBERS****Ryszard Buczyński***Institute of Electronic Materials Technology in Warsaw , Poland* |
| 10h45 – 11h15 | **COFFEE BREAK** |
| **Chairperson**Prof. **Boris A. Malomed (***Tel Aviv University, Tel Aviv, Israel)* |
| 11h15 – 11h45 | **NOVEL CONFIGURATION OF ETCHED-FIBER BRAGG****GRATING SENSOR FOR DETERMINATION OF ORGANIC****CONTENT MIXTURED IN GASOLINE****Van Hoi Pham***Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam* |
| 11h45 – 12h10 | **ENHANCED LASER EFFICIENCY WITH LOW-INDEX SLOT COUPLED PLASMONIC SPHERICAL NANOPARTICLE****Quang Minh Ngo\*, Van An Nguyen, and Van Hoi Pham***Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam* |
| 12h10 – 12h30 | **RESEARCH AND DEVELOPMENT OF ULTRA-SHORT ALL SOLID-STATE LASERS AT PHOTONIC LABORATORY****Pham Hong Minh\*, Do Quoc Khanh, Pham Van Duong, Nguyen Xuan Tu, and Nguyen Dai Hung***Institute of Physics, Vietnam Academy of Science and Technology**10 Dao Tan Street, Ba Dinh, Hanoi, Vietnam.* |
| 12h30 – 14h30 | **LUNCH** |
| **Chairperson**Prof. **Marek Trippenbach (***University of Warsaw, Poland)* |
| 14h30 – 15h45 | **SOLITONS AND SOLITARY VORTICES IN CONTINUOUS AND DISCRETE TWO-DIMENSIONAL MODELS** **Boris A. Malomed***Department of Physical Electronics School of Electrical Engineering Faculty of Engineering, Tel Aviv University, Tel Aviv, Israel* |
| 15h45 – 16h15 | **COFFEE BREAK** |
| **Chairperson**Prof. **Nguyen Dai Hung (***Institute of Physics, Vietnam Academy of Science and Technology)* |
| 16h15 – 17h00 | **AN ANALYTICAL MODEL FOR A FIVE-LEVEL CASCADE EIT MEDIUM**Dinh Xuan Khoa, Le Van Doai, Pham Van Trong, Vu Ngoc Sau, and Nguyen Huy Bang\**Vinh University, 182 Le Duan Str., Vinh City, Nghe An* |
| **01 DECEMBER 2015 (TUESDAY)** |
| **Chairperson**Associate Prof. Nguyen Huy Bang, **(***Vinh University, VietNam)* |
| 09h00 – 9h15 | VỤ TRUONG |
| 09h15 – 10h30 | **WAVE PROPAGATION IN EIT MEDIA AND STRUCTURED CONTINUUM****Cao Long Van***Quantum Optics and Engineering Division, Institute of Physics, University of Zielona Góra, Prof. A. Szafrana 4a, 65-516 Zielona Góra, Poland* |
| 10h30 – 10h45 | POPULATION DISTRIBUTION OF VIBRATIONAL LEVELS IN THE 21Π STATE OF NALI **Nguyen Tien Dung\*, Le Canh Trung, Vo Long Bien, Dinh Xuan Khoa, and Nguyen Huy Bang***Vinh University, 182 Le Duan Str., Vinh City, Nghe An* |
| 10h45 – 11h15 | **COFFEE BREAK** |
| **Chairperson**Prof. **Cao Long Van (***University of Zielona Góra, Poland)* |
| 11h15 - 11h30 | **DETERMINATION OF STIFFNESS OF AN OPTICAL TWEEZERS BASED ON THE POWER SPECTRUM DENSITY METHOD**Phan Van Thuan,\* Le Canh Trung, Nguyen Van Phu, and Nguyen Huy Bang*Vinh University, 182 Le Duan Str., Vinh City, Nghe An* |
| 11h30 - 11h50 | **SUB - NANOSECOND PULSES OF SELF - CONVERSION RAMAN LASER****Do Quoc Khanh1, Pham Hong Minh1, Pham Van Duong1, Nguyen Xuan Tu1, A. Grabtchikov2, V. Orlovich2 and Nguyen Dai Hung1***1Institute of Physics, Vietnam Academy of Science and Technology**2B.I. Stepanov Institute of Physics, National Academy of Science of Belarus* |
| 11h50 – 12h10 | **PULSE PROPAGATION DYNAMICS IN AN AUTOIONIZATION MEDIUM WITH DOUBLE FANO PROFILE****Thanh Thuy Do, Dinh Xuan Khoa and Bui Dinh Thuan\****Vinh University, 182 Le Duan Str., Vinh City, Nghe An* |
| 12h10 – 12h30 | **STUDY OF ALUMINUM NITRIDE FORMATION IN A PLASMA WITH EFFECT OF** **DOUBLE LASER PULSES ON D16T ALUMINUM ALLOY IN AIR****Trinh Ngoc Hoang1, Bazzal Khoder2, Fadaeian A.R2., Zajogin А.P2***1Vinh University, Vinh City, Vietnam**2Belarusian State University, Minsk, Belarus* |
| 12h30 – 14h | LUNCH |
| **Chairperson**Prof. Wojtek J. Bock (Canada Research Chair in Photonics, F-IEEE) |
| 14h – 15h15 | **UBIQUITOUS PHENOMENON OF FOUR WAVE MIXING****Marek Trippenbach***Faculty of Physics, University of Warsaw, Poland.* |
| 15h15 – 15h45 | **COFFEE BREAK** |
| 15h45 – 16h30 | **TO BE ANNOUNCED****Nguyen Dai Hung***Institute of Physics, Vietnam Academy of Science and Technology* |
| **Chairperson**Prof. **Dinh Xuan Khoa (***Vinh University, VietNam)*Prof. **Boris A. Malomed (***Tel Aviv University, Tel Aviv, Israel)*Prof. **Marek Trippenbach (***University of Warsaw, Poland)*Associate Prof. **Nguyen Huy Bang**, **(***Vinh University, VietNam)* |
| 16h30 – 17h30 | **Poster Section** |
| **02 DECEMBER 2015 (WEDNESDAY)** |
| **Chairperson**Prof. Van Hoi Pham (*Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam)* |
| 09h00 – 10h15 | **RECENT PROGRESS IN PHYSICAL AND BIO-CHEMICAL SENSOR RESEARCH AT PRC-UQO****Wojtek J. Bock****Canada Research Chair in Photonics, F-IEEE***Centre de recherche en photonique**Département d’informatique et d’ingénierie, Université du Québec en Outaouais, P.O. Box 1250, Station B, Gatineau, Québec, J8X 3X7 Canada* |
| 10h15 - 10h35 | **CHARACTERISTICS OF SOLID-STAE ULTRAVIOLET LASERS USING Ce: LiCAF CRYSTAL****Pham Hong Minh1, Pham Van Duong1, Nguyen Xuan Tu1, Nobuhiko Sarukura2 and Nguyen Dai Hung1***1Institute of Physics, Vietnam Academy of Science and Technology**10 Dao Tan, Ba Dinh, Hanoi, Vietnam.**2Institute of Laser Engineering, Osaka University, Suita Osaka 565-0871 Japan* |
| 10h35 – 11h00 | **COFFEE BREAK** |
| 11h00 – 11h45 | **TO BE ANNOUNCED****Włodzimierz Jastrzębski***IOP, Polish Academy of Sciences, Poland* |
| **11h45 – 12h00** | **CLOSING CONFERENCE** |

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| **PART II. POSTER****Chairperson**Prof. **Dinh Xuan Khoa (***Vinh University, VietNam)*Prof. **Boris A. Malomed (***Tel Aviv University, Tel Aviv, Israel)*Prof. **Marek Trippenbach (***University of Warsaw, Poland)*Associate Prof. **Nguyen Huy Bang**, **(***Vinh University, VietNam)* |
| P1 | **CALCULATION OF ETTINGSHAUSEN COEFFICIENT IN QUANTUM WELLS UNDER INFLUENCE OF LASER RADIATION IN THE CASE OF ELECTRON- OPTICAL PHONON INTERACTION****Dao Thu Hang, Dao Thu Ha, Dang Thi Thu Thanh, Nguyen Quang Bau** *Faculty of Physics, Hanoi University of Sciences, Vietnam NationalUniversity, 334, Nguyen Trai Str., Thanh Xuan Dist., Hanoi, Vietnam* |
| P2 | IMPROVED OPTICAL TRANSMISSION THROUGH TAPERED METALLIC GRATINGS AT THE PLASMONIC BREWSTER CHANNEL**Dang Phuc Toan1,2, Ngo Hai Dang3, Nguyen Van Khoe4 and Khai Q. Le1\****1Faculty of Science and Technology, Hoa Sen University, Ho Chi Minh, Vietnam**2Department of Physics, Faculty of Natural Sciences, Can Tho University, Can Tho, Vietnam**3Deapartment of Materials Science, School of Science, Vietnam National University at Ho Chi Minh city, Ho Chi Minh, Vietnam**4Deapartment of Physics, School of Science, Vietnam National University at Ho Chi Minh city, Ho Chi Minh, Vietnam* |
| P3 | **SOLITARY WAVES IN AN ELASTIC ROD****Thuy Do Thanh, Sau Vu Ngoc, Hung Tran Manh, Luu Mai Van and Thuan Bui Dinh*****Vinh University, Nghe An, Vietnam*** |
| P4 | FANO RESONANT METAMOLECULE CONSISTING OF ASYMMETRIC METALLIC NANODIMERS FOR BIOSENSING APPLICATIONS AT THE NANOSCALE**Le Truong Duy1,2, Khai Q. Le1\*, Ngo Quang Minh3, and Nguyen Truong Khang4*.****1Faculty of Science and Technology, Hoa Sen University, Ho Chi Minh, Vietnam**2Department of Physics, Faculty of Natural Sciences, Can Tho University, Can Tho, Vietnam**3Institute of Materials Science, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet Road, Cau Giay, Hanoi, Vietnam**4Devision of Computational Mathematics and Engineering (CME), Institute for Computational Science (INCOS), Ton Duc Thang University, Ho Chi Minh, Vietnam* |
| P5 | **THE DEPENDENCES OF THE MAGNETORESISTIVITY AND THE HALL COEFFICIENT ON THE TEMPERATURE IN COMPOSITIONAL SEMICONDUCTOR SUPERLATTICES UNDER THE INFLUENCE OF THE LASER RADIATION IN THE CASE OF ELECTRON-OPTICAL PHONON INTERACTION****Nguyen Dinh Nam, Bui Dinh Hoi, Do Doan Phuc, Nguyen Quang Bau***Faculty of Physics, Hanoi University of Sciences, Vietnam NationalUniversity, 334, Nguyen Trai Str., Thanh Xuan Dist., Hanoi, Vietnam* |
| P6 | **INFLUENCE OF FREQUENCY CHIRP ON PULSE PARAMETERS FOR THE HYPERBOLIC-SECANT SHAPE INPUT PULSE IN THE SATURABLE ABSORBER AND ACTIVE MEDIUM OF THE RING RESONATOR OF THE COLLIDING PULSE MODE LOCKING DYE LASER****Trinh Dinh Chien1 , Nguyen Quyet Thang1 , Giang Manh Khoi2***1Faculty of Physics, VNU University of Science ,334 Nguyen Trai ,Hanoi ,Vietnam**2 National Centre for Laser Technology, C6 Thanh Xuan Bac, Hanoi , Vietnam* |
| P7 | **INFLUENCE OF FREQUENCY CHIRP ON PULSE PARAMETERS FOR THE SUPER-GAUSSIAN SHAPE LIGHT PULSE IN THE SATURABLE ABSORBER AND ACTIVE MEDIUM OF THE RING RESONATOR OF THE COLLIDING PULSE MODE LOCKING DYE LASER****Trinh Dinh Chien1, Nguyen Thanh Nhon1, Giang Manh Khoi2,***1Faculty of Physics, VNU University of Science ,334 Nguyen Trai ,Hanoi ,Vietnam**2 National Centre for Laser Technology, C6 Thanh Xuan Bac, Hanoi , Vietnam* |
| P8 | **SOME ASPECTS OF THE ACTIVELY Q-SWITCHED SAFE EYE SOLIDE STATE LASER DESIGN PUMPED BY DIODE LASER****Giang Manh Khoi1 , Do Xuan Tien1 , Ta Van Tuan2** *1 National Centre for Laser Technology, C6 Thanh Xuan Bac, Hanoi , Vietnam**2 VietNam Physical Society* |
| P9 | **PARAMETRIC RESONANCE OF ACOUSTIC AND OPTIAL PHONONS IN A QUANTUM WELL IN INTENSE FIELD LASER** **Nguyen Tien Dung\*, Truong Minh Vu, Vo Long Bien***Vinh University, 182 Le Duan Str., Vinh City, Nghe An* |
| P10 | **SIMULATED INFLUENCE OF TEMPERATURE AND CORE SIZE ON NEAR- ZERO-DISPERSION BAND OF SUSPENDED CORE FIBER WITH WATER** **Khoa Dinh Xuana, Lanh Chu Vana, Quy Ho Quangb, Van Cao Longc, Tomasz Stefaniukd, Marek Trippenbachd, Hoang Dinh Xuane, Ryszard Buczyńskid,f,\****aDepartment of Physics, Vinh University, 182 Le Duan Street, Vinh City, Viet Nam;**bInstitute of Applied Physics, NEWTECHPRO, VAST, 8 Hoang Quoc Viet, Hanoi, Vietnam**cIstitute of Physics, University of Zielona Góra, Prof. Szafrana 4a, 65-516 Zielona Góra, Poland;* *dFaculty of Physics, University of Warsaw, Pasteura 7, 02-093 Warsaw, Poland;* *eNguyen Van Troi High School, Tanh Linh district, Binh Thuan province, Vietnam;**fGlass Department of Glass, Institute of Electronic Materials Technology, Wólczyńska 133, 01-919, Warsaw, Poland;* |
| P11 | **INFLUENCE OF GEOMETRICAL PARAMETERS AND TEMPERATURE ON THE ZDWS OF PCF INFILTRATED WITH WATER****Lanh Chu Vana, Khoa Dinh Xuana, Quy Ho Quangb, Van Cao Longc, Marek Trippenbachd, Tomasz Stefaniukd, Hieu Le Vanc, Vu Tran Quoce, Ryszard Buczyńskic,f,\****aDepartment of Physics, Vinh University, 182 Le Duan Street, Vinh City, Viet Nam;**bInstitute of Applied Physics, NEWTECHPRO, VAST, 8 Hoang Quoc Viet, Hanoi, Vietnam**cIstitute of Physics, University of Zielona Góra, Prof. Szafrana 4a, 65-516 Zielona Góra, Poland;* *dFaculty of Physics, University of Warsaw, Pasteura 7, 02-093 Warsaw, Poland;* *eThu Khoa Nghia High School for The Gifted, Chau Doc City, An Giang province, Vietnam;**fGlass Department of Glass, Institute of Electronic Materials Technology, Wólczyńska 133, 01-919, Warsaw, Poland;* |
| P12 | TEMPERATURE SENSITIVITY OF PHOTONIC CRYSTAL FIBERS INFILTRATED WITH ETHANOL SOLUTIONS**Lanh Chu Vana,b, Tomasz Stefaniukc, Rafał Kasztelanicd, Van Cao Longa, Mariusz Klimczakd, Hieu La Vana,e, Marek Trippenbachc, Ryszard Buczyńskic,d,\****aInstitute of Physics, University of Zielona Góra, Prof. Szafrana 4a, 65-516 Zielona Góra, Poland;* *bDepartment of Physics, Vinh University, 182 Le Duan Street, Vinh City, Viet Nam;* *cFaculty of Physics, University of Warsaw, Pasteura 7, 02-093 Warsaw, Poland; dGlass Department of Glass, Institute of Electronic Materials Technology, Wólczyńska 133, 01-919, Warsaw, Poland;* *eDepartment of Physics, Hong Duc University, 565 Quang Trung Street, Thanh Hoa City, Viet Nam.* |
| P13 | DISPERSION ENGINEERING IN SOFT GLASS PHOTONIC CRYSTAL FIBERS INFILTRATED WITH LIQUIDS**Hieu Le Vanb,c, Tomasz Stefaniuka, Jacek Pniewskia, Van Cao Longb, Aleksandr Ramaniuka, Karol Grajewskid, Lanh Chu Vanb,e, Mirosław Karpierzd, Marek Trippenbacha, and Ryszard Buczyńskia,f***aFaculty of Physics, University of Warsaw, Pasteura 7, 02-093 Warsaw Poland; bInstitute of Physics, University of Zielona Góra, Prof. Szafrana 4a, 65-516 Zielona Góra, Poland;* *cHong Duc University, 565 – Quang Trung Street, Thanh Hoa City, Viet Nam; dFaculty of Physics, Warsaw University of Technology, Koszykowa 75, 00-662 Warszawa, Poland;* *eVinh University, 182 - Le Duan Street, Vinh City, Nghe An Province, Viet Nam; fGlass Laboratory, Institute of Electronic Materials Technology, Wólczynska 133, 01-919, Warsaw, Poland* |
| P14 | **HYPERFINE SPECTROSCOPY OF RB ATOMS****Le Canh Trung, Phan Van Thuan, Dinh Xuan Khoa, and Nguyen Huy Bang***Vinh University, 182 - Le Duan Street, Vinh City, Nghe An Province, Viet Nam;* |
| P15 | **DISPERSIVE OPTICAL BISTABILITY IN AN EIT ENHANCED SELF-KERR NONLINEAR MEDIUM****Le Thi Minh Phuong, Le Van Doai, Dinh Xuan Khoa, and Nguyen Huy Bang***Vinh University, 182 - Le Duan Street, Vinh City, Nghe An Province, Viet Nam* |
| P16 | **INFLUENCES OF DOPPLER BROADENING ON SLOW LIGHT IN A THREE-LEVEL EIT MEDIUM****Nguyen Tuan Anh, LeVan Doai, Doan Hoai Son, and Nguyen Huy Bang** *Vinh University, 182 - Le Duan Street, Vinh City, Nghe An Province, Viet Nam* |
| P17 | **DYNAMICS OF LASER PULSES PROPAGATION IN A THREE-LEVEL CASCADE EIT MEDIUM****Hoang Minh Dong, Le Van Doai, Dinh Xuan Khoa, and Nguyen Huy Bang***Vinh University, 182 - Le Duan Street, Vinh City, Nghe An Province, Viet Nam* |
| P18 | **SLOWING LIGHT IN A FIVE-LEVEL CASCADE EIT MEDIUM****LeVan Doai, Dinh Xuan Khoa, Nguyen Tuan Anh, and Nguyen Huy Bang** *Vinh University, 182 - Le Duan Street, Vinh City, Nghe An Province, Viet Nam* |
| P19 | **KERR NONLINEAR COUPLER AND ENTANGLEMENT INDUCED BY BROAD-BAND LASER LIGHT****Doan Quoc Khoa1,\*, Cao Long Van2,3, Chu Van Lanh4, Nguyen Van Hoa5 and Le Duc Vinh6***1Quang Tri Teacher Training College, Km3, Highway No 9, Dong Ha, Quang Tri, Viet Nam**2Quantum Optics and Engineering Division, Institute of Physics, University of Zielona Góra, Prof. A. Szafrana 4a, 65-516 Zielona Góra, Poland**4Vinh University, 182 Le Duan, Vinh, Viet Nam**5Hong Duc University, 565 Quang Trung, Thanh Hoa, Viet Nam**3Faculty of Physics, Warsaw University, Hoża 69, 00-681 Warsaw, Poland**6Tinh Gia 3 High School, Tinh Hai, Tinh Gia, Thanh Hoa, Viet Nam* |
| P20 | **INVESTIGATION OF LIGHT PROPAGATION IN TWO-DIMENSIONAL GRADED PHOTONIC CRYSTALS**.**Hoang Thu Trang\*­ and Ngo Quang Minh***Institute of Materials Science, Vietnam Academy of Science and Technology**18 Hoang Quoc Viet, Cau Giay, Hanoi, Vietnam.* |
| P21 | **DYNAMICS OF POLYSTYRENE MICROSPHERE LINKING TO Λ-PHAGE DNA MOLECULE IN OPTICAL TWEEZERS USING PULSED GAUSSIAN LASER BEAM****T. D. Trung,M. V. Luu**1*Faculty of Physics and Technology, Vinh University* *182 Le Duan, Vinh City, Vietnam* |
| P22 | **PHOTOLUMINESCENCE PROPERTY OF CE – DOPED ZNO THIN FILM BY SOGEL METHOD.****Nguyễn Thị Hảo***Faculty of Physics, Ho Chi Minh University* |
| P23 | **ENTROPIC MEASURE OF DISORDER FOR THE SYSTEM OF TWO-LEVEL ATOMS PLACED IN TWO-DIMENSIONAL CAVITY****Nguyen Thanh Vinh 1,2\*, Cao Long Van 1,3\*,Wiesław Leoński 1***1 Quantum Optics and Engineering Division, Institute of Physics, University of Zielona Góra, A. Szafrana 4a, 65-516 Zielona Góra, Poland**2 Vinh University, 182 Le Duan str., Vinh, Nghe An, Vietnam**3 Faculty of Physics, University of Warsaw, Hoża 69, 00-681 Warszawa, Poland* |