**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 National University, 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 National University, 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* |