



Annual Report (December, 2004)
SPIE STUDENT CHAPTER of TAURIDA
NATIONAL V. VERNANDSKY UNIVERSITY

SPIE Crimea Chapter is a society dedicated to advancing engineering and scientific applications of optical and optoelectronic applied science and engineering.

1. Membership

At this time, there are 12 students listed in our SPIE Student Chapter.

List of all current student members of SPIE Student Chapter of Taurida

National V. Vernadsky University:

1. Yana V. Izdebskaya
2. Yuriy A. Egorov
3. Alexander F. Rubass
4. Dmitry V. Solodovnichenko
5. Yaroslav S. Kachin
6. Sergey V. Hablenko
7. Vsevolod S. Gatsenko
8. Dmitry V. Shmelev
9. Luiza Z. Mavlutaliev
10. Anna O. Romanova
11. Sergey I. Lagunov
12. Ivan A. Ostovskiy

All members paid their membership payments on time and worked to benefit the student chapter. They organized and participated in conferences and educational courses and established contacts around the world.

2. SPIE Student Chapter Officers

All opportunities on use of rights of SPIE members in educational and scientific fields are shown. Elections of the most active members are executed for the organization of work of our Chapter.

The list of SPIE Student Chapters officers on next academic years

Izdebskaya Yana - *the elected president* of SPIE STUDENT CHAPTERS of Taurida National V. Vernadsky University

Rubass Alexander - *the elected vice-president* of SPIE STUDENT CHAPTERS of Taurida National V. Vernadsky University

Egorov Yuriy - *the elected secretary* of SPIE STUDENT CHAPTERS of Taurida National V. Vernadsky University

Lagunov Sergey - *the elected treasurer* of SPIE STUDENT CHAPTERS of Taurida National V. Vernadsky University

3. Education

3.1 New research specialties (since October 2004) for the students of General Physics Department:

- Design of Optical Systems due informational method
- Diffraction Theory of Image
- Optics of Crystals
- Topology of optical vortices

For lectures, we invited all interested people (the students from other departments of our university, institutions, colleges and schools). Guest lectures are the professors and candidates sciences (Phys. and Math.) of our university and other institutions.

3.2 Guest lectures

1. Prof. Yuriy Kivshar (The Australian National University) read lecture "Nonlinear photonics in optically-induced lattices" and conducted debate with members of our chapter (October, 2004);
2. Konstantin Alekseev (Candidate of science (Phys. and Math.) read lecture "Emeric elliptic optical vortices in highly elliptic low-mode fibres", Taurida National V. Vernadsky University, Department of Theoretical Physics) (October, 2004);
3. Prof. Yuriy Fridman read lecture "Structures in paraxial and exact Gaussian-type solutions via a separation of variables" (Taurida National V. Vernadsky University, Department of Theoretical Physics) (November, 2004);
4. Prof. Lenur Arifov read lecture "X-ray spectra from pyroelectric generator" (Taurida National V. Vernadsky University, Department of Theoretical Physics) (November-December, 2004).

3.3 The library

Prof. Alexander V. Volyar (Student's Chapter Faculty Advisor) has filled the SPIE Student Chapter library of Student Chapter with new journals editions to include: "Proceedings of SPIE", "Journal of Optics A: Pure and Applied Optics", "Ukrainian journal of physical optics"; "OE Magazine"; "Quantum Electronics"; "Abstracts of 10th International Conference "Nonlinear Optics of Liquid and Photorefractive Crystals NOLPC'2004". These editions are used for the study of courses with the purpose of updating the newest information and for the best orientation of the students in high technologies published in these editions.

4. Scientific activity

4.1 Students of our Chapter participated at:

- International conference “**Education in Ukraine-2004**” on February 4-8, 2004, Kiev, Ukraine.
- Annual Student’s Conference “**Singular Optics**” on April 12-16, 2004, Simferopol, Ukraine.
- Olympiad “**Computer modeling-2004**” on May 12-16, 2004, Crimea, Ukraine.
- “**SPIE’s Annual Meeting-2004**” on 2-6 August, 2004, Denver, Colorado (Sergey Lagunov).
- **10th International Conference “Nonlinear Optics of Liquid and Photorefractive Crystals NOLPC’2004”** on October 3-8, 2004, Alushta, Ukraine.

Scientific works of our students in International Journals (2004):

- 1) Izdebskaya Ya. V., Shvedov V. G., Volyar A. V. Singular Beam Diffraction by the Edge of a Dielectric Medium//Ukr. J. Phys. Opt. V. 5 (3)(2004)
- 2) Ya.V. Izdebskaya, V.G. Shvedov, A.V. Volyar Structure of an optical vortices at the boundary of dielectric medium //Proceedings of SPIE 2004, V. 5582. -P. 222-230
- 3) Volyar A.V., Egorov Yu.A., Rubass A.F., Fadeyeva T.A.//Techn. : Phys. J. Lett., 2004, V.30, № 16, P.82-89
- 4) Volyar A.V., Egorov Yu.A., Rubass A.F., Fadeyeva T.A.//Techn. : Phys. J. Lett., 2004, V.74, № 12, P.90-93.
- 5) Egorov Yu.A., Fadeyeva T.A., Volyar A.V. The fine structure of singular beams in crystals: colours and polarization// J. Opt. A: Pure Appl. Opt., 2004, V.6, P. 217-228.
- 6) Izdebskaya Ya.V., Shvedov V.G., Volyar A.V. Generation of high-order optical vortices by the optical wedge-system//Abstracts of NOLPC'2004, P. 92
- 7) Rubass A.F., Fadeyeva T.A., Egorov Yu.A., Volyar A.V. The orbital parameters of the perturbed singular beams// Abstracts of NOLPC'2004, P. 93
- 8) Egorov Yu.A., Fadeyeva T.A., Rubass A.F., Volyar A.V. Focusing of the coherent and incoherent Laguerre-Gaussian beams after uniaxial crystals// Abstracts of NOLPC'2004, P. 96
- 9) Egorov Yu.A., Fadeyeva T.A., Rubass A.F., Volyar A.V. White optical vortices in LiNbO3 crystal//Proceedings of SPIE 2004, V. 5582. -P. 286-296
- 10) Volyar A.V., Kiselev A.P., Egorov Yu.A. Eigen-Polarization beams in uniaxial crystals //Proceedings of SPIE 2004, V. 5582 pp. 98 - 106

4.2 Our Student Chapter created a video-course: "Caustics, their applications". We presented this video-course on 10th International Conference “Nonlinear Optics of Liquid and Photorefractive Crystals NOLPC’2004” (October 3-8, 2004, Alushta).

4.3 Scientific student seminars during academic year (2004): “Singular Beam Diffraction by the Edge of a Dielectric Medium” (Luiza Z. Mavlutaliev), “The Orbital Parameters of the Perturbed Singular Beams” (Rubass A. F.), “Generic elliptic optical vortices in highly elliptic low-mode fibres” (Dmitry V. Shmelev), “Optical vortices” (Vsevolod S. Gatsenko).

5. Grants, Awards

Sergey Lagunov (Treasurer of our Student Chapter) was awarded an SPIE travel grant for the SPIE Annual Meeting – 2004 in Denver, Colorado for presentation of the SPIE Student Chapters of Taurida National V. Vernadsky University.

6. Exhibition

2nd Photo-Exhibition "Phase Singularities and Caustics" on September 6-10, Crimea, Ukraine.

7. Organizing Activity

- Organization of 3rd Young Scientist Conference "Singular and Nonlinear Optics 2004" on April 19-23, 2004, Simferopol, Ukraine. 35 reports are represented (18 oral). The sections: Phase singularities and caustics, their applications, Laser physics/technology and applications, Non-linear effects in active and passive optical devices and systems;
- Co-organization of the 10th International Conference "Nonlinear Optics of Liquid and Photorefractive Crystals NOLPC'2004" on October 3-8, 2004, Alushta, Ukraine;
- Organization of the Olympiad "Computer modeling-2004" and 2nd Photo-Exhibition "Phase Singularities and Caustics" on September 6-10, 2004 TNU, Crimea, Ukraine;
- Organization of the excursion for members of SPIE in r/d "Domain".

Expected Actions within the Next Year (2005):

1. The Seventh International Conference "Correlation Optics" will be held in Chernivtsi, Ukraine on September 6-9, 2005
2. Travel grant on SPIE's Annual Meeting- 2005 for presentation of report about activities of our chapter.
3. Organization of 4th Young Scientist Conference "Singular and Nonlinear Optics-2005" at Taurida National V. Vernadsky University (April, 2005).
4. Making the video-course "Optical vortices" and presentation its on conferences "Singular and Nonlinear Optics" and the Seventh International Conference "Correlation Optics".

Contact Information

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