SPIE Crimea and scientific applications of optical and related sciences.

Chapter is a society dedicated to advancing engineering optoelectronic applications.

Annual Report of SPIE TNU Student Chapter
December, 2005

Taurida National V. Vernadsky University
Vernadsky av 4
Simferopol, 95007, Crimea, Ukraine

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1. Membership

List of all current student members of SPIE Student Chapter of Taurida National V. Vernadsky University:

1. Yana V. Izdebskaya
2. Nataliya V. Shostka
3. Alexander F. Rubass
4. Yevheniy Yu. Semuk
5. Sergey I. Lagunov
6. Dmitry V. Solodovnichenko
7. Yaroslav S. Kachin
8. Sergey V. Hablenko
9. Kirilo I. Kotlyariv
10. Dmitry V. Shmelev
11. Luiza Z. Mavlutalieva
12. Anna O. Romanova
13. Ivan A. Ostovskiy
14. Andrey V. Klimukh
15. Babichev Ye. Yevheniy

SPIE Student Members at the Taurida National V. Vernadsky University in Ukraine. In front is Prof. Alexander Volyar (the chapter advisor) and in back, from left to right, are Kirilo Kotlyariv, Aleksandr Rybas, Yana Izdebskaya (the president), Yevheniy Semuk (the secretary), Andrey Klimukh (the treasurer), and Nataliya Shostka (the vice-president).

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

The list of SPIE Student Chapters officers, 2006

Izdebskaya Yana - the elected president yana-simfer@yandex.ru

Nataliya V. Shostka - the elected vice-president nataliya_shostka@mail.ru

Yevheniy Yu. Semuk - the elected secretary hunterspin@ukr.net

Andrey V. Klimukh - the elected treasurer muagdi@yandex.ru
2. Education

New short courses were listened to by students of Phys. Department:

- New applications of correlation optics in biology and medicine
- Electronic design automation and circuit design

There were all interested persons. Mainly, there are professors, candidates of sciences, students and PhD Candidates from our University, Technical Institutions, Colleges and High schools).

In laboratories…

Some lecturers of TNU Phys. Department

Yevheniy Semuk

Nataliya Shostka

Izdebskaya Yana
Main our scientific results in 2005:

“White” Optical Vortices in LiNbO$_3$ Crystal

Conversion of singular beams in a single-axis crystal is experimentally studied. It is shown that the given system is able to generate singular beams in a wide spectral range.

Generation of Higher-Order Optical Vortices by the Dielectric Wedge

Diffraction of a Gaussian beam by the system of successively located optical wedges unconsidered. It is shown that this system as able to form structural stable high-order optical vortices. The value topological charge is defined by the number of wedges in the system.
3. Host speakers

1. **Prof. Yuriy Fridman** read lecture “Spin continuity and birefringence in locally isotropic weakly inhomogeneous media” (Taurida National V. Vernadsky University, Department of Theoretical Physics) (March, 2005);

2. **Prof. Igor Dzedolik** «Envelope equations of guided vortex pulse in optical fibers» (Taurida National V. Vernadsky University, Department of Theoretical Physics) (March, 2005);

3. **Prof. Sergey Roshupkin** “Nonparaxial singular beams of higher orders” (Taurida National V. Vernadsky University, Department of Theoretical Physics) (April, 2005).

4. **Dr. Constantin Alexeyev** “Generic singular beams in elliptic fibers”, Taurida National V. Vernadsky University, Department of Theoretical Physics) (January, 2005);

5. **Prof. S.G. Odoulov** (Ukraine) (INVITED). Anomalous pulse propagation in media with dynamic gratings and optical forerunners. (September, 2005)

6. **Prof. V.N. Obuchovsky** Singularities of the Pointing vector and the structure of optical field //Kiev National University (October, 2005)

7. **Prof. Yu. S. Kivshar** Singularities in incoherent light //Australian National University (October, 2005).

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*Pictured left to right, are Prof. Tamara Korostelina (the Dean of a Physical Faculty), Andrey Klimukh, Aleksandr Rubass, Yana Izdyeb'ska, Yevheny Semuk and Kirilo Kotlyariv.*

*Dr. Alexeyev is invited speaker*
4. Scientific activities

Students of our SPIE Chapter took part at international conferences (2005):

2. Annual Young Student’s Conference “Singular Optics” on April 12-16, 2005, Simferopol, Ukraine (all students of TNU SPIE Chapter).
3. ‘50th Annual Meeting SPIE / Optics and Photonics’ on 30 July - 06 August, 2005, San Diego, CA, USA (Yana Izdebskaya)
4. ‘89th OSA Annual Meeting/ Frontiers in Optics’ on 16 - 21 October, 2005, Tucson, AZ, USA (Yana Izdebskaya),
5. “Correlation Optics’ 2005” on September 6-9, 2005, Chernivci, Ukraine//The analysis of the vertical and mode structure after the fiber (Kiril Kotlyarov).

Our students made oral reports during academic year:
1. “Laser measurements for biomedical applications” (Luiza Mavlutalieva)
2. Fast electrically switchable holographic mirror (Yaroslav Kachin)
3. Propagation of optical vortices in optical fibers with Kerr nonlinearity (Sergey Hablenko)

“Correlation Optics’ 2005”
“50th Annual Meeting SPIE / Optics and Photonics”

SPIE Students with M. Kujawinska

Ukrainian SPIE Students with Sergey Kostyukevich

SPIE Students with Dirk Fabian

‘89th OSA Annual Meeting/ Frontiers in Optics’
5. Our library

We have got the library of scientific books and magazines: “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” and etc. These magazines are used: for study of courses with the purpose of updating by their newest information, and for the best orientation of the students in high technologies published in these editions.
6. Grants, Awards

1. SPIE Activity grant for TNU Student chapter ($ 500).
2. Yana Izdebskaya (The President of SPIE TNU Student Chapter) has gotten travel grant on SPIE Annual Meeting – 2005 in San Diego, California.
3. Yana Izdebskaya has gotten SPIE Educational Scholarship Optical Science and Engineering.

7. Organizing Activities

- Organization of 5-nd Young Scientist Conference "Singular and Nonlinear Optics 2005" on April 12-16, 2004, Simferopol, Ukraine. The sections: Phase singularities and caustics, their applications, Laser physics and applications, Nonlinear effects in active and passive optical devices and systems;
- Co-organization “Correlation optics 2005” on September 6-9, 2005, Chernivci, Ukraine;
- Organization the excursion for new SPIE members to r/d "Domain".
- Organization of Olympiad "Computer modeling-2005"and Photo-Exhibition "Optical vortices" on September 20-23, TNU, Crimea, Ukraine;

5-nd Young Scientist Conference "Singular and Nonlinear Optics 2005"
8. Expected Actions within the Next Year (2006):

1. Travel grants on SPIE's Annual Meeting- 2006;
2. Organization of 6-nd Young Scientist Conference “Singular and Nonlinear Optics-2006” at Taurida National V. Vernadsky University (April, 2006);
3. Organization of Olympiad "Computer modeling";
4. host speakers;
5. Photo-Exhibition "Optical vortices, caustics" on September, TNU, Crimea, Ukraine for next new SPIE members;

Participation in:

6. SPIE Europe International Symposium Photonics Europe (3 - 7 April 2006, Strasbourg, France);
7. CLEO/QELS 2006 Conference on Lasers & Electro-Optics/Quantum Electronics & Laser Science Conference Long Beach, CA (May, 2006);
8. 5th World Congress of Biomechanics, Munich, Germany (29 July - 4 August, 2006);

Contact Information

Prof. Alexander V. Volyar volyar@cssu.crimea.ua
President: Yana V. Izdebskaya yana-simfer@yandex.ru
Vice-President: Nataliya V. Shostka nataliya_shostka@mail.ru

Tel:+380 652230248

http://www.tnu.crimea.ua