2009
Student Chapter Annual Report

Names and e-mail addresses of chapter officers:

President: Anton Tsypkin, football-zenit2005@yandex.ru
Vice-president: Andrey Anisimov, andrey.g.anisimov@gmail.com
Secretary: Maxim Volynsky, maxim.volynsky@gmail.com
Treasurer: Elizaveta Buyanovskaya, lee.buyanovskaya@gmail.com
Chapter Scientific Adviser: Sergey A. Kozlov, kozlov@mail.ifmo.ru

List of current Student Chapter members:

1. Aleksander Alekseev
2. Andrei Zlatov
3. Andrey Anisimov
4. Anton Tsypkin
5. Konstantin Arakantsev
6. Zoya Bekyasheva
7. Dmitry Ivanov
8. Elena Vaschenko
9. Elizaveta Buyanovskaya
10. Elizaveta Yankovskaya
11. Evgeny Novoselov
12. Andrei Gorodetsky
13. Konstantin Koreshkov
14. Sergey A. Kozlov
15. Maxim Volynsky
16. Oleg Antonov
17. Olga Mokhnatova
18. Olga Smolyanskaya
19. Nickolai Petrov
20. Leonid Samoilov
21. Vadim Turkov
22. Vasilii Lesnichiy
23. Yaroslav Grachev
24. Yaroslav Pantas'
25. Dmitry Zhukov
Chapter activities since last report:

This year our members worked for extending their study to the following directions:

- Volume holography,
- Optical Coherence Tomography (OCT),
- Dynamic Stochastic Filtering in Interferometry,
- Nonlinear optics,
- Optics of femtosecond pulses,
- Analytical study, numerical modeling and experimental investigation of measurement accuracy in stereoscopic optic-electronic systems for the control of linear displacements
- Spectral analogues of Maxwell equations for dielectric media with non-resonance dispersion and instantaneous electronic nonlinearity
- Theoretical research of THz pulses near-field diffraction by circular aperture
- Research and development of high precision shift and angular control optical-electronic measurement methods and systems
- Influence analysis of initial errors on accuracy of optical-electronic systems
- Development of measured system based on CCD and CMOS sensors
- Nonlinear interaction of extremely-short light pulses
- Experimental studies of electromagnetic radiation scattering amplification effect in 'probe-nanoobject' system. Development of tungsten probe etching technique.
- Terahertz optics and spectroscopy in medical and biological applications
- Experimental studies in laser and nonlinear optics: eye-safe laser project, stimulated Raman scattering, solid-state lasers
- Nonlinear Interaction of Pulses of a small number of oscillations
- Holographic polymeric recording media analysis

Our chapter was represented at SPIE chapter’s meetings held during the conferences:

- The International Student Conference “Developments in Optics and Communications - 5” Riga, 24 – 26 April, 2009
- The VI-th International Conference of Young Scientists and Specialists "Optics - 2009", Saint-Petersburg, 19-23 October, 2009

Grants and awards of chapter members:

- A. Tsypkin: Grant for students, postgraduate students, young scientists and specialists of St. Petersburg, 2009;
- D. Zhukov: Grant for students, postgraduate students, young scientists and specialists of St. Petersburg, 2009;

Details of planned activities for the future

1. Increasing the number of the Chapter's members by involving students from different departments and faculties (connected with optics and photonics) into “Chapter life” to bring “fresh ideas” into “fixed thoughts” from varied sciences.

2. Development of relations with neighbor SPIE Chapters (St. Petersburg State Univ. of Aerospace Instrumentation Chapter, Bauman Moscow State Technical Univ. Chapter, Lomonosov Moscow State Univ. Chapter, Nizhny Novgorod Student Chapter, Yerevan State Univ. Chapter and others). Attending their local Chapter meetings and conferences to share organizing skills and experience.

3. Holding of bimonthly “small” Chapter meetings devoted to:
• getting acquaintance between members;
• representation of SPIE Hands on Optics course’s material;
• discussion of SPIE media material (from http://spie.org/x7650.xml);
• preparation-rehearsal for reports at large scientific conferences;
• problem-solving.

4. Attending annual SPIE Student Chapter Leadership Workshop at SPIE Optics and Photonics 2010 to develop collaboration with worldwide SPIE Chapters net.

5. Further development of our chapter's web page.

6. Increasing the number of books, journals and other materials of the Chapter's library and foundation our chapter’s local digital library.

Financial information:

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<tbody>
<tr>
<td>SPIE Funding 2009</td>
<td>+900</td>
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<tr>
<td>Membership renewal</td>
<td>-260</td>
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<td>Attending and participate in the 5th International Student Conference on Developments in Optics and Communications, Riga, April 24 – 26, 2009</td>
<td>-200</td>
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<tr>
<td>Attending and participate in the IV International Conference for Students, Young Scientists and Engineers “Optics–2009”</td>
<td>-220</td>
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<td>Developing and maintaining of chapter web page</td>
<td>-120</td>
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<td>Organizing the internal informal Chapter Meetings to make chapter members meet each other</td>
<td>-100</td>
</tr>
<tr>
<td>Total:</td>
<td>255</td>
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Publications:

• **Zlatov A.** PROPERTIES OF VOLUME PHASE HOLOGRAMS BASE ON PHOTO-THERMO-REFRACTIVE GLASSES, DOPED WITH ERBIUM AND LANTANIUM; Proceedings of the conference "VI International Conference of Young Scientific SPb SU ITMO"

• **Zlatov A., Cheporov I.** INFLUENCE OF BLEACHING OF PHASE VOLUME HOLOGRAMS BASE ON SILICATE PHOTO-THERMO-REFRACTIVE GLASSES; Proceedings of the conference "VI International Conference of Young Scientific SPb SU ITMO"

• Ivanov S.A., Prikazov M.Y., **Zlatov A.S.,** Korzinin Y.L., Nikonorov N.V. INFLUENCE OF THERMAL TREATMENT ON REFRACTIVE INDEX OF PHASE VOLUME HOLOGRAMS BASE ON SILICATE PHOTO-THERMO-REFRACTIVE GLASSES; Proceedings of the conference "VI International Conference "Optics-2009"

• **Zlatov A.S.,** Scheulin A.S., Korzinin Y.L., Nikonorov N.V. MULTIPLEX HOLOGRAMS IN PHOTO-THERMO-REFRACTIVE GLASSES; Proceedings of the conference "VI International Conference "Optics-2009"


Ivanov D.V., Kozlov S.A. Diffraction of THz wave packets of small number of oscillations by circular aperture. Transactions of the 6th international conference of young scientists and specialists "Optics-2009", p. 113-116


Gorodetsky A.A., Bespalov V.G. Terahertz Pulse Holography // Proceedings of Middle Infrared Coherent Sources - 2009, p. P07


Novoselov E.V. RESEARCH OF RADIATION SPECTRA FORMED IN FEMTOSECOND OPTICAL BREAKDOWN IN ATMOSPHERIC AIR, proceedings of conference «Youth and science», Moscow, Russia, 2009.

Novoselov E.V. RESEARCH OF RADIATION SPECTRA GENERATED IN FEMTOSECOND OPTICAL BREAKDOWN IN ATMOSPHERIC AIR, proceedings of VI All-Russia interuniversity conference of young scientists, Saint-Petersburg, Russia, 2009.

Koreshkov K. Materials from VI All-Russia Conference for Young Scientists (april 2009)

Koreshkov K. Materials from Science School for Young Scientists "Waves-2009" (may 2009)

Koreshkov K. Materials from International Conference of Young Scientists and Specialists "Optics - 2009" (october 2009)

Bogdanov M.S., Lesnichii V.V. INITIAL STAGE OF NANOTUBE ROLLING IN HYDROTHERMAL MEDIUM // Saint-Petersburg State University of Informational Technologies, Mechanics and Optics, Saint-Petersburg, Russia, Optics-2009 articles

Chivilikhin S.A., Popov I. Yu., Bogdanov M.S., Lesnichiy V.V. THE HYDRODYNAMICS OF NANOROLL SWIRL // The second All-Russian conference "Multiscale modelling of processes and structures for nanotechnologies" articles

Lesnichy V.V. AN EXPERIMENTAL SET FOR ANGULAR SELECTIVITY OF HOLOGRAMS DYNAMICS DURING EXPOSITION INVESTIGATION // Saint-Petersburg State University of Informational Technologies, Mechanics and Optics, Saint-Petersburg, Russia, Optics-2009 articles


Conferences:

Zlatov A. "Creation of site of program "optoinformatics in secondary school"; XXXVIII scientific and studying-methodical conference of SPb SU ITMO

Zlatov A. "Preparation interactive exposition on the subject "Holography" for museum ans education system SPbSU ITMO"; XXXVIII scientific and studying-methodical conference of SPb SU ITMO

Zlatov A. "Photosensitive properies of polyfunctional nanoglassceramics" XXXVIII scientific and studying-methodical conference of SPb SU ITMO

Zlatov A. "PROPERTIES OF VOLUME PHASE HOLOGRAMS BASE ON PHOTO-THERMO-REFRACTIVE GLASSES, DOPED WITH EBRIUM AND LANTANIMUM"; VI International Conference of Young Scientific SPb SU ITMO

Zlatov A. "INFLUENCE OF BLEACHING OF PHASE VOLUME HOLOGRAMS BASE ON SILICATE PHOTO-THERMO-REFRACTIVE GLASSES";VI International Conference of Young Scientific SPb SU ITMO

Zlatov A. "Creation of site of program "optoinformatics in secondary school"; X International Conference Physics in system of modern education, Photonics and Optoinformatics Faculty Saint-Petersburg State University of Information Technologies, Mechanics and Optics"

Zlatov A. "INFLUENCE OF THERMAL TREATMENT ON REFRACTIVE INDEX OF PHASE VOLUME HOLOGRAMS BASE ON SILICATE PHOTO-THERMO-REFRACTIVE GLASSES";VI International Conference of Young Scientific SPb SU ITMO

Zlatov A. "MULTIPLEX HOLOGRAMS IN PHOTO-THERMO-REFRACTIVE GLASSES"; VI International Conference "Optics-2009"

Volysnky M.A., Gurov I.P., Kirakozov A.Ch. Micro structure paper materials investigation using combined Time-Domain and Frequency-Domain OCT // XXXVIII Scientific and Educational
- **Volynsky M.A.** Software development for data computer processing in Optical Coherence Tomography // XXXVIII Scientific and Educational Conference of Teaching Staff and Scientists, St Petersburg State University ITMO. – Saint Petersburg, Russia, February 3-6, 2009.


- **A.G. Anisimov, A.A. Gorbachyov, A.V. Krasnyashchikh, A.V. Pantushin, V.V. Korotaev, and A.A. Usik.** Construction features of system for rotor shaft positional checking in case-shaped counterbore // The XXXVIII scientific and educational conference of SPbSU ITMO, 3-6 February 2009, Saint-Petersburg, Russia.


- **Buyanovskaya E.M., Kozlov S.A.** Generation of the few cycle waves within the interaction of counter propagating femtosecond light pulses in nonlinear dielectric media, XXXVIII scientific, educational and methodical conference SPbSU ITMO, February 3-6, 2009, Saint-Petersburg, Russia

- **Buyanovskaya E.M., Kozlov S.A.** Interaction of intense counter-propagating pulses consisting of few oscillations and different spectral distribution in dielectric media, Developments in Optics and Communications 2009, 24-26 April, 2009, Riga, Latvia

- **Buyanovskaya E.M., Kozlov S.A.** Laws of interaction of plane counter propagating light waves consisting of few oscillations, VI-th International Conference of Young Scientists and Specialists "Optics - 2009", October 19-23, 2009, Saint-Petersburg, Russia


- **Arakantsev K.G.** «Comparison of optic-electronic methods and means for the control of railway track position». // VI All-Russian conference of young scientists. 14-17 April, 2009, Saint-Petersburg, Russia.


- **Ivanov D.V., Kozlov S.A.** Diffraction of THz wave packets of small number of oscillations by circular aperture. Transactions of the 6th international conference of young scientists and specialists "Optics-2009". p. 113-116

- **Turkov V.K.** XII All-Russian Seminar “Microwave physics and applications”, 25-30 May, Moscow, 2009

- **Turkov V.K.** VI International Conference “Optisc-2009”, 19-23 October, Saint-Petersburg, 2009

- **Turkov V.K.** III Second International Laser Graduate School “Modern Problems of Laser Physics” dedicated to the 80th anniversary of S. A. Akhmanov, 9-11 November, Moscow, 2009

- **Tsypkin A.** VI International conference of young scientists and specialists Optics 2009, 19-23.10.2009, SPb

- **Gorodetsky A.A.,** Mephi young scientists conference (January)

- **Gorodetsky A.A.,** KMU (Conference for young scientists) (March), Saint-Petersburg, Russia
- Gorodetsky A.A., MSU school on optics (May), Moscow, Russia
- Gorodetsky A.A., Middle Infrared Coherent Sources - 2009 (June)
- Gorodetsky A.A., The 6th international conference of young scientists and specialists Optics-2009 (October), Saint-Petersburg, Russia
- Novoselov E.V. RESEARCH OF RADIATION SPECTRA GENERATED IN FEMTOSECOND OPTICAL BREAKDOWN IN ATMOSPHERIC AIR, VI All-Russia interuniversity conference of young scientists, 14 - 17 April 2009, Saint-Petersburg, Russia, 2009.
- Koreshkov K. VI All-Russia Conference for Young Scientists (april 2009)
- Koreshkov K. Science School for Young Scientists "Waves-2009) (may 2009)
- Koreshkov K. International Conference of Young Scientists and Specialists "Optics - 2009" (october 2009)
- Lesnichy V.V. VI conference of young scientists Optics-2009 Saint-Petersburg State University of Informational Technologies, Mechanics and Optics, Saint-Petersburg, Russia
- Mokhnatova O.A. Kozlov S.A. The interaction of few-cycle light beams with different spectrum at nonlinear reflection, XXXVIII scientific, educational and methodical conference SPbSU ITMO, February 3-6, 2009, Saint-Petersburg, Russia
- Mokhnatova O.A., Kozlov S.A. REFLECTION OF QUASI-DISCRETE SPECTRAL SUPERCONTINUUM FROM DIELECTRICS , Developments in Optics and Communications 2009, 24-26 April, 2009, Riga, Latvia
- Mokhnatova O.A., Putilin S.E. The third harmonic generation at reflection of femtosecond radiation from nonlinear crystal, VI-th International Conference of Young Scientists and Specialists "Optics - 2009", October 19-23, 2009, Saint-Petersburg, Russia
International Student Conference “Developments in Optics and Communications - 5”
Riga, April 24 - 26 2009

Chapter Meeting held during
the VI-th International Conference of Young Scientists and Specialists
"Optics - 2009", October 19-23, 2009, Saint-Petersburg, Russia
O. Mokhnatova, A. Drozdov, N. Petrov and A. Tsypkin

Ya. Grachev and E. Buyanovskaya

O. Smolyanskaya

VI-th International Conference of Young Scientists and Specialists "Optics - 2009", October 19-23, 2009, Saint-Petersburg, Russia
A. Anisimov

Ya. Grachev
Saratov Fall Meeting SFM'09. 21-24 September 2009.