

SPIE Student Chapter of Institute of Atmospheric Optics SB RAS, Tomsk

President: Aleksey Burnashov bvalexey@iao.ru
Vice President: Natasha Sudarchikova sunavi@yandex.ru
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	Printed Name	SPIE Membership #
1	Adamishin Iosif	3028350
2	Belikov Dmitry	3021140
3	Bol'basova Lidiya	3003893
4	Burnashov Aleksey	3021141
5	Bykova Elena	3021142
6	Edgulov Maris	3021144
7	Fateyeva Natalia	821667
8	Kamardin Andrey	3021162
9	Khoroshaev Dmitriy	3021176
10	Kustova Natalia	872461
11	Kopylov Evgeny	3028353
12	Starikova Evgenya	3021166
13	Sudarchikova Natasha	3021167
14	Turchinovich Yuriy	3028355
15	Uzhegova Nina	3021170

February 2005 – organization of the SPIE Student Chapter of Institute of Atmospheric Optics SB RAS, Tomsk. Its mission lies in supporting the students, demonstrating outstanding results in the field of Atmospheric optics and its application.

In March 2005 – there was the first meeting of SPIE Student Chapter. The meeting aim was elected of Chapter officers: president, vice-president, secretary and treasurer. There were confirmed The Constitution of SPIE Student Chapter and working plan for 2005 year.

In April 2005 – the scientific seminar was held and SPIE Student Chapter members presented reports about their scientific work. Post-graduate student of the laboratory of Optical Signals Transfer of IAO SB RAS Dmitriy Khoroshaev guided the excursion on the Big Aerosol Camera, informed students about work of laboratory set-up and present the report "Laser systems of observation under the condition of low visibility".

In May 2005 – the beginning of website (invented by Dmitry Belikov) on last news about Chapter work, information about Chapter members are presented.
At SPIE congress ICONO/LAT 2005 (11-15 May, St. Petersburg, Russia) Natalie Fateyeva made the report «Vegetation stress detection by remote measurement of laser-induced chlorophyll fluorescence».

In June 2005 – 7 members of Chapter presented their reports at the SPIE symposium "Atmospheric and ocean optics. Atmospheric physics" (June 27–30, Tomsk, Russia).

Foreign specialists were invited to make lectures. Andrew Yuk Sun Cheng presented the report «Atmospheric Remote Sensing and Measurements at the City University of Hong Kong » (June, 26). Richard B. Hoover presented two reports (June, 30): the first report «SPIE – The International Society for Optical Engineering» about work, structure and organization of SPIE, the second one «Comets, Carbonaceous Meteorites, and the Origin of the Biosphere».

In July 2005 – Natalia Sudarchikova visited at the 50th annual meeting leaders of SPIE Student Chapters to present the summary report about work of SPIE Student Chapter of Institute of Atmospheric Optics SB RAS, town Tomsk and the participation at the scientific conference «Optics and Photonics» with report «Long-term trend of atmospheric aerosol concentration of the Western Siberia territory».

In August 2005 – lecture for schoolchildren “Basic fields of scientific activity in the Institute of Atmospheric Optics” on the base of Tomsk Scientific Centre and propaedeutic lecture about structure, goals and tasks of SPIE to acquaint schoolchildren with the organization.

In September 2005 – participation by Natalie Fateyeva at the SPIE conference «Remote Sensing» (September 19-22, Bruges, Belgium) with two reports- “Laser remote sensing of forest with use of fluorescence lidar” and “Use of the remote sensing data for the analysis of the plants condition”.

In October 2005 – participation by Elena Bykova with report “Fluorescence of organic molecules at two-photon absorption” at the IV International SPIE conference of young scientists and specialist “Optics - 2005” (17 – 21 October, St. Petersburg, Russia).

In November 2005

SPIE Chapter meeting, November 9.

Reports about student chapter activities from the past year (speakers Aleksey Burnashov, Natasha Sudarchikova, Natalia Fateyeva, Elena Bykova, Dmitry Belikov) were presented. Adviser presented to Chapter members SPIE certifications.

The total amount of our SPIE Student Chapter members publications is 47.

Following papers are important:

1. Borovoi A.G., **Kustova N.V.**, Oppel U.G. Light backscattering by hexagonal ice crystal particles in the geometrical optics approximation // Opt. Engineering. 2005. V.44. №7. P. 07128 (1-10).
2. Borovoi A.G., **Kustova N.V.**, Oppel U.G. Development of an optical model for cirrus clouds // Proceedings of SPIE. 2005. V.5829. P. 151-162.
3. **Burnashov A.V.**, Borovoi A.G, Cohen A., Oppel U. Scattering matrices for ice crystal particles with preferred orientations // Proceedings of SPIE. 2005. V.5829. P. 174-183.
4. **Bykova E.E.**, Zemlyanov A.A., Geints Yu.E. Fluorescence of organic molecules in the microcavity at two-photon absorption // Proceedings of SPIE. 2005. V.6160. P. 373 – 380.
5. **Kustova N.V.**, Borovoi A.G, Oppel U.G. Extinction-to-backscatter ratio calculated for ice crystal particles // Proceedings of SPIE. 2005. V.5829. P. 163-173.
6. Borovoi A., Cohen A., **Kustova N.**, Oppel U. Light scattering by large ice crystal particles // Proc. of the 8th Conference on Electromagnetic and Light Scattering by Nonspherical Particles (ELS8). Spain. 2005. P. 44-47.
7. Mikhailenko S.N., Mellau G.Ch, **Starikova E.N.**, Tashkun S.A. Tyuterev VI.G. Analysis of the first triad of interacting states (020), (100), and (001) of D₂¹⁶O from hot emission spectra // J. Mol. Spectrosc. 2005. V.233. №1. P.32–59.
8. Starchenko A.V., **Belikov D.A.**, Vrazhnov D.A., Esaulov A.O. Application of MM5 and WRF mesoscale models to studies of regional atmospheric processes// J. Atmospheric and Oceanic Optics 2005, vol. 18, No.05-06, p.409-414
9. **Belikov D.A.**, Starchenko A.V. Investigation of formation of secondary pollutant (ozone) in the atmosphere of Tomsk// J. Atmospheric and Oceanic Optics vol. 18, 2005, No.05-06, p.391-398
10. Arshinov M.Yu., Belan B.D., Davydov D.K., Ivlev G.A., Kozlov A.V., Pestunov D.A., Pokrovskii E.V., Simonenkov D.V., **Uzhegova N.V.**, Fofonov A.V. AKV-2 mobile station and its use in

Tomsk city as an example // J. Atmospheric and Oceanic Optics vol. 18, 2005, No.08, p.575-580

11. Bender O.V., **Fateeva N.L.**, Klimkin A.V. and Yamburov M.S. Analysis of forest state using contact and remote methods at different conditions of nitrogen pollution // Abstracts of VII Int. Conf. Atomic and molecular Pulsed lasers. Tomsk. 2005. P. 76.

12. Matvienko G.G., **Fateyeva N.L.** Use of the remote sensing data for the analysis of the plants condition // SPIE International Symposium. Bruges. Belgium. 19-22 September 2005. №5983-21. P. 104.

13. Matvienko G.G., Timofev V.I., Grishin A.I., **Fateeva N.L.** UV-lidar for detecting organic components in the atmosphere // International Conference IAMAS-2005. r., Beijing, China. 2005. P. A128.

14. Matvienko G.G., **Shul'gina L.A.**, **Fateyeva N.L.** Vegetation stress detection by remote measurement of laser-induced chlorophyll fluorescence // LAT-2005, International Conference on Lasers, Applications, and Technologies, St.Petersburg. 2005. P. 49.

15. Matvienko G.G., **Shulgina L.A.**, **Fateyeva N.L.** Laser remote sensing of forest with use of fluorescence lidar // SPIE International Symposium. Bruges. Belgium. 19-22 September 2005. №5976-43. P. 30.

16. Matvienko G.G., Timofev V.I., Grishin A.I., **Fateeva N.** Fluorescent lidar for organic aerosol study // SPIE International Symposium. Bruges. Belgium. №5984-11. P. 116

17. Lavrentiev N.A., Starchenko A.V., **Belikov D.A.**, Fazliev A.Z. The MM5 model within the ATMOS web-portal // IX Joint International Symposium «Atmospheric and ocean optics. Atmospheric physics» Symposium Proceedings. Tomsk, IAO SB RAS, 2005. P.66-67.

18. Shelekhov A.P., **Belikov D.A.**, Starchenko A.V. Numerical simulation of Doppler lidar profiling using turbulence model of planetary boundary layer // XII Joint International Symposium "Atmospheric and Ocean Optics. Atmospheric Physics". Symposium Proceedings. Tomsk, IOA SB RAS, 2005. P. 109.

19. Mikhailenko S.N., Mellau G.C., **Starikova E.N.**, Tyuterev V.I. Rotational analysis of the second triad of interacting states of $D_2^{16}O$ from hot temperature emission spectra in the 320-860 and 1750-4300 cm^{-1} spectral ranges // Nineteenth Colloquium on High Resolution Molecular Spectroscopy. Program and abstracts. Salamanca. 11-16 September 2005. P.181.

20. **Sudarchikova N.V.** Long-term trends of atmospheric aerosol concentrations over West Siberia // International Conference "Optics & Photonics". Abstracts. San Diego, USA. July 30- August 4. 2005. P.74.

21. **Sudarchikova N.V.** Research activities of the SPIE Students Chapter of Institute of Atmospheric Optics // International Conference "Optics & Photonics". Abstracts. San Diego, USA. July 30- August 4. 2005. P.45.

Grants and scholarships:

Two members of our Chapter had the SPIE travel grants 2005 (Natalia Sudarchikova, Natalia Fateyeva)

Two members (Fateyeva Natalia, Bykova Elena) have research grants (2005-2006) of IAO SB RAS supporting young scientists.

Other activities:

Two members (Bol'basova Lidiya, Starikova Evgeniya) received master's degree (Graduated with a high distinction).

Future activities:

Continue the extensive collaboration with Radio physics and Physics Departments of the Tomsk State University.

Support of the SPIE Student Chapter website located at <http://spie.iao.ru/>

Apply for SPIE grants and scholarships available to Chapter and individual Chapter members to support travel and research activities.

This summer we plan introduction of new lectures and practical courses on optical sciences for our institute students, physical faculties students of Tomsk State University and students of the higher school.

Financial information:

Beginning balance - 488 \$

Payment of a membership dues for Chapter members – 234 \$

Carrying out of Chapter meetings – 106 \$

Pay registration fees for participation in SPIE conferences of Student Chapter members – 148 \$

In December 2005

December 5, took place the meeting and new officers of Chapter was elected:

President: Lidiya Bol'basova sla@iao.ru

Vice President: Dmitry Kchoroshaev dimkhor@yandex.ru

Secretary: Evgeniya Starikova starikova_e@iao.ru

Treasurer: Nina Uzhegova unv@iao.ru

Website: <http://spie.iao.ru/>

New list of SPIE Student members 2006:

	Printed Name	SPIE Membership #
1	Akimov Alexander	
2	Barabanov Alexey	
3	Bol'basov Evgeniy	
4	Bol'basova Lidiya	3003893
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8	Dzumiya Diana	
9	Elgin Alexander	
10	Gromova Olga	
11	Khoroshaev Dmitriy	3021176
12	Kolotkov Gennadii	
13	Kopylov Evgeny	3028353
14	Lavrinov Vitaly	
15	Nuterman Roman	
16	Olshukov Alexey	
17	Starikova Evgenya	3021166
18	Sudarchikova Natasha	3021167
19	Uzhegova Nina	3021170
20	Zuev Kirill	