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## ***Atomic and Molecular Pulsed Lasers VII***

**Victor F. Tarasenko**

*Editor*

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# Contents

vii	<i>Conference Committee</i>
ix	<i>Introduction</i>

---

## **GAS AND PLASMA LASERS**

---

6938 03	<b>Nitrogen, atomic fluorine and CO<sub>2</sub> lasers excited by a pulsed inductive discharge</b> [6938-02] A. M. Razhev, A. A. Zhupikov, D. S. Churkin, Institute of Laser Physics (Russia)
6938 04	<b>Development of compact UV lasers with pulse repetition rate up to 5 kHz</b> [6938-03] A. V. Andramanov, S. A. Kabaev, B. V. Lazhintsev, V. A. Nor-Arevyan, A. V. Pisetskaya, V. D. Selemir, Russian Federal Nuclear Ctr. (Russia)
6938 05	<b>Recent progress in discharge-based soft x-ray lasers at IPP ASci CR</b> [6938-04] K. Kolacek, J. Schmidt, V. Prukner, O. Frolov, J. Straus, Institute of Plasma Physics (Czech Republic)
6938 06	<b>Use of excimer media for formation of short high-power laser radiation pulses</b> [6938-05] V. F. Losev, N. G. Ivanov, Yu. N. Panchenko, Institute of High Current Electronics (Russia)
6938 07	<b>Optimization of gas dynamic and power parameters for continuous nuclear pumped laser</b> [6938-06] A. N. Korzenev, A. N. Sizov, Nuclear and Radiation Physics Institute (Russia)
6938 08	<b>TEA CO<sub>2</sub> laser with pulse repetition rate above 3 kHz</b> [6938-07] A. V. Andramanov, S. A. Kabaev, B. V. Lazhintsev, V. A. Nor-Arevyan, A. V. Pisetskaya, V. D. Selemir, Russian Federal Nuclear Ctr. (Russia)
6938 09	<b>Efficient KrCl (223 nm) excimer laser based on TPI thyatron as a high-voltage switch</b> [6938-08] A. M. Razhev, A. A. Zhupikov, Institute of Laser Physics (Russia)
6938 0B	<b>Experimental study of capacitive periodic-pulsed discharge applied to active medium ionization in gas lasers with combined discharges</b> [6938-10] A. Yu. Kedrov, V. A. Kuznetsov, A. N. Shemyakin, N. G. Solov'yov, M. Yu. Yakimov, V. P. Zimakov, Institute for Problems in Mechanics (Russia)
6938 0C	<b>Use of SBS mirror for formation of high quality short pulses in excimer laser</b> [6938-11] V. F. Losev, Yu. N. Panchenko, Institute of High Current Electronics (Russia)
6938 0D	<b>Forming of optical radiation of multi-channel nuclear-pumped lasers</b> [6938-12] A. A. Pikulev, S. V. Patyanin, A. A. Sinyanskii, P. V. Sosnin, S. L. Turutin, V. M. Tsvetkov, Russian Federal Nuclear Ctr. (Russia)

---

## DYE LASERS AND PHOTOPROCESSES IN COMPLEX ORGANIC MOLECULES

---

- 6938 OG **The nature of the photoprocesses in the new 7-hydroxycoumarines** [6938-15]  
T. N. Kopylova, L. G. Samsonova, R. M. Gadirov, Tomsk State Univ. (Russia); V. P. Khilya, V. V. Ishchenko, O. V. Shablykina, Shevchenko State Univ. (Ukraine)
- 6938 OH **Active media on the basis of hybrid nanocomposites for tunable lasers** [6938-16]  
T. N. Kopylova, G. V. Mayer, E. N. Tel'minov, V. A. Svetlichnyi, Tomsk State Univ. (Russia); T. A. Solodova, Institute of Petroleum Chemistry (Russia); E. A. Vaitulevich, K. M. Degtyarenko, N. S. Eremina, L. G. Samsonova, Tomsk State Univ. (Russia)

---

## PHYSICAL PROCESSES IN GAS LASERS

---

- 6938 OJ **Possible use of ion-ion recombination in nuclear pumped laser** [6938-18]  
I. I. Smirnova, M. U. Khasenov, Nauka L, LLC (Kazakhstan)
- 6938 OK **Kinetics of the energy transformation in the discharge pumped XeCl laser** [6938-19]  
Y. I. Bychkov, A. G. Yastremsky, S. A. Yampolskaya, Institute of High Current Electronics (Russia)
- 6938 OL **Spatial and temporal evolution of current density in spatially inhomogeneous discharge in gas mixtures with SF<sub>6</sub>** [6938-20]  
Y. I. Bychkov, A. G. Yastremsky, S. A. Yampolskaya, Institute of High Current Electronics (Russia)
- 6938 OM **Discharge current and current of supershort avalanche E-beam at volume nanosecond discharge in non-uniform electric field** [6938-21]  
V. F. Tarasenko, D. V. Rybka, E. H. Baksh't, I. D. Kostyrya, M. I. Lomaev, Institute of High Current Electronics (Russia)
- 6938 ON **Scaling of strontium-vapor laser active volume** [6938-22]  
A. N. Soldatov, Tomsk State Univ. (Russia) and West Siberian Branch of Russian State Univ. for Innovation Technologies and Business (Russia); Yu. P. Polunin, Tomsk State Univ. (Russia)
- 6938 OO **Laser dyes excited by high PRR Nd:YAG laser second-harmonic radiation** [6938-23]  
A. N. Soldatov, Tomsk State Univ. (Russia) and West Siberian Branch of Russian State Univ. for Innovation Technologies and Business (Russia); V. I. Donin, D. V. Jakovin, Institute of Automation and Electrometry (Russia); I. V. Reimer, Tomsk State Univ. (Russia) and LITT, Ltd. (Russia)

---

## LASER SYSTEMS AND NEW LASER AND OPTICAL TECHNOLOGIES: APPLICATIONS

---

- 6938 OP **Electron accelerator for pumping of XeF (C-A) femtosecond pulse amplifier** [6938-24]  
N. G. Ivanov, V. F. Losev, Institute of High Current Electronics (Russia)
- 6938 OR **Optical ceramics from neodymium-activated yttrium oxide** [6938-26]  
S. N. Bagayev, Institute of Laser Physics (Russia); V. V. Osipov, M. G. Ivanov, V. I. Solomonov, V. V. Platonov, A. N. Orlov, A. V. Rasuleva, V. V. Ivanov, A. S. Kaygorodov, V. R. Khrustov, Institute of Electrophysics (Russia); S. M. Vatnik, I. A. Vedin, A. P. Mayorov, E. V. Pestryakov, Institute of Laser Physics (Russia); A. V. Shestakov, A. V. Salkov, JSC ELAKOM (Russia)

- 6938 OT **Optical acoustic experimental investigation of propagation femtosecond laser radiation in air and biological tissues** [6938-28]  
N. N. Bochkarev, A. M. Kabanov, E. S. Protasevich, Institute of Atmospheric Optics (Russia); A. N. Stepanov, Institute of Applied Physics (Russia)
- 6938 OW **Femtosecond XeF(C-A) laser amplifier pumped by radiation of multichannel surface discharges** [6938-31]  
V. Tcheremiskine, O. Uteza, Lab. LP3, Univ. Aix-Marseille II (France); A. Aristov, P.N. Lebedev Physical Institute (Russia); M. Sentis, Lab. LP3, Univ. Aix-Marseille II (France); L. Mikheev, P.N. Lebedev Physical Institute (Russia)
- 6938 OX **Treatment of basal-cellular skin cancer and heavy concomitant diseases by a photodynamic therapeutic method with a dye laser LITT-PDT** [6938-32]  
V. A. Evtushenko, Oncological Research Institute (Russia); A. N. Soldatov, Tomsk State Univ. (Russia); M. V. Vusik, Oncological Research Institute (Russia); I. V. Reimer, LITT, Ltd. (Russia)

---

#### NONCOHERENT UV AND VUV SOURCES

- 6938 OY **VUV-VIS imaging of high-pressure pulsed discharge in argon** [6938-33]  
A. B. Treshchalov, A. A. Lissovski, Univ. of Tartu (Estonia)
- 6938 OZ **Sources of spontaneous narrow-band UV and VUV radiation** [6938-34]  
D. V. Schitz, V. F. Tarasenko, V. S. Skakun, M. I. Lomaev, S. M. Avdeev, Institute of High Current Electronics (Russia)
- 6938 10 **Innovative power supply concepts for DBD excilamps** [6938-35]  
H. Piquet, S. Bhosle, R. Díez, A. Toumi, G. Zisis, Univ. de Toulouse (France)
- 6938 11 **The various dielectric barrier discharges lamps and plasma panel prototype designs developed in VNIIEF** [6938-36]  
V. M. Tsvetkov, A. A. Pikulev, Russian Federal Nuclear Ctr. (Russia)
- 6938 13 **Comparative study of UV radiation action of XeBr-excilamp and conventional low-pressure mercury lamp on bacteria** [6938-38]  
S. M. Avdeev, E. A. Sosnin, Institute of High Current Electronics (Russia); K. Yu. Velichevskaya, L. V. Lavrent'eva, Tomsk State Univ. (Russia)
- 6938 15 **A new method of chlorophenols decomposition based on UV-irradiation by XeBr-excilamp and their subsequent biodegradation** [6938-40]  
E. A. Sosnin, Institute of High Current Electronics (Russia); G. G. Matafonova, V. B. Batoev, Baikal Institute of Nature Management (Russia); N. Christofi, Napier Univ. (United Kingdom)
- 6938 17 **The investigation of excimer XeF\* (~354 nm) emission efficiency at excitation Xe/SF<sub>6</sub> mixture by barrier discharge** [6938-42]  
A. A. Pikulev, V. M. Tsvetkov, Russian Federal Nuclear Ctr. (Russia)

*Author Index*



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## Introduction

This volume includes the most interesting papers presented at the VIII International Conference Atomic and Molecular Pulsed Lasers (AMPL-2007). The conference was held on September 10–14, 2007 as per tradition in Tomsk – the ancient town in Siberia. The AMPL conference is one of the most visited events in Russia related to the laser physics area of research.

This year about 186 participants from Russia, Germany, France, Italy, Serbia, USA, Czech Republic, Estonia, Belarus, and Kazakhstan took part in the conference, and 223 presentations, including 35 invited papers and 98 oral ones, were delivered. About 50 students from Tomsk institutes of higher education also participated in the conference as well as audience.

The program of the AMPL-2007 conference included the conventional seven sessions:

- Gas and plasma lasers
- Metal vapor lasers
- Dye lasers and photoprocesses in complex organic molecules
- Physical processes in gas lasers
- Laser systems and new laser and optical technologies: applications
- Noncoherent UV and VUV sources
- Laser output conversion: optoelectronic devices

This year's conference was devoted to Professors V. M. Klimkin and S. I. Yakovlenko, members of AMPL conference organizing committees for many years. This year the scientific community lost both of them.

Special attention at the conference was paid to the research and development of many types of pulsed gas lasers, creation of laser systems with high radiating power, physics of gas discharge, UV and VUV radiation sources, interaction of laser radiation with matter, and many applications of gas lasers, including applications in micro- and nano-technologies. The plenary session, held on September 10, included presentations related to these topics, and altogether 14 papers were delivered.

Professor A. Ulrich from Munich Technical University, Garching, Germany gave the first presentation, which reported on the generation of the molecules  $\text{KrF}^*$  for the first time at excitation by a beam of heavy ions. Dr. A. M. Boichenko reported in brief on the most important scientific results obtained by Professor S. I. Yakovlenko, and Professor G. S. Evtushenko presented the most important results obtained by V. M. Klimkin. Professor K. Kolacek from the Institute of Plasma Physics AS CR, Prague, Czech Republic presented a review devoted to soft X-rays based electrodischarge lasers. A presentation by S. Bhosle and H. Piquet, "Innovative Power Supply Concepts for DBD Excilamps" (University of Toulouse, Toulouse,

France), was devoted to the development of excilamps drivers, possessing the high efficiency of energy transfer to a load. Professor A. N. Soldatov from Tomsk State University, Tomsk, Russia discussed new results related to the development of the strontium IR-laser and its application. "Surface Modification of Bio-Materials by Nanosecond and Picosecond Laser Pulses" was delivered by Dr. M. S. Trtica from the Vinca Institute of Nuclear Sciences, Belgrade, Serbia. Dr. B. Lacour from Paris-Sub University, Orsay, France presented "Microdischarge Production of Singlet Oxygen". Singlet oxygen is used in the creation of chemical lasers with high mean radiating power. Professor V. F. Tarasenko presented an overview of works of the Laboratory of Optical Radiation, Institute of High Current Electronics SB RAS, Tomsk, Russia. Dr. A. B. Treshchalov from the University of Tartu, Tartu, Estonia delivered the paper "VUV-VIS Imaging of High-Pressure Pulsed Discharge in Argon". The presentation by Professor A. A. Ionin from Physical Institute RAS, Moscow, Russia reported on research related to the creation of a high-power femtosecond laser system. Profs. and Drs. P. A. Bokhan, Yu. M. Andreev, and M. M. Makogon also presented at the plenary session. Professor G. G. Matvienko, director of the Institute of Atmospheric Optics, opened the conference and acquainted the participants with the research and development program of the institute.

During the conference the participants visited laboratories at the Institute of Atmospheric Optics and the Institute of High Current Electronics, Siberian Branch of Russian Academy of Sciences.

The next international conference on Atomic and Molecular Pulsed Lasers (AMPL-09) will be held in Tomsk on September 14–18, 2009.

**Victor F. Tarasenko**  
**Georgiy G. Petrash**