8th International Laser Physics Workshop
Lphys'99

Budapest, July 2–6, 1999

Program

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PROCEEDINGS

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Budapest, July 2–6, 1999

Program

http://bird.szfkikfki.hu/lphys99/
8th ANNUAL INTERNATIONAL LASER PHYSICS WORKSHOP
(LPHYS’99)

ORGANIZED BY:
General Physics Institute, Russian Academy of Sciences, Moscow, Russia
The international journal "Laser Physics"
Hungarian Academy of Sciences
Research Institute for Solid State Physics and Optics, Hungarian Academy of Sciences, Budapest, Hungary

SPONSORED BY:
Hungarian Academy of Sciences
National Committee for Technological Development, Hungary (OMFB)
Russian Foundation for Basic Research
Ministry of Science and Technology of Russian Federation
European Research Office of the United States Army
Trans-Tour Company, Moscow, Russia
United States Air Force Office of Aerospace Research and Development
Lawrence Livermore National Laboratory, Livermore, USA
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Secretary:
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Background
The eighth annual International Laser Physics Workshop (LPHYS’99) will be held from July 2 to July 6, 1999 in Budapest, Hungary. The Workshop will be a part of the World Conference for Science which will be the main UNESCO conference in 1999.


The total number of Workshop participants is expected to be about 200. In the past, participation was typically from over 20 countries.

Proceedings
The Workshop materials accepted by the Steering and Advisory & Program Committees (plenary, invited, and contributed) will be published in the international journal Laser Physics. The total length of manuscript, including figures, tables and references, is limited to twelve pages. The rules of the manuscripts' preparation can be found in every issue after Issue 3 of 1995 or on the Laser Physics web site: http://www.maij.rssi.ru/journals/lasphys.htm

Two hard copies of manuscripts to be published in the journal Laser Physics can be either given to Prof. Igor V. Yevseyev, the Deputy Editor-in-Chief of Laser Physics, or mailed to: Prof. Igor V. Yevseyev, Department of Theoretical Physics, Moscow State Engineering Physics Institute, 31 Kashirskoe Shosse, Moscow 115409, Russia. No e-mail versions of papers please.
Scientific Seminars and Symposium
The workshop consists of the following seminars and symposium (organized by the respective cochairs) which feature invited plenary talks, contributed oral and poster papers. The official language of the workshop will be English.

Seminar 1
Modern Trends in Laser Physics

Co-Chairs: Charles M. Bowden (USA)
Kirill A. Prokhorov (Russia)
Wolfgang Sandner (Germany)

Seminar 2
Strong Field Phenomena

Co-Chairs: Wilhelm Becker (Germany)
See Leang Chin (Canada)
Győző Farkas (Hungary)
Mikhail V. Fedorov (Russia)

Seminar 3
Laser Spectroscopy

Co-Chairs: Frank K. Tittel (USA)
Wilhelmus Witteman (The Netherlands)
Valery M. Yermachenko (Russia)

Seminar 4
Solid State Lasers and Nonlinear Optics

Co-Chairs: Gunter Huber (Germany)
Takatomo Sasaki (Japan)
Ivan A. Shcherbakov (Russia)

Seminar 5
Laser Methods in Medicine

Co-Chairs: Sergey A. Gonchukov (Russia)
Gerhard J. Müller (Germany)
Rudolf Steiner (Germany)

Symposium
Status and Future Directions of High-Power Laser Installations

Co-Chairs: See Leang Chin (Canada)
Wolfgang Sandner (Germany)
Ivan A. Shcherbakov (Russia)
**Meeting Format and Location of the Events**

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| July 6 | 14.00-18.15 | Hall A |
Plenary talks

Bruce H.T. Chai (University of Central Florida, Orlando, USA)
Self frequency doubling in the Nd and Yb doped yttrium calcium oxyborate crystals

Louis DiMauro (Brookhaven National Laboratory, Upton, USA)
Strong-Field Interactions in the Tunneling Regime

D. DiVincenzo (IBM T. J. Watson Research Center, USA)
Prospects for Quantum Computing

W. Hogervorst (Vrije Universiteit, Amsterdam, The Netherlands)
XUV Laser Spectroscopy of Atoms and Molecules

W. Howard Lowdermilk (Lawrence Livermore National Laboratory, Livermore, USA)
NIF and the Path to Inertial Fusion Energy

Harm G. Muller (FOM-Institute, Atoms in Strong Field, Amsterdam, The Netherlands)
Resonance Enhancement of Recollision Processes in Strong-Field Photoionization as Revealed by Accurate Numerical Simulation

Wolfgang P. Schleich (Universität Ulm, Ulm, Germany)
The Art of Measuring Quantum States

Marlan O. Scully (Texas A&M University, USA)
Advances in Quantum Optics and Laser Physics via Quantum Coherence

Sune Svanberg (Lund Institute of Technology, Lund, Sweden)
Medical Diagnostics Using Laser Techniques

Nikolai I. Tankovich (Thermolase Co., USA)
Laser Cosmetical Treatments in Dermatology

Herbert Walther (Max-Planck-Institut für Quantenoptik, Garching, Germany)
The Generation of Fock-States in the One-Atom Maser
## Scientific Program --- Schedule

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<td>Tankovich</td>
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<td>09.45-10.30</td>
<td>DiVincenzo</td>
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<td>12.45-14.00</td>
<td>Lunch</td>
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<tr>
<td>14.00-16.15</td>
<td>Symposium</td>
<td>Seminar 1</td>
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<td>16.15-16.45</td>
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<tr>
<td>16.45-18.15</td>
<td>Symposium</td>
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<td>Seminar 5</td>
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## Plenary Sessions

### Friday, July 2, 1999

**Welcome Remarks**

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<tr>
<th>Time</th>
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<tr>
<td>09.00-09.15</td>
<td>N. Kroó, Co-Chairman of Workshop</td>
</tr>
<tr>
<td>09.15-09.25</td>
<td>P.P. Pashinin, Deputy Chairman of Workshop</td>
</tr>
<tr>
<td>09.25-09.35</td>
<td>J. Janszky, the Member of Steering Committee, Chairman of the Local Organizing Committee</td>
</tr>
<tr>
<td>09.35-09.45</td>
<td>I.V. Yevseyev, the Member of Steering Committee, Deputy Editor-in-Chief of Laser Physics journal</td>
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Chair: P.P. Pashinin (Russia)

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<tbody>
<tr>
<td>09.45-10.30</td>
<td>Marlan O. Scully (Texas A&amp;M University, USA) &lt;br&gt;Advances in Quantum Optics and Laser Physics via Quantum Coherence</td>
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<tr>
<td>10.30-11.00</td>
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Chair: N. Kroó (Hungary)

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<tr>
<td>11.00-11.45</td>
<td>Sune Svanberg (Lund Institute of Technology, Lund, Sweden) &lt;br&gt;Medical Diagnostics Using Laser Techniques</td>
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### Saturday, July 3, 1999

Chair: K.A. Prokhorov (Russia)

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<tr>
<td>09.00-09.45</td>
<td>Herbert Walther (Max-Planck-Institut fur Quantenoptik, Garching, Germany) &lt;br&gt;The Generation of Fock-States in the One-Atom Maser</td>
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Chair: V.M. Yermachenko (Russia)

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<tr>
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<tr>
<td>09.45-10.30</td>
<td>W. Hogervorst (Vrije Universiteit, Amsterdam, The Netherlands) &lt;br&gt;XUV Laser Spectroscopy of Atoms and Molecules</td>
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### Sunday, July 4, 1999

Chair: Ch.M. Bowden (USA)

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<tr>
<td>09.00-09.45</td>
<td>Wolfgang P. Schleich (Universität Ulm, Ulm, Germany) &lt;br&gt;The Art of Measuring Quantum States</td>
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Chair: I.A. Shcherbakov (Russia)

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<tr>
<td>09.45-10.30</td>
<td>Bruce H.T. Chai (University of Central Florida, Orlando, USA) &lt;br&gt;Self frequency doubling in the Nd and Yb doped yttrium calcium ox-yborate crystals</td>
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PLENARY SESSIONS

10.30-11.00 Coffee Break
Chair: M.V. Fedorov (Russia)

11.00-11.45 Harm G. Muller (FOM-Institute, Atoms in Strong Field, Amsterdam, The Netherlands)
*Resonance Enhancement of Recollision Processes in Strong-Field Photoionization as Revealed by Accurate Numerical Simulation*

**Monday, July 5, 1999**

Chair: W. Sandner (Germany)

09.00-09.45 Louis DiMauro (Brookhaven National Laboratory, Upton, USA)
*Strong-Field Interactions in the Tunneling Regime*

Chair: J. Janszky (Hungary)

09.45-10.30 W. Howard Lowdermilk (Lawrence Livermore National Laboratory, Livermore, USA)
*NIF and the Path to Inertial Fusion Energy*

**Tuesday, July 6, 1999**

Chair: I.V. Yevseyev (Russia)

09.00-09.45 Nikolai I. Tankovich (Thermolase Co., USA)
*Laser Cosmetical Treatments in Dermatology*

Chair: W. Schleich (Germany)

09.45-10.30 D. DiVincenzo (IBM T. J. Watson Research Center, USA)
*Prospects for Quantum Computing*
Seminar 1
Modern trends in laser physics

Chairs: O. Kocharovskykaya (Russia) and Sajeev John (Canada)

11.55-12.25  G. Welch, V. Sautenkov, Y. Rostovtsev (Texas, USA), M. Kash (Texas and Lake Forest, USA), A. Zibrov (Texas and Boulder, USA), L. Hollberg (Boulder, USA), M. Lukin (Cambridge, USA), E. Fry and M. Scully (Texas, USA and Garching, Germany)

*Slow light and hot atoms*

12.25-12.55  János A. Bergou (New York, USA; Pécs, Hungary) and Marlan O. Scully (Texas, USA)

*Correlated emission laser (CEL) and the CEL gyro*

13.00-14.00  Lunch

Chairs: E. A. Vinogradov (Russia) and E. Wintner (Austria)

14.00-14.30  P. Meystre and M.G. Moore (Tucson, USA)

*Optical control and entanglement of matter wave fields*

14.30-15.00  M. Fleischhauer (Munich, Germany)

*Radiative atom–atom interactions in optically dense media*

15.00-15.30  K.V. Krutitsky (Ulyanovsk, Russia), F. Burgbacher and J. Audretsch (Konstanz, Germany)

*Microscopic theory of the interaction of ultracold dense Bose and Fermi gases with electromagnetic field*

15.30-15.55  V.S. Bagnato, G. Telles, A. Antunes, P. Cardona, M. Santos, and L. Marcassa (Sao Paulo, Brazil)

*The study of cold collisions involving different species*

15.55-16.15  V.I. Yukalov, E.P. Yukalova and V.S. Bagnato (Sao Paulo, Brazil)

*Excited coherent modes of ultracold trapped atoms*

16.15-16.45  Coffee Break

Chairs: P. Domokos (Hungary) and J.D. Franson (USA)

16.45-17.15  J.M. Zavada (London, UK)

*Optical properties and novel applications of rare earth-doped III-nitride semiconductors*

17.15-17.45  A.S. Shumovsky, Ö.E. Müstecapi̇lioglu, and M. Ünsal (Bilkent, Turkey)

*Stokes parameters and stokes operators*
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<tr>
<td>17.45-18.15</td>
<td>V. Samartsev (Kazan, Russia)</td>
<td>Long-lived photon echo and optical phase memory</td>
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<td>18.15-18.40</td>
<td>A.A. Kalachev and V.A. Zuikov (Kazan, Russia)</td>
<td>Long-lived optical superradiance in the Van-Vleck paramagnetics</td>
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<tr>
<td>19.30-23.00</td>
<td>Welcome Party</td>
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**Saturday, July 3, 1999**

**Chairs:** Charles Bowden (USA) and Lev Rivlin (Russia)

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<thead>
<tr>
<th>Time</th>
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<tr>
<td>11.00-11.35</td>
<td>Sajeev John (Toronto, Canada)</td>
<td>Quantum and nonlinear optics in a photonic band gap</td>
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<tr>
<td>11.35-12.10</td>
<td>Michael Scalora, Mark J. Bloemer, Charles M. Bowden (Huntsville and Redstone Arsenal, USA)</td>
<td>Laminated photonic band structures with high conductivity and high transparency: metals under a new light</td>
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<td>12.10-12.45</td>
<td>Shi-Yao Zhu (Hong Kong)</td>
<td>Spontaneous emission in three-dimensional photonic crystals</td>
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<td>12.45-14.00</td>
<td>Lunch</td>
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**Chairs:** Janos A. Bergou (Hungary) and John Zavada (UK)

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<tr>
<td>14.00-14.35</td>
<td>J.D. Franson, T.B. Pittman, and B.C. Jacobs (Laurel, USA)</td>
<td>Nonlinear optics at low intensities using photon exchange interactions</td>
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<tr>
<td>14.35-15.10</td>
<td>Hans Briegel (Munich, Germany)</td>
<td>Quantum computing in optical lattices</td>
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<tr>
<td>15.45-16.20</td>
<td>Charles M. Bowden, and Shawn D. Pethel (Redstone Arsenal, USA)</td>
<td>Quantum computation via laser pulse induced electronic excitation controlled electron-nuclear transferred hyperfine interactions</td>
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<tr>
<td>16.20-16.45</td>
<td>Coffee Break</td>
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**Chairs:** V.S. Bagnato (Brazil) and Prem Kumar (USA)

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<tr>
<td>16.45-17.20</td>
<td>P.H. Bucksbaum (Ann Arbor, USA)</td>
<td>Quantum control and quantum algorithms</td>
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SEMINAR 1 --- MODERN TRENDS IN LASER PHYSICS

17.20-17.50  P. Domokos (Budapest, Hungary), V. Lefevre, J. Hare, J.M. Raymond, L. Davidovich (Paris, France), and I. Protsenko (Moscow, Russia, Rio de Janeiro, Brazil)

Quantum theory of a thresholdless laser

17.50-18.15  R.N. Shakhmuratov (Leuven, Belgium; Kazan, Russia), A. Szabo (Ottawa, Canada), G. Kozyreff and P. Mandel (Bruxelles, Belgium), R. Coussement and J. Odeurs (Leuven, Belgium)

Dark state in ruby: analysis of the feasibility


Magneto-optic studies of superconductors down to nanosecond time resolution

18.40-19.05  Yu.E. Lozovik, A.L. Dobryakov, S.P. Merkulova (Troitsk, Russia), S.A. Kovalenko, V.M. Farztdinov (Berlin, Germany), V.A. Karavanskii (Moscow, Russia)

Femtosecond Spectroscopy of Porous and Cluster Materials

19.05-19.25  P. García-Fernández, C. Cabrillo (Madrid, Spain)

Quantum noise reduction in singly resonant optical devices

19.25-19.45  A.V. Kir’yanyov (Leon, Mexico; Moscow, Russia), Yu.O. Barmenkov and A.N. Starodumov (Leon, Mexico), V.-P. Lippanen, J. Vanhanen, T. Jaaskelainen (Joensuu Univ, Finland), N.M. Kozhevnikov (St.-Petersburg, Russia)

Study of phase grating recording in 4-keto Bacteriorhodopsin using phase-modulated beams technique

Sunday, July 4, 1999

Chairs: T. Kiss (Hungary) and M.I. Kolobov (Germany)

11.55-12.25  E. Wintner, I.T. Sorokina, E. Sorokin (Wien, Austria)

Diode-pumped ultrashort pulse solid-state lasers

12.25-12.55  Richard L. Fork, Lisa J. Gamble, William M. Diffey (Huntsville, USA)

Spatially extended modelocking

13.00-14.00  Lunch

Chairs: A. Mysyrowicz (France) and R. Shakhmuratov (Russia)

14.00-14.35  O. Kocharovskaya, R. Kolesov and Yu. Rostovtsev (Texas, USA, and Moscow, Russia)

Coherent optical control of gamma-ray nuclear spectra

14.35-15.05  Lev Rivlin (Moscow, Russia)

Cold atoms as a source of monochromatic and coherent nuclear gamma-radiation
SEMINAR I --- MODERN TRENDS IN LASER PHYSICS

15.05-15.35 V.I. Yukalov and E.P. Yukalova (Dubna, Russia)
*Formation of directed beams from atom lasers*

15.35-16.00 A.A. Zadernovsky (Moscow, Russia)
*Ignition of burst two-quantum generation of coherent gamma-photons*

16.00 - 16.20 Lev Rivlin (Moscow, Russia)
*Transmission of cold atom interference pattern through (2+1)D potential well*

16.20-16.45 Coffee Break

**Chairs: A. Gaeta (USA) and W.P. Schleich (Germany)**

16.45-17.15 V.M. Shalaev, W. Kim, V.P. Safonov, and R.L. Armstrong (Las Cruces, NM, USA)
*Fractals in microcavities: New feasibilities for laser physics and photonics*

*Electron injection dynamics through the Shottky barrier*

17.45-18.15 Yu.E. Lozovik (Troitsk, Russia), A.M. Fedotov and N.B. Narozhny (Moscow, Russia)
*Excitation of an atom in nonstationary cavity and dynamic Casimir effect*

18.15-18.35 Lev Rivlin (Moscow, Russia)
*Is the Photon Mass Zero? (Extraordinary photon behavior in context of cavity electrodynamics)*

18.35-18.55 A.M. Fedotov, N.B. Narozhny (Moscow, Russia), and Yu.E. Lozovik (Troitsk, Russia)
*Dynamic Casimir effect in sudden approximation*

19.30-23.00 Conference Dinner

**Monday, July 5, 1999**

**Chairs: P. Meystre (USA) and V.V. Samartsev (Russia)**

11.00-11.30 W.P. Schleich (Ulm, Germany)
*Quantum carpets and vortices in Bose-Einstein condensates*

11.30-12.00 A. Gatti, E. Brambilla (Milano, Italy), L.A. Lugiato (Como, Italy), and M. Kolobov (Essen, Germany)
*Quantum entangled images*

12.00-12.25 M.I. Kolobov (Essen, Germany)
*Noiseless amplification of optical images*
12.25-12.50 A.V. Sergienko, A.F. Abouraddy, B.E.A. Saleh, and M.C. Teich (Boston, USA)
*Large spatial entanglement and quantum interferometry*

12.50-14.00 Lunch

**Chairs:** A. Gatti (Italy) and V.M. Shalaev (USA)

14.00-14.30 Prem Kumar, Sang-Kyung Choi, and Michael Vasilyev (Evanston, USA)
*Spatially broadband parametric amplification: quantum-noise correlations and noiseless optical amplification of images*

14.30-15.00 A. Maître, M. Vaupel, C. Fabre (Paris, France)
*Transverse classical and quantum structures in a triply resonant OPO*

15.00-15.25 A. Czitrovszky, P. Jani, A. Nagy (Budapest, Hungary) and A. Sergienko (Boston, USA)
*Photometric measurements of quantum efficiency using quantum two-photon field*

15.25-15.50 Z. Kis, T. Kiss, J. Janszky and P. Adam (Budapest, Hungary), S. Wallentowitz and W. Vogel (Rostock, Germany)
*Detection of non-classical oscillations in phase-space by cascaded optical homodyning*

15.50-16.15 Guillaume Petite (Saclay, France)
*Understanding the effects of ionizing radiation on matter with ultrashort pulsed lasers*

16.15-16.45 Coffee Break

**Chairs:** P.H. Bucksbaum (USA) and A. Shumovsky (Turkey)

16.45-17.15 Alexander L. Gaeta, Doug Homoelle, Kevin Moll, and Stephan Wielandy (Ithaca, USA)
*Catastrophic collapse of ultrashort pulses in condensed matter*

17.15-17.45 S. L. Chin, A. Talebpour, S. Petit, A. Proulx and J. Yang (Laval University, Quebec, Canada)
*From intense femtosecond pulse propagation into white light laser*

17.45-18.10 R. Sauerbrey, S. Niedermeier, F. Ronneberger, H. Schillinger (Jena, Germany), H. Wille, M. Rodriguez, L. Wöhste, and P. Rairoux (Berlin, Germany)
*Long range propagation of terawatt laser pulses in the earth atmosphere*

18.10-18.35 N. Akozbek and C. M. Bowden (Redstone Arsenal, USA), A. Talebpour and S. L. Chin (Laval University, Quebec, Canada)
*Femtosecond pulse propagation in the air: Variational analysis*
SEMINAR 1 --- MODERN TRENDS IN LASER PHYSICS

18.35-19.00 A. Mysyrowicz, S. Tzortzakis, M.A. Franco, Y.-B. André, A. Chiron, B. Lamouroux, and B.S. Prade (Palaiseau, France)
Formation of a conducting plasma channel in air by self-guided femtosecond laser pulses

19.00-19.25 M. Mlejnek, E.M. Wright, and J.V. Moloney (Tucson, USA)
A dynamic spatial replenishment scenario for femtosecond pulses propagating in air – A route to optical turbulence?

19.25-19.45 A.V. Andreev (Moscow, Russia)
Interaction of atom with superstrong laser field

19.45-20.00 F. Morales, E. Fiordilino and R. Daniele (Palermo, Italy)
Harmonic generation in presence of a multimode laser field

Tuesday, July 6, 1999

Seminar 1
Subsection
Physics Of Cold Atoms

Co-chairs: W.P. Schleich (Germany) and V.P. Yakovlev (Russia)

11:00-11:25 Roy Glauber (Harvard University, USA)
Coherence and Correlations in Ultracold Atomic Fields

11:25-11:50 Howard Carmichael (Oregon, USA)
Multi-atom effects in cavity QED with atomic beams

11:50-12:15 Pierre Meystre, and E.V. Goldstein (Tucson, USA)
Recent progress in nonlinear atom optics

12:15-12:40 S. Meneghini (University of Ulm), I. Jex, K.A.H. van Leeuwen, W. Schleich, V.P. Yakovlev, and M.R. Kasimov (Moscow, Russia)
Atomic beams in longitudinally modulated light crystals

12.45-14.00 Lunch

14:00-14:25 William Schieve, D. Johnson (Austin, USA)
Detection statistics in the micromaser

14:25-14:50 Janos Bergou (New York, USA; Budapest, Hungary), M. Jacob, and Y. Abranyos (New York, USA)
Generation of correlated photon pairs in the resonance fluorescence of a bichromatically driven trapped four-level atom

14:50-15:15 Krzysztof Wodkiewicz (Warsaw, Poland)
Fractional dynamics of the wave packets in phase space

15:15-15:40 Alexander Kaplan (Baltimore, USA)
Laser-powered single-atom motional oscillator
### Poster Session of Seminar 1

**Chair:** K.A. Prokhorov (Russia)

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<td>Relations between input and output states of integrated optical systems</td>
<td>P. Adam, A. Kárpáti, J. Janszky and E. Lugosi (Budapest, Hungary)</td>
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<td>Gas-plasma and superlattice free-electron lasers exploiting a medium with periodically modulated refractive index</td>
<td>V.V. Apollonov, A.I. Artemyev, M.V. Fedorov, E.A. Shapiro (Moscow, Russia), and J.K. McIver (Albuquerque, USA)</td>
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<td>Nature of photocounts and laser detecting of coherent optical signals</td>
<td>V.P. Bykov (Moscow, Russia)</td>
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<td>Amplification without inversion on the transitions from autoionizing states of Yb atom</td>
<td>A.A. Chernenko, I.M. Beterov, O.I. Permyakova (Novosibirsk, Russia)</td>
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<td>Quasistationary laser plasma</td>
<td>Z.G. Melikishvili, M.I. Djibladze, L.E. Berdzenishvili (Tbilisi, Georgia)</td>
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<td>6</td>
<td>Phase optimized states via coherent-state superpositions</td>
<td>S. Szabó, P. Adam, and J. Janszky (Budapest, Hungary)</td>
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<td>11.55-12.25</td>
<td>F. Krausz (Vienna, Austria)</td>
<td>Extreme nonlinear optics with few-cycle laser pulses</td>
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<td>14.00-14.30</td>
<td>M. Gavrila (Cambridge, USA)</td>
<td>Atomic spectroscopy in intense laser fields</td>
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<td>K.T. Taylor, J.S. Parker, D. Dundas, L.R. Moore, J.F. Mc Cann, E.S. Smith (Belfast, UK)</td>
<td>Laser-driven few-electron atoms and molecules</td>
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<td>15.00-15.25</td>
<td>R.M. Potvliege (Durham, UK)</td>
<td>Quasienergy spectrum and multiphoton dynamics</td>
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<td>15.25-15.50</td>
<td>A. Becker and F.H.M. Faisal (Bielefeld, Germany)</td>
<td>Multiple ionization processes in noble gas atoms in femtosecond laser pulses</td>
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<td>15.50-16.15</td>
<td>V.D. Taranukhin and N.Yu. Shubin (Moscow, Russia)</td>
<td>High order harmonic generation by multielectron atoms</td>
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<td>16.45-17.10</td>
<td>N.B. Narozhny and M.S. Fofanov (Moscow, Russia)</td>
<td>QED effects in a strong two-mode plane electromagnetic wave</td>
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<td>H.-J. Kull, J. Görlinger, and L. Plagne (Aachen, Germany)</td>
<td>Multielectron processes in electron-ion scattering in strong laser fields</td>
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<tr>
<td>17.35-18.00</td>
<td>R. Karapetian (Moscow, Russia)</td>
<td>Motion of an atomic electron in strong laser field</td>
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</table>
SEMINAR 2 --- STRONG-FIELD PHENOMENA

18.00-18.25 A. Cionga (Bucharest, Romania)
*Free-free transitions in electron-hydrogen*

18.25-18.50 Z. Kaminski, P. Panek and F. Ehlotzky (Innsbruck, Austria)
*Asymmetry, angular and polarizational effects in relativistic free-free transitions in a powerful laser field*

19.30-23.00 Welcome Party

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**Saturday, July 3, 1999**

Chair: L. DiMauro (USA)

11.00-11.25 S.P. Goreslavsky (Moscow, Russia)
*Photoionization assisted by rescattering: quantum theory in semiclassical limit*

11.25-11.50 R. Kopold and W. Becker (Berlin, Germany)
*Above-threshold ionization for elliptical polarization*

11.50-12.15 V.P. Krainov (Moscow, Russia)
*Energy and angular distribution of relativistic electrons in a tunneling ionization of atoms by circularly polarized laser radiation*

12.15-12.40 S. Bivona, R. Burlon, C. Leone (Palermo, Italy)
*Photoelectron current modulation in multiphoton detachment of H*

13.00-14.00 Lunch

Chair: V.P. Krainov (Russia)

14.00-14.30 U. Eichmann, M. Dammasch, M. Dörr, W. Becker, H. Maeda and W. Sandner (Berlin, Germany)
*Collective multielectron tunneling ionization*

14.30-15.00 B. Zon (Voronezh, Russia)
*Many particle aspects of tunneling*

15.00-15.25 J. Bauer (Lodz, Poland)
*Classical simulation for atoms and molecules in intense laser fields*

15.25-15.50 A. Scrinzi, M. Geissler, and T. Brabec (Vienna, Austria)
*Quasistatic laser field ionization of Hydrogen and Helium*

15.50-16.15 M.A. Efremov and M.V. Fedorov (Moscow, Russia)
*Classical and quantum-mechanical versions of the Kapitza-Dirac effect*

16.15-16.45 Coffee break

Chair: H.G. Muller (The Netherlands)

16.45-17.10 A.M. Popov, O.V. Tikhonova, and E.A. Volkova (Moscow, Russia)
*Hydrogen atom in a strong laser field*
SEMINAR 2 --- STRONG-FIELD PHENOMENA

17.10-17.35 R.M. Potvliege (Durham, UK)
Adiabatic stabilization of circular states: phase control in two-colour fields and magnetic coupling

17.35-18.00 D. Bauer (Darmstadt, Germany)
Stabilization of two-electron systems in intense laser fields

18.00-18.25 N.J. Kylstra, A. Patel and P.L. Knight (London, UK)
Laser pulse effects in the stabilization of atoms in intense, high frequency fields

18.25-18.50 R. Parzhynski, M. Sobczak, and A. Wojcik (Poznan, Poland)
The effect of nonresonant l=1, n=0 electric dipole migration on Rydberg atom photoionization

Sunday, July 4, 1999

Chair: N.B. Narozhny (Russia)

11.55-12.20 A. Maquet, R. Taieb, and V. Véniard (Paris, France)
Relativistic effects in atom-laser interactions

12.20-12.45 C.H. Keitel, S.X. Xu, C. Szymanowski, M. Casu and D.J. Urbach (Freiburg, Germany)
Relativistic laser-ion interactions: dynamics and X-ray radiation

13.00-14.00 Lunch

Chair: A.M. Popov (Russia)

14.00-14.30 S.L. Chin, A. Talebpour, and J. Yang (Quebec, Canada)
Inner shell electron ejection and fluorescence of molecules using intense femtosecond Ti-sapphire laser pulses

14.30-15.00 A. Bandrauk (Shebrooke, Canada)
Phase control of ionization of molecules

15.00-15.25 M. Ivanov, J. Karzhmarek, and P.B. Corkum (Ottawa, Canada)
Optical twister for molecules

15.25-15.50 F.H.M. Faisal and A. Becker (Bielefeld, Germany)
Intense field ionization of molecules

15.50-16.15 A.I. Andriushin and M.V. Fedorov (Moscow, Russia)
Orientation of molecules in a strong laser field

16.15-16.45 Coffee break

Chair: S.P. Goreslavsky (Russia)

16.45-17.10 P. Mulser, D. Bauer, S. Hain, and R. Ruhl (Darmstadt, Germany)
Present understanding of superintense laser-solid interactions
### SEMINAR 2 --- STRONG-FIELD PHENOMENA

#### 17.10-17.35
Zs. Tóth, B. Hopp, A. Mechler, Zs. Bor, S.D. Moustaisis, C. Kalpouzos and C. Fotakis (Szeged, Hungary)
*Reflectivity transients on solid surfaces induced by high-power excimer laser irradiation*

#### 17.35-18.00
G. Ferrante, N. Zarcone, S. Basile, P. Porshnev and O. Petrova (Palermo, Italy)
*Evolution of highly anisotropic plasma distribution functions in strong laser fields*

#### 18.00-18.25
S. Nuzzo, G. Ferrante, N. Zarcone, S. Basile (Palermo, Italy)
*Elementary kinetic theory of strong field frequency and multiplication wave mixing*

#### 18.25-18.50
V.P. Krainov and M.B. Smirnov (Moscow, Russia)
*Thomas-Fermi metal clusters in a laser field*

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### Monday, July 5, 1999

**Chair:** F. Ehlotzky (Austria)

#### 11.00-11.25
M.Yu. Kuchiev and V.N. Ostrovsky (Sydney, Australia)
*Quantum theory of a high harmonic generation as a three-step process*

#### 11.25-11.50
I. Földes, J.S. Bakos, K. Gál, Z. Juhász, G. Kocsis, S. Szatmári, and G. Veres (Budapest, Hungary)
*Properties of high harmonics generated by ultrashort UV laser pulses on solid surfaces*

#### 11.50-12.15
*Coherence properties and applications of high-order harmonics*

#### 12.15-12.40
M.A. Sukharev and V.P. Krainov (Moscow, Russia)
*High-order harmonics generated by H<sub>2</sub><sup>+</sup> in a strong laser field*

**Chair:** F. Faisal (Germany)

#### 14.00-14.30
Ph. Martin (Saclay, France)
*Time-resolved photoemission spectroscopy using high-order harmonics*

#### 14.30-15.00
D.B. Milosevich, and A.F. Starace (Berlin, Germany)
*Control of high harmonic generation and laser-assisted X-ray-atom scattering with static electric and magnetic fields*

#### 15.00-15.25
B. Carre, L. Le D’eroff, P. Salieres, D. Joyeux (Saclay, France)
*Spatial and temporal coherence of high-order harmonics*
SEMINAR 2 --- STRONG-FIELD PHENOMENA

15.25-15.50  R. Grobe (Normal, IL, USA)
Generation of higher harmonics in relativistic ionization of magnetically dressed atoms

15.50-16.15  V. Véniard, R. Taïeb, and A. Maquet (Paris, France)
A simple model for harmonic generation on atomic clusters

16.15-16.45  Coffee break

Chair: W. Becker (Germany)

16.45-17.10  S. Meyer, B. Chichkov and B. Wellegehausen (Hannover, Germany)
High-order harmonic generation in absorbing media and high order parametric amplification

17.10-17.35  V.T. Platonenko and V.V. Strelkov (Moscow, Russia)
Attosecond pulse generated with an ultrashort laser pulse

17.35-18.00  D. Persano Adorno, G. Ferrante, M. Zarcone (Palermo, Italy)
Far-infrared harmonic generation in semiconductors. A Monte-Carlo simulation

18.00-18.25  N.B. Narozhny and M.S. Fofanov (Moscow, Russia)
Relativistic ponderomotive effect

18.25-18.50  M.V. Fedorov and D.R. Bitouk (Moscow, Russia)
Relativistic ponderomotive forces

Tuesday, July 6, 1999

11.00-12.45  Poster Session of Seminar 2

Chair: M.V. Fedorov (Russia)

1.  V.E. Chernov and B.A. Zon (Voronezh, Russia)
X-ray laser induced nuclear decay: resonance internal conversion

2.  S.M. Fedorov, O.V. Tikhonova, and M.V. Fedorov (Moscow, Russia)
Interference vs. transient stabilization of Rydberg atoms in a strong light field

3.  A. Jaron, J.Z. Kaminski, and F. Ehlotzky (Innsbruck, Austria)
Asymmetries in the angular distribution of above threshold ionization in an elliptically polarized field

4.  V.L. Kalashnikov, D.O. Krimer, T.G. Poloyko (Minsk, Belarus)
Weak-nonlinear solution in the solid-state laser with semiconductor saturable absorber

5.  Z. Kaminski and F. Ehlotzky (Innsbruck, Austria)
Transitional effects in electron-atom scattering in a laser field near the interface between radiation filled space and vacuum
SEMINAR 2 --- STRONG-FIELD PHENOMENA

6. V.T. Platonenko and V.V. Strelkov (Moscow, Russia)
   Analytical formulae for high harmonic amplitudes

7. S. Varro, G. Farkas, and F. Ehlotzky (Innsbruck, Austria)
   Generation of X-rays by irradiating metal surfaces with a powerful laser beam in a presence of a strong static electric field

8. S.V. Popruzhenko, S.P. Goreslavsky (Moscow, Russia)
   Scalings of the interference structure in the photoelectron distribution on the ATI plateau

9. C. Reinhardt, S. Scorupka, H. Kawano, B. Chichkov, and B. Wellegehausen (Hannover, Germany)
   Efficient VUV and XUV generation with a fs KrF laser

10. V.D. Taranukhin (Moscow, Russia)
    Large relativistic ponderomotive forces in electromagnetic field of arbitrary strength

11. C. Trump, H. Rottke, G. Korn, M. Wittemann, and W. Sandner (Berlin, Germany)
    Probing strong field photodissociation of

12. V.I. Trunov, A.V. Kirpichnikov, E.V. Pestryakov, V.V. Petrov (Novosibirsk, Russia)
    Formation of ultrafast optical pulses in lasers with ultrawide gainband

13. E.A. Shapiro, M. Kalinski, P. Bellomo, J. Eberly (Moscow, Russia; Rochester, NY, USA)
    Quantum control via localized Rydberg states

14. V.V. Suran and I.I. Bondar (Uzhgorod, Ukraine)
    Direct two-electron mechanism of doubly-charged ions formation: resonant structure of $A^{2+}$ yield

15. D.F. Zaretsky and E.A. Nersesov (Moscow, Russia)
    The time duration of high harmonic generation in the process of ATI

16. D.F. Zaretsky and E.A. Nersesov (Moscow, Russia)
    The amplification of high harmonics in the process of ATI

17. Z. Kaminski, P. Panek and F. Ehlotzky (Innsbruck, Austria) (See lecture: Sunday, 18:25)
    Asymmetry, angular and polarizational effects in relativistic free-free transitions in a powerful laser field

18. S. Haan (USA)
    Near threshold one-photon photoionization in a one-dimensional delta-function system
# Seminar 3
## Laser Spectroscopy

**Friday, July 2, 1999**

**Chair: W. Hogervorst (The Netherlands)**

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<td>11.55-12.25</td>
<td>W.J. Witteman (Enschede, The Netherlands)</td>
<td>Prospects for extending the stable pulse duration of short wave eximer lasers</td>
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<td>12.25-12.55</td>
<td>F. K. Tittel (Houston, USA)</td>
<td>Novel diode based sensors for gas sensing applications</td>
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<td><strong>Chair: F.K. Tittel (USA)</strong></td>
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<td>14.00-14.35</td>
<td>A.E. Dudelzak, E.V. Browell, A.I. Carswell (St-Hubert, Canada)</td>
<td>Progress in ORACLE (Ozone Research with Advanced Cooperative Lidar Experiment): joint NASA-CSA development of a space-based ozone dial</td>
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<td>15.10-15.45</td>
<td>A.V. Sokolov, D.D. Yavuz, D.R. Walker, G. Y. Yin, and S.E. Harris (Stanford, USA)</td>
<td>Subfemtosecond pulse generation by molecular modulation</td>
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<td><strong>16.15-16.45</strong></td>
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<td><strong>Chair: S.N. Bagayev (Russia)</strong></td>
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<td>16.45-17.20</td>
<td>N.N. Rubtsova, E.B. Khvorostov, S.A. Kochubey, L.S. Vasilenko (Novosibirsk, Russia), and I.V. Yevseyev (Moscow, Russia)</td>
<td>Polarization properties of the photon echoes in the Ytterbium vapor: dependence on the exciting pulse areas</td>
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<td>17.20-17.55</td>
<td>R.N. Shakhmuratov (Leuven, Belgium)</td>
<td>Locking and unlocking of the transient nutation signal</td>
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<td>17.55-18.25</td>
<td>V.A. Zuikov, J. Gallus, O. Ollikainen, A.K. Rebane, U.P. Wild, A.A. Kalachev, V.V. Samartsev (Kazan, Russia)</td>
<td>The spatial and spectral properties of the femtosecond photon echo and the angle echo-spectroscopy possibility</td>
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**SEMINAR 3 --- LASER SPECTROSCOPY**

18.25-18.50  V.A. Zuev, A.A. Kalachev, V.V. Samartsev, A.M. Shegeda (Kazan, Russia)
*Optical Superradiance in the LaF₃:Pr³⁺- Crystal*

19.30-23.00  Welcome Party

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A Saturday, July 3, 1999

**Chair: W.J. Witteman (The Netherlands)**

11.00-11.35  U. Hinze, B.N. Chichkov, E. Tiemann, B. Wellegehausen (Hannover, Germany)
*Resonant CW four-wave mixing and parametric amplification*

11.35-12.10  A.F. Semerok, B. Larousse, A. Pailloux (Saclay, France)
*Optical diagnostics system for measuring SUPER-ERIC plasma parameters*

12.10-12.45  W. Chen, J. Burie, D. Boucher (Dunkerque, France)
*A widely tunable difference-frequency spectrometer for high-resolution infrared laser spectroscopy*

12.45-14.00  Lunch

**Chair: P.E. Toschek (Germany)**

14.00-14.30  Z. Bozoki, A. Mohacsi, M. Szakall, G. Szabo and Z. Bor (Szeged, Hungary)
*High stability external cavity diode laser system for photoacoustic gas detection*

14.30-15.00  A. Kireev, M.A. Gubin, E.V. Koval'chuk, M.V. Petrovskiy, E.A. Petrukhin, A.S. Shelkovnikov, D.A. Tyurikov (Moscow, Russia)
*Double-mode He-Ne and diode-pumped RbCl:LiF₃(II) lasers for precise measurements in the 3.0-3.4 μm region*

15.00-15.25  L. Feenstra, H.M.J. Bastiaens, P.J.M. Peters and W.J. Witteman (Enschede, The Netherlands)
*On the extension of the pulse length of a discharge excited ArF excimer laser*

15.25-15.50  T. Nagy, P. Simon, S. Szatmári (Szeged, Hungary)
*Spectral evolution of short pulses in KrF amplifiers*

16.15-16.45  Coffee break

**Chair: N.N. Rubtsova (Russia)**

16.45-17.10  J.H. Eberly, E.A. Shapiro, M. Kalinski, P. Bellomo (Rochester, USA)
*Quantum phase lock in Rydberg atoms*
SEMINAR 3 --- LASER SPECTROSCOPY

17.10-17.35  S.N. Bagayev (Novosibirsk, Russia)
Highly stable femtosecond lasers and their application for the creation of a new optical clock

17.35-18.00  E.V. Baklanov, A.V. Denisov (Novosibirsk, Russia)
High precision calculations of the low-lying energy levels of the three body Coulomb system

Sunday, July 4, 1999

14.00-15.40  Poster Session of Seminar 3

Chair: V.M. Yermachenko (Russia)

1. T.G. Mitrofanova, V.A. Zuikov, A.A. Kalachev, V.V. Samartsev (Kazan, Russia)
Accumulated long-lived photon echo in the Van-Fleck paramagnetics and problem of optical memory

2. A.V. Taichenachev, A.M. Tumaikin and V.I. Yudin (Novosibirsk, Russia)
Simple theoretical model for electromagnetically induced absorption: Four-state N-atom

3. O.N. Prudnikov, A.V. Taichenachev, A.M. Tumaikin and V.I. Yudin (Novosibirsk, Russia)
New friction force caused by spontaneous radiation pressure

4. N.P. Konopleva, A.M. Tumaikin (Novosibirsk, Russia)
Magnetically induced amplification without inversion in three-level cascade scheme

5. A.V. Taichenachev, A.M. Tumaikin, V.I. Yudin (Novosibirsk, Russia)
Two-dimensional sideband Raman cooling and $m = 0$ Zeeman state preparation in an optical lattice
# Seminar 4

## Solid State Lasers and Nonlinear Optics

### Sunday, July 4, 1999

**Chair:** Yusuke Mori (Japan)

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<td>H.P. Weber, R. Weber, Th. Graf (Bern, Switzerland)</td>
<td><em>High-power diode-pumped solid-state lasers</em></td>
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<td>12.20-12.45</td>
<td>K. Yoshida (Osaka, Japan), A. Ikesue (Kyoto, Japan), T. Taira (Oka-zaki, Japan)</td>
<td><em>Optical properties and diode pumped operation of high-performance Nd doped YAG ceramics for solid-state lasers</em></td>
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<td>14.00-14.25</td>
<td>P. Maak, L. Jakab, P. Richter (Budapest, Hungary), H.J. Eichler, B. Liu (Berlin, Germany)</td>
<td><em>Acoustooptic Q-switching of an Er:YSGG solid state laser</em></td>
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<td>14.25-14.50</td>
<td>S. Kueck, L. Fornasiero, E. Mix, G. Huber (Hamburg, Germany)</td>
<td><em>Investigation of Cr doped MgO and Sc₂O₃ as potential laser sources for the near infrared spectral range</em></td>
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<td>14.50-15.15</td>
<td>V. Peters, E. Mix, L. Fornasiero, K. Petermann, G. Huber (Hamburg, Germany)</td>
<td><em>Efficient laser operation of Yb³⁺: Sc₂O₃ and spectroscopic characterization of Pr³⁺ in cubic sesquioxides</em></td>
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<td>15.15-15.35</td>
<td>T. Sorokina, S. Naumov, E. Sorokin, E. Wintner (Wien, Austria) and A.V. Shestakov (Moscow, Russia)</td>
<td><em>Compact diode-pumped continuous-wave Cr:YAG laser</em></td>
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<td>15.35-15.55</td>
<td>N.N. Il’ichev, P.P. Pashinin (Moscow, Russia)</td>
<td><em>Continous wave operation of F² — color centers laser in LiF at 1.15 mcm</em></td>
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<td>G.A. Bufetova, V.F. Seregin, I.A. Shcherbakov, V.B. Tsvetkov (Moscow, Russia), A.M. Zabaznov (Minsk, Belarus)</td>
<td><em>Analysis and modeling of the thermolens dynamical behavior in pulsed solid-state lasers</em></td>
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SEMINAR 4 --- SOLID STATE LASERS AND NONLINEAR OPTICS

Chair: R. Szipocs (Hungary)

16.45-17.15 I.V. Klimov, D.A. Nikolaev, I.A. Shcherbakov, V.B. Tsvetkov (Moscow, Russia)
Neodimium lasers, operating at different wavelength on $4F_{3/2} - 4I_{13/2}$ transition in a number of crystal hosts

17.15-17.40 L. Ivleva, N. Bogodaev, N. Polozkov, P. Lykov, V. Osiko (Moscow, Russia)
Holographic recording and beam coupling in barium-strontium niobate single crystals doped with cobalt

17.40-18.05 A.V. Podlipensky, N.V. Kuleshov, V.G. Shcherbitsky, V.P. Mikhailov, V.I. Levchenko, V.N. Yakimovich (Minsk, Belarus)
$\text{Cr}^{2+}:\text{ZnSe}$ and $\text{Co}^{2+}:\text{ZnSe}$ saturable-absorber Q-switches for the Er:glass laser at 1.54 µm

18.05-18.30 A.A. Lagatsky, N.V. Kuleshov, V.P. Mikhailov (Minsk, Belarus)
CW laser performance of diode-pumped Yb:KYW and Yb:KGW

19.30-23.00 Conference Dinner

Chair: I.A. Shcherbakov (Russia)

Monday, July 5, 1999

11.00-11.30 Yusuke Mori, Masashi Yoshimura, Takatomo Sasaki (Osaka, Japan)
Recent development of nonlinear optical borate crystals for UV generation

11.30-11.55 József A. Fülöp, Attila P. Kovács, Zsolt Bor (Szeged, Hungary)
Improved two-pass second harmonic generation of femtosecond pulses

11.55-12.20 P.B.W. Burmester, T. Kellner, S. Kueck, K. Petermann, G. Huber (Hamburg, Germany)
Type I noncritically phase-matched second harmonic generation in (Gd, Y) COB?

12.20-12.45 P. Apai, S. Lako, R. Szipocs (Budapest, Hungary) and M.B. Danailov (Trieste, Italy)
Broad-band photorefractive phase conjugation in a dispersive scheme

12.45-14.00 Lunch

Chair: N.N. Il’ichev (Russia)

14.00-14.25 R. Menzel, V. Raab, D. Lorenz, A. Heuer (Potsdam, Germany)
New developments of phase conjugating mirrors based on stimulated Brillouin scattering
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<td>Michiyuki Endo and Gorachand Ghosh (Tsukuba, Japan) <em>Estimation of phase noise in a mode-locked tunable laser</em></td>
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<td>R. Szipocs (Budapest, Hungary), A. Euteneuer, E. Finger, M. Hofmann (Marburg, Germany), A. Kohazi-Kis (Budapest, Hungary) <em>Multi-color, mode-locked Ti : sapphire laser with zero pulse jitter</em></td>
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<td>15.15-15.40</td>
<td>P. Tosin, W. Luthy, and H.P. Weber (Bern, Switzerland) <em>Manufacture of fibers with multiple claddings</em></td>
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<td>15.40-16.05</td>
<td>A.V. Kir'yanov, N.N. Il'ichev (Moscow, Russia), and V. Aboites (Leon, Mexico) <em>Polarisation bistability in a Nd:YAG laser passively Q-switched with a Cr³⁺: YAG crystal under the weak resonant signal control</em></td>
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<td>17.10-17.35</td>
<td>D.O. Krimer, V.L. Kalashnikov, I.G. Poloyko (Minsk, Belarus) <em>Weak-nonlinear soliton in the solid-state laser with semiconductor saturable absorber</em></td>
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<td>17.35-18.00</td>
<td>V.L. Kalashnikov, D.O. Krimer, F. Mejid, I.G. Poloyko (Minsk, Belarus) <em>Automodulation in cw solid-state ultrashort lasers mode-locked by kerr-lensing</em></td>
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<td>18.00-18.25</td>
<td>L.A. Kotomtseva, S.G. Rusov (Minsk, Belarus) <em>Multivalued steady states, switching regimes and nonlinear dynamics in a solid state laser with a saturable absorber</em></td>
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<td>18.25-18.50</td>
<td>E.V. Pestryakov, V.V. Petrov, V.I. Trunov, A.V. Kirpichnikov, A.I. Alimpiev (Novosibirsk, Russia) <em>Prospects for superbroadband laser media based on beryllium aluminiate crystals</em></td>
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## Seminar 5
### Laser Methods in Medicine

#### Monday, July 5, 1999

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<td>G. Müller, D. Schaldach, A. Roggan, J. Helfmann, J. Beuthan (Berlin, Germany)</td>
<td>Laser optics in medical diagnostics and therapy</td>
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<td>11.40-12.15</td>
<td>A. Sergeev (Nizhniy Novgorod, Russia)</td>
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<td>12.15-12.45</td>
<td>H. van den Bergh, J.-P. Ballini, M. Sickenberg (Lausanne, Switzerland)</td>
<td>Photodynamic therapy of age related macular degeneration: pharmacokinetics and therapeutic results</td>
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<td>G. Klebanov, M. Kreinina, T. Chichuk, V. Christophorov, A. Grabovschiner (Moscow, Russia)</td>
<td>Molecular and cell mechanisms of laser therapy</td>
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<td>15.25-15.50</td>
<td>J. Lademann, H.-J. Weigmann (Berlin, Germany), H. Schaefer (Paris, France), G. Müller, W. Sterry (Berlin, Germany)</td>
<td>Laser spectroscopic investigation of the stability of coated titanium microparticles used in sunscreens</td>
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<td>15.50-16.15</td>
<td>I. Ferincz (Szeged, Hungary), I. Ratkay (Budapest, Hungary), Zs. Bor (Szeged, Hungary)</td>
<td>Age and intended correction dependence of effective ablation rate during photorefractive keratectomy</td>
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<td>Coffee Break</td>
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## SEMINAR 5 --- LASER METHODS IN MEDICINE

### Chairs: J. Lademann (Germany) and L. Gáspár (Hungary)

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<td>17.20-17.55</td>
<td>M. Frenz, K. Kostli (Bern, Switzerland), G. Paltauf, H. Schmidt-Kloiber (Graz, Austria), H. Weber (Switzerland)</td>
<td><em>Tissue characterization by optoacoustic wave detection</em></td>
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<td>17.55-18.30</td>
<td>V. Loschenov, G. Kisilev, A. Stratonnikov, A. Prokhorov (Moscow, Russia)</td>
<td><em>The methods of laser induced fluorescence spectroscopy of tissue in vivo for diagnostics and therapy control</em></td>
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### Tuesday, July 6

### Chairs: H. Weber (Switzerland) and J. Lademann (Germany)

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<td>A. Priezzhev (Moscow, Russia)</td>
<td><em>Laser diagnostics of pathologies by measuring structural and dynamics parameters of biological fluid</em></td>
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<td>11.35-12.10</td>
<td>E. Sobol, A. Sviridov, M. Kitai, (Troitsk, Russia), J. Gilligan, N.H. Tolk, G. Edwards (Nashville, USA)</td>
<td><em>Time-resolved light scattering measurements of cartilage and cornea denaturation due to FEL irradiation</em></td>
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<td>12.10-12.45</td>
<td>T. Juhasz, R. Kurtz, Z. Sacks, D. Cabrera, L. Turi, G. Spooner (Ann Arbor, USA), G. Djotyan (Budapest, Hungary)</td>
<td><em>Applications of femtosecond lasers in corneal surgery</em></td>
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### Chairs: S. Gonchukov (Russia) and A. Priezzhev (Russia)

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<td>V. Volnukhin, M. Kochetkov, V. Koslov, T. Fedorova, V. Grebenyuk, O. Vybornova (Moscow, Russia)</td>
<td><em>Low-intensive laser therapy of patients with granuloma annulare and its effect on microcirculation in the skin and blood lipid peroxidation</em></td>
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<td><em>The study of motility of individual microparticles by phase sensitive laser spectroscopy</em></td>
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<td><em>Laser Doppler sensor for laser assisted injection</em></td>
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<td>A. Soundoukov, N. Yuschuk, S. Gonchukov</td>
<td>The new approach to the treatment of adults from toxic diphtheria</td>
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<td>E. Bálint, A. Veres, I. Ocsovszki, I. Béládi, Z. Várkonyi</td>
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<td>S. Skipetrov</td>
<td>Diffusing-wave imaging of flow in turbid media</td>
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<td>S. Skipetrov</td>
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<td>Scattering of laser light wave on spherical particles of lens biotissue</td>
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# Symposium on Status and Future Directions of High-Power Laser installations

**Tuesday, July 6, 1999**

**Chair: W. Sandner (Germany)**

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<td>Jean-Paul Chambaret (Palaiseau, France)</td>
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<td>16.45-17.30</td>
<td>Katumi Midorikawa et al. (RIKEN, Japan)</td>
<td>Guided Femtosecond Ti:Sapphire Laser Pulses</td>
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