

December 4 (Tuesday)

14:00 **Registration of the LCS participants in IAP RAS lobby**

15:00 **Opening remarks**

Ceramics characterization - 1

01 15:20 *Invited* Yagi Hideki, T. Yanagitani, H.Nozawa, K.Muramatsu, Konoshima Chemical Co. Ltd, Japan, Transparent ceramics for photonic applications.

02 15:50 *Invited* Dewei Luo, Ling Bing Kong, Dingyuan Tang, Jian Zhang, Hui Lin, Hao Yang, Changwen Xu and Haiyong Zhu, *School of Materials Science and Engineering, Nanyang Technological University, Singapore*, Ytterbium doped transparent ceramics for solid state laser application.

03 16:20 *Invited* Oleg Palashov, *Institute of Applied Physics RAS, Russia*. Optical elements made of ceramics and ceramic composites: diagnostics of properties and application in lasers.

04 16:50 Jiang Li, Wenbin Liu, Benxue Jiang, Yubai Pan, Jingkun Guo, *Laboratory of Transparent Opto-functional Inorganic Materials, Shanghai Institute of Ceramics, Chinese Academy of Science, China*. Fabrication and characterization of advanced Nd:YAG laser ceramics.

17:10 *Coffee-break*

Ceramics characterization - 2

05 17:40 Hao Yang^{1,2}, Jian Zhang^{1,2}, Dewei Luo², Hui Lin², Dingyuan Tang², Deyuan Shen¹, ¹*Jiangsu Normal University, China*; ²*Nanyang Technological University, Singapore*, Optical Properties and laser performance of high transparent Ho: LuAG laser ceramics.

06 18:00 U. Reichel, E. Kemnitz, *Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Hermsdorf branch of the institute, Germany*, Nanoscopic metal fluoride coating on polycrystalline transparent spinel ceramics

07 18:20 A.G. Vyatkin, E.A. Khazanov, *Institute of Applied Physics RAS, Russia*. Thermally induced scattering of light in fine-grained ceramics

19:00 **Welcome party**

December 5 (Wednesday)

9:00 **Bus tour of Nizhny Novgorod**

11:00 *Coffee-break*

Ceramics characterization - 3

11 11:30 *Invited* Dewei Luo, Dingyuan Tang, *Nanyang Technological University, Singapore*, Rare-earth Doped Ceramics for the Mid-infrared Lasers.

12 12:00 R.N. Maksimov, V.V. Osipov, A.N. Orlov, V.V. Lisenkov, V.V. Platonov, *Institute of Electrophysics UB RAS, Ekaterinburg, Russia*, The influence of hafnium oxide additives on optical properties of Y₂O₃ doped Nd⁺³ ceramics.

13 12:20 V.V. Zelenogorsky¹, E.A. Perevezentsev¹, I.B. Mukhin¹, O.V. Palashov¹, E.A. Khazanov¹, H. Yagi², T. Yanagitani², H. Yoneda³, A. Shirakawa³, K. Ueda³, A.A. Kaminskii⁴, ¹*Institute of Applied Physics RAS, Russia*, ²*Takuma Works, Konoshima Chemical Co. Ltd., Japan*; ³*Institute for Laser Science, University of Electro-Communications, Japan*; ⁴*Institute of Crystallography RAS, Russia*, Lasing and spectroscopic properties of Y₂O₃, Lu₂O₃, and Sc₂O₃ ceramics doped with Yb³⁺ ions.

14 12:40 I.L. Snetkov¹, D.E. Silin¹, O.V. Palashov¹, E.A. Khazanov¹, H. Yagi², T. Yanagitani², H. Yoneda³, A. Shirakawa³, K. Ueda³, and A.A. Kaminskii⁴, ¹*Institute of Applied Physics RAS, Russia*; ²*Takuma Works, Konoshima Chemical Co. Ltd., Japan*; ³*Institute for Laser Science, University of Electro-Communications, Japan*; ⁴*Institute of Crystallography RAS, Russia*. Thermo-optical constants of sesquioxide laser ceramics Yb³⁺:Ln₂O₃ (Ln = Y, Sc, Lu).

13:00 *Lunch at the IAP RAS cafe*

Ceramics characterization - 4

21 14:30 *Invited* Yoichi Sato, *Institute for Molecular Science, Japan*, Fundamental sciences in orientation control process for anisotropic laser ceramics.

22 15:00 A.A. Lyapin¹, P.P. Fedorov², E.A. Garibin³, M.V. Kruglova⁴, A.V. Malov¹, V.V. Osiko², P.A. Ryabochkina¹, N.V. Sakharov⁴, S.N. Ushakov², ¹*Ogarev Mordovian State University*; ²*Prokhorov General Physics Institute RAS*; ³*INCROM Ltd.*; ⁴*State university of Nizhny Novgorod; Russia*, Tm:CaF₂ nanoceramics: spectroscopic and laser properties.

23 15:20 K.N. Guliaeva¹, A.N. Trofimov¹, M.V. Zamoryanskaya¹ and D. Hreniak², ¹*Ioffe Physical-Technical Institute RAS, Russia*; ²*Institute of Low Temperatures and Structure Research PAS, Poland*. Luminescence of nanoceramics based on yttrium-aluminium garnet doped with neodymium.

24 15:40 *Invited* P.D. Mason, K. Ertel, S. Banerjee, P.J. Phillips, S. Blake, C. Hernandez-Gomez, J. Greenhalgh, J.L. Collier, *Central Laser Facility, STFC Rutherford Appleton Laboratory, UK*, Development of high energy and high intensity multi-Hz laser systems at the central laser facility.

16:10 *Coffee-break*

Ceramics fabrication - 1

25 16:40 *Invited* V.V.Osipov, *Institute of Electrophysics UB RAS, Ekaterinburg, Russia*. Fabrication of transparent ceramics using nanopowders produced by laser evaporation.

26 17:10 *Invited* S.N.Bagaev¹, A.A.Kaminskii², Yu.L.Kopylov³, V.B.Kravchenko³, V.V.Shemet³, ¹*Institute of Laser Physics SB RAS*; ²*Institute of Crystallography RAS*; ³*Institute of Radioengineering and Electronics named after V.A.Kotelnikov*, Preparation of spherical doped Y₂O₃ nanoparticles and laser ceramics on their basis.

27 17:40 R.P. Yavetskiy¹, V.N. Baumer¹, A.G. Doroshenko¹, I.N. Ogorodnikov³, I.A. Petrusha², O.L. Shpilinskaya¹, A.V. Tolmachev¹, V.Z. Turkevich², ¹*Institute for Single Crystals of NAS of Ukraine*; ²*V.Bakul Institute for Superhard Materials of NAS of Ukraine, Ukraine*; ³*Ural Federal University, Russia*, Fabrication of yttria nanograined ceramics.

28 18:00 E.M. Gavrishchuk¹, D.A. Permin¹, A.V. Fedin², S.A. Perfilov³, V. E. Vaganov⁴, ¹*G.G. Devyatikh Institute of Chemistry of High-Purity Substances RAS*; ²*Kovrov State Technological Academy named after V.A. Degtyarev*; ³*Federal State Budgetary Institution Technological institute for superhard and*

novel carbon materials; ⁴Vladimir State University named after Alexander and Nicolay Stoletovs, Russia, A perspective method for creating solid-state active laser media.

18:20

Dinner at your own

December 6 (Thursday)

Ceramics fabrication – 2

- 31 9:00 *Invited* Zhang Jian, *Jiangsu Normal University, Jiangsu, China; Nanyang Technological University, Singapore*, Processing refinement for high quality laser ceramics.
- 32 9:30 S.V. Egorov, Yu.V. Bykov, A.G. Ereemeev, *Institute of Applied Physics RAS, Russia*, Fabrication of transparent ceramics by millimeter-wave sintering.
- 33 9:50 M.E.Doroshenko¹, P.P.Fedorov¹, E.A.Garibin², V.A.Konyshkin¹, V.V.Osiko¹, ¹*Prochorov General Physics Institute;* ²*INCROM Ltd, Russia*, Progress in fluoride laser ceramics.
- 34 10:10 O.L. Khasanov, E.S. Dvilis, A.A. Kachaev, A.O. Khasanov, E.F. Polisadova, *National Research Tomsk Polytechnic University, Russia*, Transparent spinel ceramics sintered using SPS technique.
- 35 10:30 M.Sh. Akchurin¹, R.M. Zakalyukin¹, S.N. Bagayev², A.A. Kaminskii¹, ¹*Institute of Crystallography RAS;* ²*Institute of Laser Physics SB RAS, Russia*, Laser ceramics based on the Y₃Al₅O₁₂: mechanisms of solid-state reactions.
- 10:50 *Coffee-break*

Ceramics fabrication - 3

- 36 11:30 G.B. Telnova, A.A. Konovalov, T.Y. Kolomiets, K.A. Solntsev, *Baikov Institute of Metallurgy and Material Science RAS, Russia*, Obtaining, optical and spectroscopic properties of transparent ceramics based on Y₂O₃:YB₂O₃ (Eu₂O₃).
- 37 11:50 Shengming Zhou, Hui Lin, Chong Chen, Long Zhang, Jianda Shao, *Shanghai Institute of Optics and Fine Mechanics (SIOM) CAS, China*, Progress in transparent ceramic preparation in SIOM.
- 38 12:10 A.S. Shcheulin¹, A.E. Angervax¹, P.P. Fedorov², V.M. Reiterov³, E.N. Garibin³, A.I. Ryskin¹, ¹*National Research University of Information Technologies, Mechanics and Optics,* ²*A.M. Prokhorov Institute of General Physics,* ³*INCROM Ltd, Russia*, Determination of Yb²⁺ content in CaF₂ laser ceramics.
- 39 12:30 E.F. Martynovich, *Irkutsk Branch of Institute of Laser Physics SB RAS, Russia*, Highly Non-Linear Fluorescent Ceramic Material for 3D Storage Media.
- 13:00 *Lunch at the IAP RAS cafe*

Ceramics fabrication - 4

- 41 14:30 M.G. Ivanov¹ and Yu.L. Kopilov², ¹*Institute of Electrophysics UrB of RAS;* ²*Institute of Radioengineering and Electronics named after V.A. Kotelnikov RAS, Russia*, Sintering and optical quality of highly transparent YB DOPED yttrium lanthanum oxide ceramics.
- 42 14:50 A.G. Doroshenko¹, D.Yu. Kosyanov¹, P.V. Mateychenko¹, N.A. Matveevskay, S.V. Parkhomenko¹, V.N. Puzikov¹, A.V. Tolmachev¹, R.P. Yavetskiy¹, Yu.L. Kopylov², V.B. Kravchenko², ¹*Institute for Single Crystals of NAS of Ukraine, Ukraine;* ²*Institute of Radioengineering and Electronics of RAS, Russia*, Comparison of two approaches to sinter Nd:YAG optical ceramics.
- 43 15:10 S.S. Balabanov¹, Yu.V. Bykov², E.M. Gavrishchuk¹, V.V. Drobotenko¹, S.V. Egorov², D.A. Permin¹, V. V. Zelenogorsky², ¹*G.G. Devyatikh Institute of Chemistry of High-Purity Substances RAS;* ²*Institute of Applied Physics RAS, Russia*, Self-propagating high temperature synthesis of rare-earth oxide nanopowders for transparent ceramics.
- 44 15:30 M.G. Ivanov¹, Yu.L. Kopilov², Jiang Li³, ¹*Institute of Electrophysics UrB of RAS;* ²*Institute of Radioengineering and Electronics named after V.A. Kotelnikov RAS, Russia;* ³*Shanghai Institute of Ceramics CAS, China*, Influence of nanopowders morphology on reactive sintering of YAG LASER ceramics.
- 15:50 *Coffee-break*

Ceramic lasers - 1

- 45 16:20 *Invited* Ken-ichi Ueda^{1,2}, ¹*Institute for Laser Science, the University of Electro-Communications;* ²*Industrial Development Laboratory, Hamamatsu Photonics K.K., Japan*, Thermal lens free ceramic laser.

- 46 16:50 O.N. Eremykin^{1,2}, A.P. Savikin¹, A.S. Egorov¹, K. Yu. Pavlenko¹, E.M. Gavrishchuk², S.S. Balabanov^{2,3}, S.A. Rodin^{1,2}, V.B. Ikonnikov², ¹*N.I. Lobachevsky State University of Nizhny Novgorod*; ²*G.G. Devyatykh Institute of Chemistry of High-Purity Substances RAS*; ³*NN Optica LLC, Russia*, Tunable laser based on polycrystalline Cr:ZnSe and Cr:ZnS with pulse-periodic pumping.
- 47 17:10 I.B. Mukhin, E. A. Perevezentsev, O.V. Palashov, *Institute of Applied Physics RAS, Russia*, Fabrication of composite active elements made of laser ceramics by thermal diffusion bonding method.
- 48 17:30 O.L. Antipov¹, A.A. Novikov¹, N.G. Zakharov¹, A.P. Zinoviev¹, H. Yagi², S.Yu. Golovkin³, N.V. Sakharov³, M.V. Kruglova³, M.O. Marychev³, O.N. Gorshkov³, A.A. Lagatskii⁴, ¹*Institute of Applied Physics RAS, Russia*; ²*Konoshima Chemicals, Co., Japan*; ³*N.I. Lobachevsky State University of Nizhny Novgorod, Russia*; ⁴*School of Physics and Astronomy, University of St Andrews, UK*, Novel efficient 2.1- μm lasers based on Tm³⁺:Lu₂O₃ ceramics pumped by 800-nm laser diodes.
- 18:30 **Symposium Dinner**

December 7 (Friday)

Ceramic lasers - 2

- 51 9:00 *Invited* A. Shirakawa¹, M. Tokurakawa¹, H. Nakao¹, K. Ueda¹, and A.A. Kaminskii²,
¹*Institute for Laser Science, University of Electro-Communications, Japan;* ²*Institute of Crystallography RAS, Russia*, Ultrafast ceramic lasers.
- 52 9:30 D.Y. Shen^{1,2}, Y. Wang², H. Chen², T. Zhao¹, X.F. Yang¹, Z.X. Zhu¹, J. Zhang¹, D.Y. Tang¹, ¹*Jiangsu Normal University;* ²*Fudan University, China*, Continuous wave and graphene passively Q-switched Er:YAG ceramic laser at 1.6 μm .
- 53 9:50 Vadimova O.L., Mukhin I.B., Palashov O.V., Perevezentsev E.A, *Institute of Applied Physics RAS, Russia*, Comparison of energy storing in different YB-doped laser ceramics.
- 54 10:10 E. A. Perevezentsev, I. B. Mukhin, O. L. Vadimova, O. V. Palashov, E. A. Khazanov *Institute of Applied Physics RAS, Russia*, Amplifier with high energy capacity and average power based on cryogenically cooled disk shaped Yb:YAG laser ceramics.
- 55 10:30 Yu. Senatsky¹, J.-F. Bisson², J. Li³, A. Shirakawa⁴, M. Thirugnanasambandam⁴, K. Ueda⁴, ¹*P. N. Lebedev Physical Institute RAS Russia;* ²*Département de physique et astronomie, Université de Moncton, Canada;* ³*Shanghai Institute of Optics and Fine Mechanics CAS, China;* ⁴*Institute for Laser Science, University of Electro-Communications, Japan*, Laguerre-gaussian modes selection in diode-pumped ceramic lasers.
- 10:50 *Coffee-break*

Ceramic lasers - 3

- 56 11:20 *Invited* Hong Jin Kong, Sangwoo Park, Seongwoo Cha, *Korea Advanced Institute of Science and Technology, Korea*, 0.4J/10ns/10kHz-4kW coherent beam combined laser using stimulated brillouin scattering phase conjugate mirrors for industrial applications.
- 57 11:50 Seongwoo Cha, Sangwoo Park, Hong Jin Kong, *Korea Advanced Institute of Science and Technology, Korea*, Design of a serrated aperture for the coherent beam combination using SBS-PCMS.
- 58 12:10 Hong Jin Kong, *Korea Advanced Institute of Science and Technology, Korea*, LCS 2013 presentation.
- 59 12:30 **Symposium closing remarks**
- 14:00 **IAP RAS tour (optional)**

Posters

1. M.G. Ivanov, I.V. Vyukhina, *Institute of Electrophysics UrB RAS, Russia*, Optimization of rheological properties of $\text{Nd}^{3+}:\text{Y}_2\text{O}_3$ aqueous suspensions.
2. Dewei Luo,^{1,2} Jian Zhang³, Changwen Xu², Hao Yang¹, Hui Lin², Haiyong Zhu², Guodong Shao², Linbing Kong¹, Dingyuan Tang², ¹*School of Materials Science and Engineering, Nanyang Technological University*; ²*School of Electrical and Electronic Engineering, Nanyang Technological University*; ³*Temasek Laboratories@NTU, Nanyang Technological University, Singapore*, Mode-locked Yb:LuAG ceramic lasers.
3. V.A. Shitov, V.I. Solomonov, V.V. Osipov, A.V. Spirina, *Institute of Electrophysics UB RAS, Russia*, Luminescence and absorption of Yb:YAG ceramics.
4. V.V. Osipov, V.V. Platonov, V.V. Lisenkov, A.V. Podkin, E.E. Zakharov, *Institute of Electrophysics UB RAS, Russia*, Production of nanopowders of oxides by means of fibre and pulse-periodical CO_2 lasers.