



INTERNATIONAL SCIENTIFIC AND TECHNICAL GREENHOUSES LIGHTING CONFERENCE

Moscow, 9–10 September, 2019

Organized by

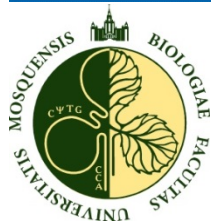


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МИНИСТЕРСТВО НАУКИ
И ВЫСШЕГО ОБРАЗОВАНИЯ
РОССИЙСКОЙ ФЕДЕРАЦИИ

Supported by



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PROGRAM

1st day (the 9th of September)

09:00 Registration, welcome coffee

Moscow, Prospect Mira, 36 (Soglasie Hall)

Opening session

Chairman: *Georgy Boos*, the President of the Scientific and Technical Council of the Russian Lighting Industry NTS "Svetotechnika"

10:00 Welcoming speech by *Georgy Boos*, the President of NTS "Svetotechnika"

10:05 Welcoming speech by *Peter Blattner*, the CIE President, the Director of Division 2, Switzerland

10:10 Welcoming speech by *Andreas Scholtz*, Chair IEC TC 34 Lamps and related equipment, Standardization Manager OSRAM GmbH, Germany

10:15 Welcoming speech by a Representative of Ministry of Science and High Education of RF

10:20 Welcoming speech by *Alexey Sitnikov*, Ph.D., Deputy of the State Duma, President of the Association "Greenhouses of Russia" Deputy of the State Duma

10:25 Welcoming speech by *Anton Shalaev*, the Deputy Director of the Federal Agency for Technical Regulation and Metrology of the Russian Federation

10:30 Welcoming speech by *Vladimir Budak*, Ph.D., Prof., Chef-editor of "Svetotekhnika / Light & Engineering" magazines, Russia

Plenary session

Moscow, Prospect Mira, 36 (Soglasie Hall)

Chairman: *Georgy Boos*, the President of NTS "Svetotechnika"

11:00 **LEDs in greenhouses: opportunities and reality**

Leonid Prikupets, the Head of the Laboratory, VNISI, Russia

11:20 **Metric and quantities for horticulture lighting**

Peter Blattner, CIE President, the Director of Division 2, Switzerland

11:40 **Horticultural lighting in IEC/TC 34**

Andreas Scholtz, Chair IEC TC 34 Lamps and related equipment, Standardization Manager OSRAM GmbH, Germany

12:00 **Effects of supplemental lighting on crop photosynthesis: Laboratory experiments on physiological aspects**

Ryo Matsuda, Ph.D. Associate Professor Bioenvironmental Engineering Laboratory, Department of Biological and Environmental Engineering, The University of Tokyo, Japan

12:20 Coffee-break

Chairman: *Vladimir Choob*, the Director of the Botanical Garden of the Moscow State University/ *Leonid Prikupets*, Ph.D, the Head of the Laboratory, VNISI

12:40 Absorption of light by plants and biologically active molecules

Vladimir Choob, Professor, Director of the Botanical Garden of the Faculty of Biology, Lomonosov Moscow State University, Russia rector of Botanical Garden MSU, Russia

13:00 Conceptual approaches to choosing radiation spectrum of lamps for growing plants in artificial conditions

Aleksandr Tikhomirov, Ph.D., Deputy Director for Scientific Research Institute of Monitoring of Climatic and Ecological Systems of the Siberian Branch of the Russian Academy of Sciences (IMCES SB RAS), Russia

13:20 Potential and use of artificial lighting in horticulture

Heike Mempel, Prof. Dr., Hochschule Weihenstephan-Triesdorf Fakultät Gartenbau und Lebensmitteltechnologie Technik im Gartenbau, Germany

13:40 Some ways of optimization of LED lighting in plant photoculture

Yuliy Berkovich, Ph.D., Professor, Institute of Medical and Biological Problems of the Russian Academy of Sciences, Russia

14:00 Lunch

15:00 LEDs for Horticulture: the conception development in photophysiology

Dr. Giedrė Samuolienė, Ph.D., Head and the Chief Researcher of Laboratory of Plant Physiology and Deputy Director for Research of Lithuanian Research Centre for Agriculture and Forestry, Institute of Horticulture, and docent at Vytautas Magnus University, Agriculture Academy, Lithuania

15:20 Metrological assurance of LED lighting: from the photometry to “phytometry”

Andrey Baturin, Ph.D., Director of VNIIOFI (The All-Russian Research Institute for Optical and Physical Measurements), Russia

15:40 Photoculture of plants 2.0

Ivan Tarakanov, Dr.sci.biol., Professor, Head of the Department in Moscow Timiryazev Agricultural Academy, Russia

16:00 FAQ

16:30 – Excursion to the "Pharmaceutical garden" Moscow State University

18:00

2nd day (the 10th of September 2019)

Open session of the Scientific and Technical Council of the Russian Lighting Industry NTS "Svetotechnika"

14, Krasnopresnenskaya nab., Moscow, Russia. Congress Centre, Skylight Hall, Floor 3

Chairman: *Georgy Boos*, the President of the NTS "Svetotechnika"

10:00 **Welcome coffee**

10:30 **Subject to be confirmed**

Georgy Boos, the President of the NTS "Svetotechnika", Russia

10:40 **International Certification of Luminaires – IECQ Lights the way for the LED lighting industry – Qualification and Supply Chain – Management**

Antoinette Pitteloud, External Relations Officers of the International Electrotechnical Commission (IEC), Switzerland

11:00 **International Electrotechnical Commission (IEC) Conformity Assessment Systems and the advantages of participation.**

Nickolay Fayzrakhmanov, Chairman of the Technical Committee for Standardization 030 (EMC), IEC Conformity Assessment Board member

11:20 **Current situation and further development of Russian greenhouses industry**

Natalia Rogova, General Director of the Association "Greenhouses of Russia"

11:40 **Coffee-break**

Chairman: *Vladimir Choob*, Professor, Director of the Botanical Garden of the Faculty of Biology, Lomonosov Moscow State University, Russia rector of Botanical Garden MSU, Russia

11:50 **Intellectual hardware and software complex managing the system of technological illumination for crops grown indoors**

Konstantin Tomsky, *Dr.Tech.Sc.*, General director of TKA LLC Science and technology enterprise, Russia

12:10 **To the question of norms for greenhouses irradiating systems**

Vladimir Pchelin, Ph.D., General Director of Reflux company, Russia

12:30 **Lighting systems for automated multi-tiered plant fittings**

Vladislav Terekhov, Science fellow of VNISI, Russia

13:00 **Lunch**

Session of the section «Irradiation plants of photobiological action (Practical research)»

14, Krasnopresnenskaya nab., Moscow, Russia. Congress Centre, SkyLight Hall, Floor 3

Chairman: *Leonid Prikupets*, Ph.D, the Head of the Laboratory, VNISI

14:00 **Opening speech**

Leonid Prikupets, Ph.D, the Head of the Laboratory, VNISI, Russia

14:10 **Issues of production of LED and sodium phyto irradiators on Kadoshkinskino plant**

Vladimir Rudakov, Director of Kadoshkino Plant of Lighting Engineering, Russia

14:20 **Problems of lighting measurements and testing of greenhouse irradiators**

Roman Belyaev, Chief metrologist of Testing centre VNISI, Russia

14:35 **Panasonic urban vertical greenhouses for a sustainable city development**

German Gavrilov, Head of Business Development and Integrated Solutions, Panasonic Russia

14:50 **Industrial technologies of growing decorative and floral products under LED lights**

Olga Mironova, Researcher of the Botanical Garden, Lomonosov Moscow State University, Russia. (Report selected by the scientific committee of the conference)

15:00 **PPF and PPFD measurement in phyto-systems**

Alexey Pankrashkin, General director of Intech-Engineering

15:10 Panel discussion

Chairman: *Natalia Rogova*, General Director of the Association "Greenhouses of Russia"

Participants:

Alexander Tikhomirov, Ph.D., Professor, Federal Research Center "Krasnoyarsk Science Center of the Siberian Branch of the Russian Academy of Sciences", Russia

Ivan Tarakanov, Dr.sci.biol., Professor, Head of Department in Moscow Timiryazev Agricultural Academy, Russia

Leonid Prikupets, Ph.D, the Head of the Laboratory, VNISI, Russia

15:50 **Coffee break**

Panel meeting of the section «Irradiation installations for photobiological activity (Scientific research)»

Chairman: *Vladimir Choob*, Doctor of Biology, Professor of the department of Plant Physiology of the Faculty of Biology in MSU, Director of the Botanical Garden of the Faculty of Biology, Lomonosov Moscow State University, Russia

16:00 **Change in biochemical parameters of plants under conditions of variable spectral irradiation**

Yury Martirosian, PhD. Head of the Department of Aeroponic Plant Growing Technologies of Institute of Agricultural Biotechnology of Russian Academy of Sciences, Head of the Laboratory of Biochemical Physics and Plant Metabolism Engineering at the N.M. Emanuel Institute of Biochemical Physics of Russian Academy of Sciences, Russia

16:15 **Compact crop production format with optimal parameters of the LED irradiation system**

Alexey Yakovlev, National Research Tomsk Polytechnic University, Russia

16:30 **Software for computer-aided design of lighting in greenhouses**

Alexey Korobko, Ph.D., Leading researcher of VNISI, Russia

16:45 **Effect of full spectrum light on plant growth. Joint experiment of Wageningen University and Fluence by OSRAM**

Maxim Medvedev, Head of project "Professional Lamps and Digital Solutions", Osram, Russia

17:00 **Light pulse stimulation for growing pepper seedlings**

Maria Kotik, Assistant, Ternopil Ivan Puluj National Technical University, Ukraine

17:15 **Components and solutions to achieve high reliability and efficiency of LED luminaires for grow light cultivation of plants**

Mikhail Chervinsky, Field Application Engineer, Cree company

17:30 **Poster session**

Chairman: *Vladimir Budak*, Ph.D., Prof., Chef-editor of "Svetotekhnika / Light & Engineering" magazines, Russia

On the issue of developing LED phyto irradiators based on the combined spectrum

S. Bogatyrev, A. Kurshev, O. Zheleznikova, L. Sinitsyna, "Ardatov Lighting Engineering Plant", Ogarev Mordovia State University

Optimizing the efficiency of irradiation installations for grow rack systems

M. Kachalina, Moscow Power Engineering Institute

Methods of scientific research of LED lighting for greenhouse plants

E. Klyuchka, Don State Technical University

Photoregulation of plant metabolism as a means of improving product quality of leaf vegetables in grow light cultivation environment, exemplified by the salad green plants of *Valerianella locusta* L. and *Brassica juncea* L.

M. Lomakin, A. Shmakov, I. Tarakanov, Russian State Agrarian University - Moscow Timiryazev Agricultural Academy

Comparative study of the modes for photosynthetic irradiation of leaf lettuce.

A. Myshonkov, Ogarev Mordovia State University

Effective conditions of illuminance for optimal growth of microalgae

O. Trofimchuk, S. Romanenko, Tomsk Polytechnic University

Cost efficiency of innovative phyto luminaires for growing flowerage seedlings in industrial greenhouses.

G. Kurilchik, UAB Lumilita, Lithuania

The impact of LED lighting on nitrate levels in napa cabbage (Chinese cabbage).

Ya. Morozov, I. Konovalova, V. Smolyanin, S. Smolyanina, I. Tarakanov, Institute of Medical and Biological Problems of the Russian Academy of Sciences, Russian State Agrarian University - Moscow Timiryazev Agricultural Academy

Optimizing LED lighting of leaf vegetables with increased amounts of ascorbic acid

Yu. Berkovich, I. Konovalova, S. Lapach, V. Smolyanin, S. Smolyanina, Institute of Medical and Biological Problems of the Russian Academy of Sciences

Multi-level plant grow system «Phytopyramid»

A. Selyanskiy, Research and production company «Phytopyramid»

A study of LED parameters in phyto irradiators.

M. Erokhin, Lomonosov Moscow State University

Engineering methods of calculations for phyto irradiators

E. Oshurkova

A study of hybrid irradiation installations in greenhouses and field-testing them in «Phytopyramid» systems.

E. Rodyakova, Moscow Power Engineering Institute

18:00

End of the event