Photosynth Res (2014) 122:337–347
DOI 10.1007/s11120-014-0032-6

NEWS REPORT

International conference on "photosynthesis research for sustainability-2014: in honor of Vladimir A. Shuvalov", held on June 2–7, 2014, in Pushchino, Russia

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Published online: 12 September 2014

Abstract In this article, we provide a News Report on an international conference "Photosynthesis Research for Sustainability-2014" that was held in honor of Vladimir A. Shuvalov at the Biological Research Center of the Russian Academy of Sciences, in Pushchino, Russia, during June 2–7, 2014 (http://photosynthesis2014.cellreg.org/). We begin this report with a short description of Vladimir A. Shuvalov, the honored scientist. We then provide some information on the conference, and the program. A special feature of this conference was awards given to nine young investigators; they are recognized in this Report. We have also included several photographs to show the pleasant ambiance at this conference. We invite the readers to the next two conferences on ''Photosynthesis Research for Sustainability-2015: the first one to be held in Baku in May or June, 2015, and the second one, which will honor George C. Papageorgiou, will be held in Greece (in Colymbari, near Chania in Crete) during September 21–26, 2015. Information will be posted at: http://photosynthesis2015.cellreg.org/.

Keywords Young investigator awardees · Azat Abdullatypov · Maria Borisova-Mubarakshina · Anastasia I. Gavrisheva · Shu Ikehira · Shin Nakamura · László Sass · Franz-Josef Schmitt · Toshiyuki Shinoda · Sepideh Skandary

For our purposes the fundamental problem from the technical point of view is how to fix the solar energy through suitable photochemical reactions. To do this it would be sufficient to be able to imitate the assimilating processes of plants.

—Giacomo Luigi Ciamician (1912)

Introduction

The 2014 conference in Pushchino followed earlier conferences held in 2004 (Canada), 2007 (Russia), 2011 and 2013 (Azerbaijan; Allakhverdiev et al. 2012, 2013). It was a great pleasure for the hosts of the conference on "Photosynthesis Research for Sustainability-2014" to welcome nearly 150 participants from 21 countries in Pushchino. Figure 1 shows a group photograph of the participants and the organizers. This conference was held during June 2–7, 2014 and was a great occasion for discussions of molecular to global aspects of research on photosynthesis (see the program that was planned at: http://photosynthesis2014.cellreg.org/Programme.php; the actual program was modified and its details are available from one of us (suleyman.allakhverdiev@gmail.com). Before we provide information on the committees and some of the participants, we provide a brief introduction of Vladimir A. Shuvalov.

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Fig. 1 A group photograph of some of the participants at the front of the conference building; Vladimir Shuvalov, the honored scientist, is standing 7th from the right in the front row

Vladimir (Vlad) Shuvalov: a lifetime of research and achievements

Figure 2 shows photographs of Vlad Shuvalov at the opening ceremony of the conference. Govindjee, who was the keynote speaker of the first session, stated "Vladimir A. Shuvalov is a man on the go…We honor him today not because he is 70, but because he knows what life is all about and how plants, algae and photosynthetic bacteria do their basic thing, i.e., convert the all-abundant solar energy into energy that powers this world. Vlad constantly thinks, keeps implementing his thoughts and keeps discovering new things." Govindjee added at the end: "Keep going, Vlad and teach us your tricks of life and how you made it all happen".

Vlad is world's leading authority on the "Primary Processes of Photosynthesis of both plants and bacteria". He was born in 1943 in Omsk city (Russia); he graduated in 1965 with a *Master of Science* degree, from the Department of Biology and Soil Science of the Lomonosov Moscow State University (MSU), Moscow, Russia. He received his Doctorate degree in 1969, from the Institute of Biochemistry of the Russian Academy of Sciences (Moscow), working with Academician Alexander A. Krasnovsky. His thesis was on "Studying persistence of chlorophyll in photosynthetic electron transfer"; and while he was a researcher at the Academy of Science of the Union of Soviet Socialist Republics, USSR (1969–1979), he went first to the Charles F. Kettering Lab in Yellow Springs, Ohio, USA to work with Bacon Ke (1978–1979), and then with William (Bill) Parson (1980–1981), at the University of Washington, Seattle, USA.

Vlad has been recognized for his research with many awards and honors. In 1991, he was the USSR State Prize

Fig. 2 The Opening ceremony. **A** Suleyman I. Allakhverdiev (Russia) on the podium; above him is a photo of Vladimir A. Shuvalov; **B** Vladimir A. Shuvalov (Russia) on the podium; **C** Govindjee (USA) on the podium; above him is a slide from his talk on Shuvalov; **D** Hans van Gorkom (The Netherlands) on the podium; above him is a slide on Shuvalov; **E** Academician Anatoly Miroschnikov - Head of Pushchino Research Center, with Svetlana Levikina (translator); **F** Dr. Ivan V. Savintsev - Head of Pushchino city, with Svetlana Levikina (translator)

winner; and in 1997, he was honored with a full membership in the Russian Academy of Sciences (RAS). Since 1996, he has served as the Director of the Institute of Basic Biological Problems (IBBP) of RAS. In 1999, he received the Order of Friendship, and in 2004, the Order of Honor of Russia. Currently, he is the Head of the Laboratory of Primary Processes of Photosynthesis of RAS, as well as the Head of the Department of A.N. Belozersky Scientific Research Institute of Physical–Chemical Biology (MSU).

Shuvalov has made unique contributions to the basic principles and details of charge transfer processes, beginning in the femtosecond time scale, in the reaction centers of both plants and photosynthetic bacteria. His collaborative spirit can be easily judged by his research with many renowned scientists in Russia (Vyacheslav Klimov, Victor Nadtochenko, Oleg Sarkisov, and Alexey Semenov), as well as in other countries: Germany (Ulrich Heber, and Gernot Renger), Japan (Norio Murata), The Netherlands (Jan Amesz, Louis N.M. Duysens, Peter Gast, Arnold J. Hoff, Hans van Gorkom, and Rienk van Grondelle), and in the USA (Bacon Ke and William (Bill) Parson).

Appropriate to Vlad's accomplishment and scientific life, Govindjee presented his talk that was titled "*Primary Photochemistry of Photosynthesis: A perspective in honor of Vlad Shuvalov*"(also see the *Program*).

A glimpse of some of Vlad's discoveries was presented by Govindjee, with a focus on the electron acceptors and the reaction center molecules in primary photochemistry of both plants and bacteria:

- 1976 In bacterial reaction center (bRC), bacteriopheophytin (BPheo) is an electron (e) acceptor that precedes the ubiquinone electron acceptor Q_A (Shuvalov and Klimov 1976; cf. Parson and Cogdell 1975; Rockley et al. 1975).
- 1978 In bRC, bacteriochlorophyll (BChl) is the e-acceptor before BPheo (Shuvalov et al. 1978).
- 2008 In Photosystem II (PSII) RC, a chlorophyll (Chl) is an alternate e-acceptor to Pheo: $P680^+$ Chl_{D1}^-(Shelaev et al. 2008, 2011; cf. Wasielewski et al. 1989; Greenfield et al. 1997).
- 2010 In Photosystem I (PSI) RC, a Chl (A_o) is actually reduced within 100 fs (Shelaev et al. 2010; cf. Fenton et al. 1978; Wasielewski et al. 1987). And,
- 2012 In bRC, primary charge separation occurs in femtoseconds (120–180 fs) within the excited P870, P870* (Khatypov et al., 2012).

Comments received by Govindjee on Vlad

From William Parson (USA)

"I remember several times discussing doing an experiment with Vlad Shuvalov that would require building new apparatus, and I went home thinking it would take several weeks to do this. When I came the next morning, I was astonished to find that Vlad had not only built the equipment, but had done the experiment! He also frequently surprised me by his ability to notice small anomalies in our experimental results, and to pursue them until they opened up new ideas…..Vlad had a knack for seeing potentially novel interpretations and then of exploring them experimentally. I enjoyed working with Vlad personally. We remain close friends. I am sending my congratulations to Vlad through you Govindjee. Have a great celebration".

From George C. Papageorgiou (Greece)

"Two stories come to mind. First, I heard about Vladimir Shuvalov from our late colleague Jan Amesz, before I ever met him. As I recollect, Jan described him as a highly competent photo-physicist, sort of an instrument wizard, with a top analytical mind. Second, being fond of the Russian literature, I studied the Russian language, as a hobby, in Greece. In the late 1990s, during an evening drinking banquet in Pushchino, I asked Vladimir how does he rate my competence in the Russian language. His reply was: Better than Stalin's "….. Seriously, Vladimir is one of my top model scientists. Congratulations to you Vladimir on your 70th birthday!".

From Navik Karapetyan (Russia)

"And I remember being in the 3rd course of Moscow State University; Vladimir Shuvalov discussed with Felix Litvin, his plans to construct an instrument. And Litvin was sure that Shuvalov will need a lot of time–several months– to do that. But about after just one month (may be less), Shuvalov informed Litvin that the plan had been fulfilled. Wow!"

The conference

The committees

The two organizing committees, international and local, are listed at http://photosynthesis2014.cellreg.org/Organizing-Committee.php.

The first author (SIA) of this News Report was the coordinator of this conference; the second author (TT) was secretary, and the third author (Govindjee) was a member of the international organizing committee. The chairman of this conference was James Barber (UK), one of the past presidents of ISPR, International Society of Photosynthesis Research (http://www.photosynthesisresearch.org/); unfortunately, he was unable to attend this conference (see his

photograph in Allakhverdiev et al. 2011). Rienk van Grondelle (The Netherlands) was the co-chair; he was also unable to attend this conference. The chairman of local organizing committee was Anatoly A. Tsygankov (Russia).

The program

We had an exciting scientific program, which covered the breadth and depth of photosynthesis, and provided excellent opportunity to meet photosynthesis researchers from around the world. Also, this meeting provided a forum for students, postdoctoral fellows and scientists from all over the world to deepen their knowledge and understanding, widen professional contacts, and create new opportunities, including establishing new collaborations. This exciting international conference covered all the important aspects of photosynthesis, especially their relationship to global issues as well as hydrogen production and artificial photosynthesis. *Topics included*: Primary Processes of Photosynthesis; Structure, Function and Biogenesis of the Photosynthetic Apparatus; Photosystem II and Water Oxidation Mechanism; Energy Transfer and Trapping in Photosystems; Photosystem I and Bacterial Photosynthesis; Carbon Fixation (C3 and C4) and Photorespiration; Artificial Photosynthesis for Hydrogen and Carbon-based Solar Fuels; Regulation of Photosynthesis and Environmental Stress; Systems Biology of Photosynthesis: Integration of Genomic, Proteomic, Metabolomic and Bioinformatic Studies; Applied aspects of Photosynthesis: Biohydrogen and Bioelectricity; and, Emerging Techniques for Studying Photosynthesis.

The opening ceremony

Suleyman Allakhverdiev declared the conference open (see Fig. 2). He said: "Dear colleagues and friends! I am pleased to welcome you all to an international conference in our research center in Pushchino. As you know, this conference has been organized to celebrate the 70th birthday of Vladimir Shuvalov. He had a very productive career and he is a recognized scientist in the world". Then Suleyman introduced the speakers at the opening ceremony of conference.

The first speaker was Academician Anatoly I. Miroschnikov, Chairman of the Presidium of Pushchino Research Center. He said: "On behalf of the Pushchino Research Center, I welcome you to our city. It happens that an international conference coincides with the birthday of our Academician Vladimir Shuvalov. He belongs to the school of Academician Krasnovsky which I once knew. This research school is widely known, not only in Russia but also in the entire world. I will not dwell on the scientific achievements of Vladimir, but I can say—I am very pleased that he graduated from the Faculty of Biology and Soil Science at Moscow State University, a faculty that is dear to me for various reasons…."

Then, Dr. Ivan V. Savintsev, Head of Pushchino city, said (as paraphrased): "The fascinating science city of Pushchino is pleased to welcome the participants of this international conference. The soul of our city is Pushchino Research Center, famous for its basic research worldwide. I am very glad that this great scientific meeting is being held here: a conference devoted to honoring a remarkable man and scholar—Academician Vladimir Shuvalov, who is known not only for his scientific achievements, but for mentoring many students and postdocs. He gave a start in life to many worthy scientists. I wish him further successful creative scientific work… "

Mahir Mamedov, vice-president of the Russian Photobiological Society, followed with greetings from that society: "It is a great pleasure as well as privilege for me to be here today and to convey greetings from the President of the Russian Photobiological Society (Alexey Semenov) to Academician Shuvalov on the occasion of this remarkable day in his life. Everyone knows him as a pioneer in the study of the Primary Processes of Photosynthesis. His work has had tremendous influence on the modern concepts of the mechanisms of the formation of primary and secondary ion-radical pairs in photosynthetic reaction centers. He is a recognized leader in the field of Biophysics of Photosynthesis in Russia, and one of the most honored scientists in the International Community of Photosynthesis Research. He stands at the origin of the Russian Photobiology Society as its first President. It is important for us that the current activity of the Society is held with his active participation. His scientific principles, simplicity and kindness are well-known to those, who have collaborated with him or worked under his supervision. On behalf of the Russian Photobiological Society, we wish him good health, creative longevity, harmony and happiness to him and him family.

Govindjee, known to us all as the defacto Ambassador of Photosynthesis to the world, from the University of Illinois at Urbana-Champaign, USA, presented a fascinating excursion into the history of the study of problems of photosynthesis. In his carefully orchestrated presentation, he placed duly formalized links to articles and photographs of major discoverers in the field, with attribution, and jokes. And, of course, an important place both in his presentation and in the study of photosynthesis was Vladimir A. Shuvalov (see the above section on Vladimir (Vlad) Shuvalovfor his remarks).

Hans van Gorkom, from the Netherlands, said that Vladimir Shuvalov has taught us the physics of the very first events in the transformation from light to life. His outstanding achievements have contributed greatly to the fulfillment of a scientific dream. "In the early 1970s (the time that Vlad Shuvalov and I began our careers in

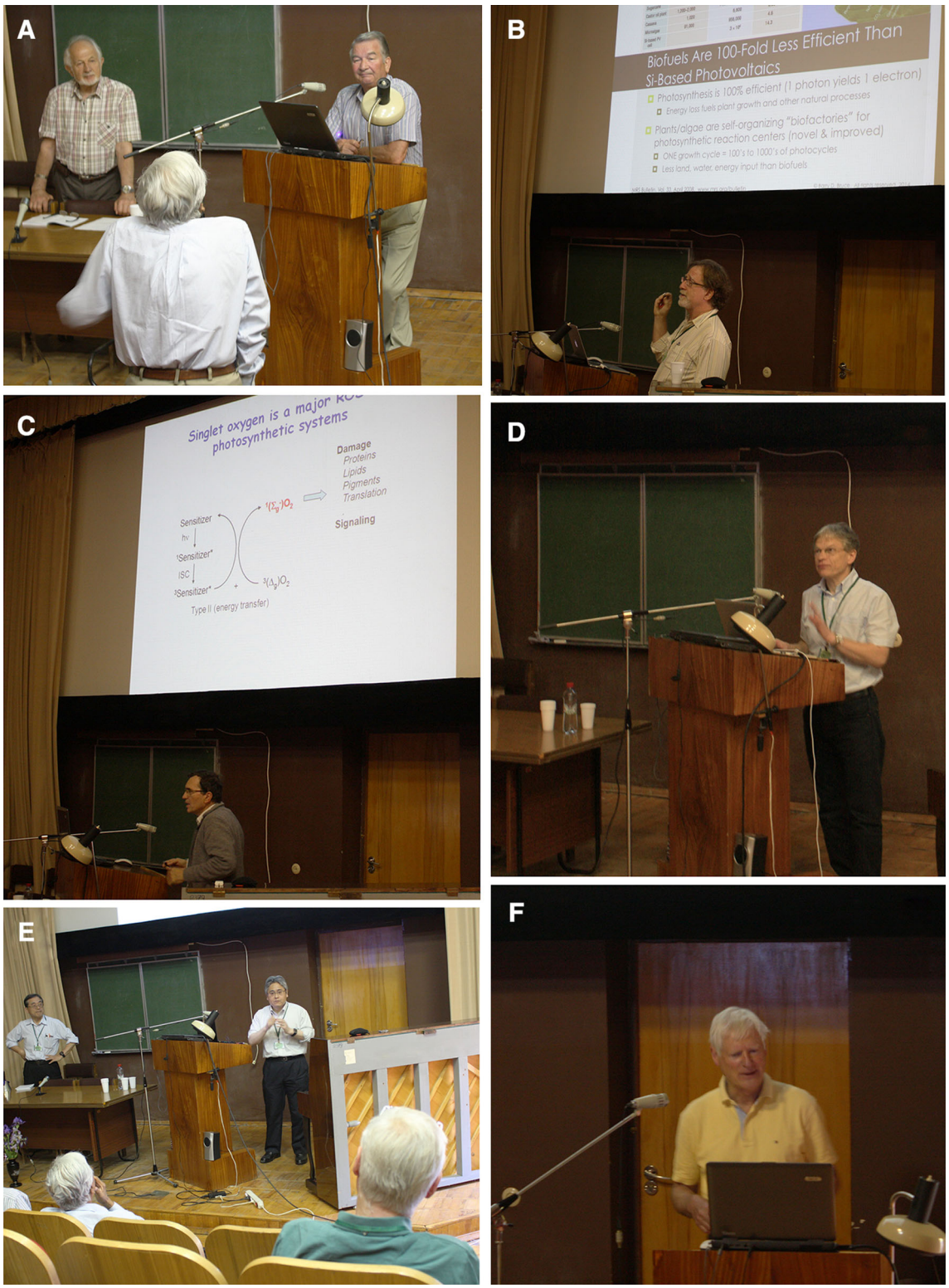

Fig. 3 Photographs of some of the speakers. **A** Vyacheslav V. Klimov (Russia) on the podium, with Andrey B. Rubin (Russia); **B** Barry D. Bruce (USA), with his slide above him; **C** Imre Vass (Hungary), with his slide above him; **D** Julian Eaton-Rye (New Zealand); **E** Takumi Noguchi (Japan), holding a microphone, with Masahiko Ikeuchi (Japan); **F** Ernst-Walter Knapp (Germany)

Fig. 4 Photographs at the Bonfire. **A** A photograph showing some of the participants; **B** Govindjee (center, USA; some of the others (*left to right*) are: Vladimir Z. Paschenko (Russia), Yuki Kato (Japan), Ernst-Walter Knapp (Germany), Hans van Gorkom (The Netherlands), Rajagopal Subramanyam (in the background with a cup in his hand; India), and Suleyman I. Allakhverdiev (Russia)); **C** Govindjee (with hand extended, USA), and Vladimir A. Shuvalov (Russia); **D** (*left to right*): Vladimir Z. Paschenko (Russia), Ernst-Walter Knapp (Germany), and Suleyman I. Allakhverdiev (Russia); **E** *Left to right*: Michael F. Yanyushin (Russia), Kimiyuki Satoh (Japan), Hong-Gil Nam (Korea), Vasilij Goltsev (Bulgaria), and Ivelina Zaharieva (Germany); **F** (*left to right*): George C. Papageorgiou (Greece), and Vladimir A. Shuvalov (Russia)

photosynthesis research) they had xenon flashes and the first lasers, and we were into the microsecond time range. Nanoseconds remained difficult and in fact even today there are few photosynthesis labs that are well-equipped for that time range. Picosecond spectroscopy had become available earlier, and of course Lou Duysens had to have it. Around 1980, when Shuvalov was in Seattle to produce his landmark publications with Bill Parson, the Duysens lab began constructing their picosecond absorption difference spectrometer. In 1985, the year before Duysens retired, it was Vladimir Shuvalov who came to our lab and made Duysens' dream come true. We had never seen a more competent laser physicist at work, and it was then that I first learned he was actually a biologist… Wow! Unfortunately, Duysens is no longer able to communicate, but I know for sure that he would be standing here to thank Vladimir personally if he could. Vlad had made him really happy. After his work with Duysens, many more publications followed with the teams of Jan Amesz and Arnold Hoff in our lab and with Rienk van Grondelle who started his own group in Amsterdam, with femtosecond spectroscopy".

Then Hans asked "Vlad, could you please come up here for a moment. On behalf of Lou Duysens, and on behalf of the President of the International Society of Photosynthesis Research (ISPR), and of the photosynthesis research community of the world, I thank you for making a dream come true!"

Richard Cogdell (of UK) sent a message that was read: "I first met Vlad in Moscow in the mid 1970s. He had been working independently on the primary reactions on purple bacterial RCs, just as I had been doing with Bill Parson and Rod Clayton. We had exactly the same results and conclusions! We became good friends and over the years I have admired his work. His data has always been excellent and his interpretations well founded on that data. I am sorry not to be there, but please pass on my warmest regards to Vlad".

The speakers

There were 55 speakers and chairpersons. These included (in alphabetical order): Azat Abdullatypov, Seiji Akimoto, Suleyman Allakhverdiev, Marian Brestic, Barry Bruce, Julian Eaton-Rye, Arvi Freiberg, Vasilij Goltsev, Govindjee, Masahiko Ikeuchi, Alex Ivanov, Boris Ivanov, Hazem Kalaji, Yuki Kato, Mi-Sun Kim, Vyacheslav Klimov, Ernst-Walter Knapp, Alexander Krasnovsky (Jr.), Anton

Fig. 5 Some of the participants during a break. **A** (*left to right*): Andrey Rubin (Russia) and Govindjee (USA); **B** (*left to right*): Kostas Stamatakis (Greece) and George C. Papageorgiou (Greece); **C** (*left to right*): Alexander Ivanov (Canada), Vladimir Z. Paschenko (Russia), and Govindjee (USA); **D** (*left to right*): Anastasia Petrova (Russia), Marina Kozuleva (Russia), and Masahiko Ikeuchi (Japan); **E** (*left to right*): Toshiyuki Shinoda (Japan), Hong Gil Nam (Korea), Tohru Tsuchiya (Japan), Seiji Akimoto (Japan), and Tatsuya Tomo (Japan); **F** (*left to right*): Zhiyong Liang (Germany), and Jian-Ren Shen (Japan)

Khmelnitskiy, Petar Lambrev, Eugene Lysenko, Alexander Malyan, Mahir Mamedov, Evgeny Maksimov, Hajime Masukawa, Anatoly Miroshnikov, Victor Nadtochenko, Hong Gil Nam, Hiroshi Nishihara, Takumi Noguchi, George Papageorgiou, Roman Pishchalnikov, Ivan Proskuryakov, Andrey Rubin, Kimiyuki Satoh, Ivan Savintsev, Franz-Josef Schmitt, Vadim Selyanin, Alexey Semenov, Daisuke Seo, Jian-Ren Shen, Anatoly Shkuropatov, Vladimir Shuvalov, Kostas Stamatakis, Rajgopal Subramanyam (also known as S. Rajagopal), Miwa Sugiura, Alexander Tikhonov, Tohru Tsuchiya, Tatsuya Tomo, Anatoly Tsygankov, Lyudmila Vasilieva, Imre Vass, Hans van Gorkom, Mikhail Yanyushin, Ivelina Zaharieva. Further, we had about 100 posters, presented by both established and young scientists from 21 countries.

Most of the talks at this conference dealt with the state-of-the-art research, starting with a brief review of the current knowledge and the relevance of the topic to global issues, followed by a balanced presentation of the latest research results, concluding with views on the future course of research including the outstanding global issues and challenges facing us all. Further, the chairpersons emphasized the key points of the talks, steered the discussions by providing additional thoughts, and introduced related ideas. Figure 3 shows photographs of speakers from Germany, Hungary, Japan, New Zealand, Russia, and USA.

Social events

The conference was not only talks and discussions, but had social events. Figure 4 shows a scene from a Bonfire event, and Fig. 5 shows participants relaxing and talking to each other.

For other photographs of this conference, see the following website: http://photosynthesis2014.cellreg.org/Photos.php

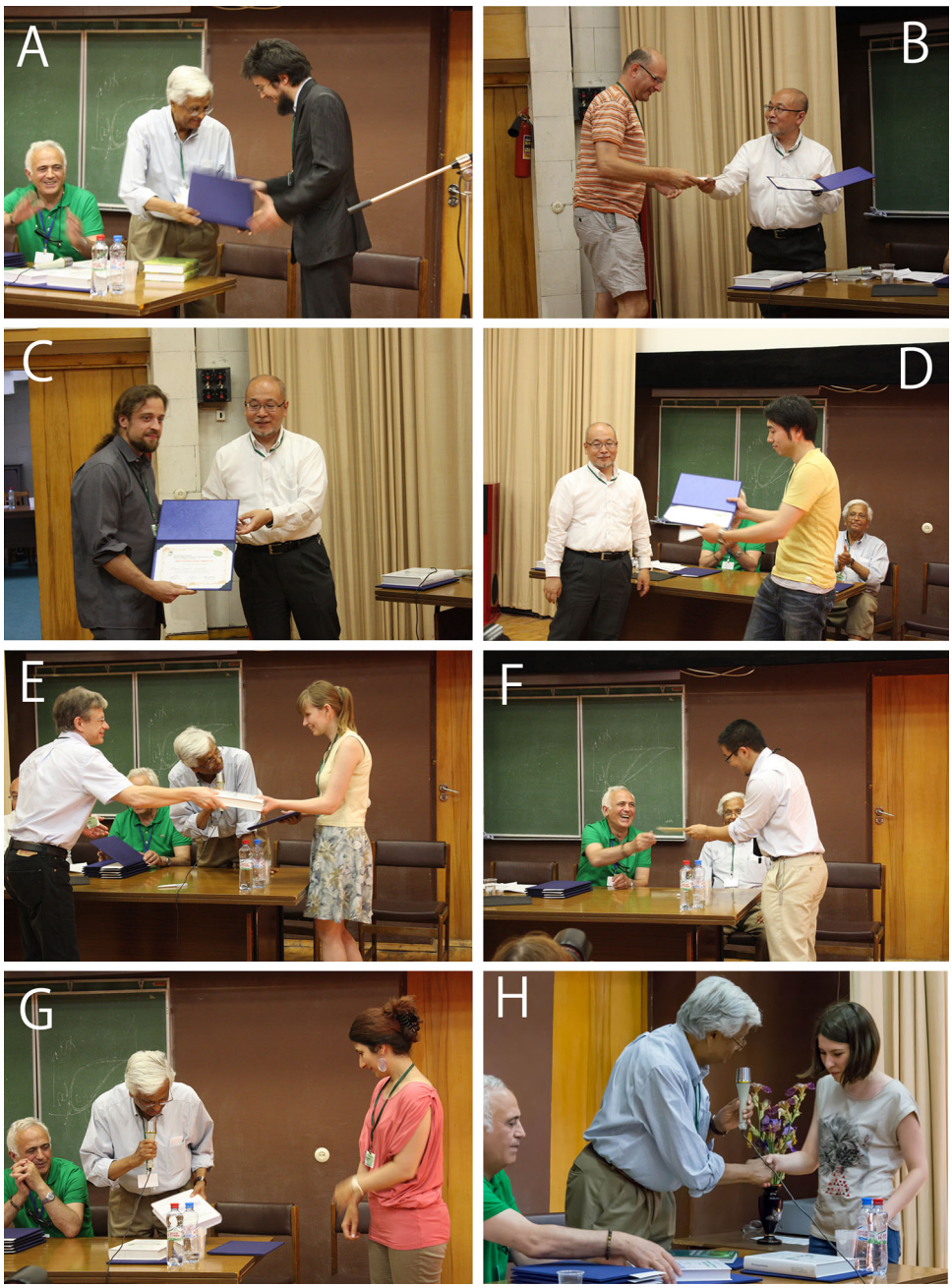

Fig. 6 Photographs of the winners of young researcher awards (with those giving the Awards). **A** Azat Abdullatypov (Russia); **B** László Sass (Hungary); **C** Franz-Josef Schmitt (Germany); **D** Toshiyuki Shinoda (Japan); **E** Maria Borisova-Mubarakshina (Russia); **F** Shu Ikehira (Japan); **G** Sepideh Skandary (Germany & Iran); **H** Anastasia I. Gavrisheva (Russia)

Young researchers and the awardees

An awards committee selected nine awardees from among the young researchers who presented their research at this conference, either as a poster or as a talk. The awards/prizes were presented to these researchers who had done and presented outstanding research in the field of "photosynthesis for sustainability". These young researchers included Ph.D. students as well as post-docs. The chairpersons of poster viewing and discussion were Julian Eaton-Rye (New Zealand), Vasilij Goltsev (Bulgaria), Hazem Kalaji (Poland), Ernest-Walter Knapp (Germany), Hong Gil Nam (Korea), Kostas Stamatakis (Greece), Alexander N. Tikhonov (Russia), Tatsuya Tomo (Japan), and Imre Vass (Hungary), who selected and nominated the names of young researchers for the awards. Then the winners were selected by another committee: Suleyman Allakhverdiev (Coordinator of the conference, Russia), Julian Eaton-Rye (New Zealand), Govindjee (USA), Jian-Ren Shen (Japan), Tatsuya Tomo (Secretary of the conference, Japan), and Imre Vass (Hungary).

The following received either monetary awards or book awards for their outstanding research. They were (alphabetically):

Fig. 7 Photographs at the banquet. **A**, **B** Two general scenes at the banquet; **C** Special dance of Russian participants; **D** (from *left to right*): Anatoly Tsygankov—chairman of the local committee (Russia), Suleyman I. Allkhverdiev (Russia), Ernst-Walter Knapp (Germany), Govindjee (USA), and Hans van Gorkom (The Netherlands); **E** A dance by some of the local organizers; **F** another scene at the banquet

- Azat Abdullatypov (Russia): Modeling the HydSL-hydrogenase from Thiocapsa roseopersicina.
- Maria Borisova-Mubarakshina (Russia): Identification of the signal messenger for the long-term regulation of the Photosystem light-harvesting antenna size in high light.
- Anastasia I. Gavrisheva (Russia): Sustained hydrogen photoproduction by phosphorous-deprived marine green microalgae Chlorella.
- Shu Ikehira (Japan): Construction of a photochemical system using photosystem complex and a molecular wire equipped with a platinum nanoparticle.
- Shin Nakamura (Japan): Vibrational analyses of the water oxidizing center in photosystem II using QM/MM calculations.
- László Sass (Hungary): In silico photosynthesis: computer assisted simulation of electron transport processes in Photosystem II.
- Franz-Josef Schmitt (Germany): Fluorescence imaging of light induced reactive oxygen species (ROS) in plant cell tissue.
- Toshiyuki Shinoda (Japan): Spectroscopic analysis of chlorophyll f containing cyanobacteria.
- Sepideh Skandary (Germany/Iran): Single molecule spectroscopy on Photosystem of Thermosynechococcus elongatus.

Figure 6 shows photographs of several awardees. Govindjee gave book prizes; these books were the most recent volumes of the Series "Advances in Photosynthesis and Respiration Including Bioenergy and Related Processes" (Springer, Dordrecht) <http://www.springer.com/series/5599>, whereas Tatsuya Tomo gave monetary prizes.

In addition to the wonderful academic sessions, we had the opportunity to have wonderful dinners (including a banquet) with live music and dancing. Figure 7 shows some scenes from this dinner.

Concluding remarks

We end this News Report by paying special Tribute to Vladimir Shuvalov for his pioneering contributions to the growth and support of Photosynthesis Research. On behalf of the entire international participants, one of us

(Govindjee), and several others (Hans van Gorkom, Kimiyuki Satoh, George C. Papageorgiou, Julian Eaton-Rye) thanked the Local and International committee members at the concluding session.

The 2014 conference on photosynthesis in Pushchino had provided leading and up-and-coming researchers an opportunity to present the latest developments in our field; it provided a wonderful environment for socializing with colleagues both old and new. Many attendees happily await the next two conferences to be held in 2015. We hope to see everyone at these two conferences. We wish all success to the persons who will serve as the chair and the co-chair, of both the international and local committees at the next two conference ''Photosynthesis Research for Sustainability-2015'' to be held in May or June, 2015, in Baku, Azerbaijan, and during 21–26 September, in Greece.

Acknowledgments We express our appreciation to all the attendees for valuable discussions on various aspects of photosynthesis at the Pushchino conference. We thank all the members of the International organizing committee for their help with the various sections, and the committees, mentioned in this report for the selection of the Awardees; further, we are grateful to all the chairpersons of the poster sessions for their help; and thank all the sponsors: The Russian Foundation for Basic Research (grant # 14-04-06026); International Society of Photosynthesis Research (ISPR); LabInstruments- laboratory equipment, analytical instruments, consumables and more…; BioLogic Science Instruments –Rapid Kinetics and Spectroscopy Instruments/Photosynthesis; Agrisera-Antibodies for Plant Sciences, PP Systems-Portable Photosynthesis Systems, quality instrumentation for Life Sciences, Hansatech Instruments: Instrumentation for Photosynthesis and Respiration Studies, and the International Association for Hydrogen Energy (IAHE). We also thank Ineke Ravesloot of Springer, for mailing books to Suleyman Allakhverdiev (in Pushchino) for awards for the best posters. We thank Maria Leonova (registration, infrastructure managing), Marina Kozuleva (transportation), Zinaida Eltsova (accommodation), Evgeny Shastik (bonfire and coffee breaks), Ilya Naydov (adstract book formatting), Alexander Shitov (who painstakingly took many of the photographs at the conference), Konstantin Neverov and his wonderful associate guides for showing the participants sights in Pushchino and in Moscow, and many others for their wonderful help in Pushchino that made this conference a memorable event. We thank Anatoly A. Tsygankov, chairman of the local organizing committee, and all members of his committee, for their wonderful work that led to a very smooth running of our conference. Special thanks to Dmitry A. Los for the creation and support for the conference Web site. SIA is grateful for support by grants from the Russian Foundation for Basic Research, and by "Molecular and Cell Biology" Programs of the Russian Academy of Sciences. Messages received by one of the authors (SIA) and the national organizing committee are available below in the Appendix.

Appendix

We reproduce here just a few messages (in alphabetical order). All others can be obtained by writing to one of us (SA).

Seiji Akimoto: We have safely reached Kobe. My students and I had a great time. I would like to thank you for everything in the conference.

Marian Brestic: I would like to thank you for excellent Conference and possibility to visit Pushchino. Actually I am already deep in my work, but I still have many impressions… During one week I found a lot of new things - new knowledge, new people, new friendships, new colleagues and friends… Thank you for your hospitality and nice visit in Pushchino. Best wishes to all the people around you.

Alex Ivanov: After a short visit to Sofia I am back to the lab in London (Canada). I would like to thank you for the excellent meeting and the great time I have had in Pushchino! Thanks again, and I hope we will meet again in the near future.

Aya Onishi: Hello, my name is Aya Onishi, and I am a graduate school student of Kobe University of science. I was a participant of the "Photosynthesis Research for Sustainability 2014". Thank you for everything last week. Owing to your kindness and your colleagues' kindness, I had a very good time in the conference. I appreciate much your support and help. I hope to see you again at the next opportunity.

Kimiyuki Satoh: I have returned safely to Okayama with my suitcase. My stay in Pushchino was very pleasant. I thank you for having invited me and having given me the opportunity to serve as a chair at the meeting. The meeting was very enjoyable and stimulating for me and surely for everybody who attended. My best regards to you and your colleagues in Pushchino. I hope that I shall see you again soon.

Jian-Ren Shen: I thank you very much for your kind hospitality during my visit and stay in Pushchino. I enjoyed the stay and the conference in Pushchino very much. After the conference, I had to go to Beijing (China) for a discussion as well as another meeting in Sendai in Japan, and, am late in sending my thanks to you.

Sepideh Skandary: I am writing in order to appreciate all your support and for giving me the chance to participate in the meeting in Pushchino. It was great for me to be able to communicate with well-known participants and to enjoy listening to their lectures. I wish you the best in life and scientific issues. As a memory of this meeting, I have sent you, separately, some photos from the conference.

Rajagopal Subramanyam: I have reached safely home. The meeting was very well organized by you and your team and I congratulate all of you for successfully conducting the meeting. You are all so kind and you took care of all of us. Russians are marvelous people and kind hearted. I thoroughly enjoyed my stay and it was a good scientific meeting. Say hello to your entire team. I will be in touch with you.

Yoshifumi Ueno: I arrived in Japan safely yesterday. Thank you for your kind assistance while I was in Pushchino. I hope to see you again at the next opportunity.

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