"4th International Symposium on Plant Signaling and Behavior 2016"

Saint Petersburg, Russia, June 19-23, 2016

and School for Early Career and Young Scientists "Plant Stress Signaling", June 19-24, 2016

Time	**Sunday, 19 June** Venue: Saint Petersburg Scientific Center of the Russian Academy of Sciences Universitetskaya emb. 5	
14:30	Registration	
16:00	Opening ceremony	
16:30	Session 1. Plant behavior and ecology Chair: František Baluška	Dieter Volkmann, University of Bonn, Germany Pioneers in plant signaling
17:00		František Baluška, University of Bonn, Germany Root apex navigation via transition zone energides
17:35		Stefano Mancuso, Università di Firenze, Italy Universality in root behaviour
18:10		Olga Voitsekhovskaja, Komarov Botanical Institute RAS, Russia In memory of Yuri Gamalei, who studied integrative networks of plasmodesmata in relation to plant ecophysiology and adaptation.
18:30 until 21:00	Welcome reception	

Time	**Monday, 20 June** **Incorporated sessions of School for early career and young scientists** **"Plant stress signaling"** Venue: Hall A; A.S. Popov Central Museum of Communications, Pochtamtskiy per. 4	
09:00	Session 2. Ion channels, transporters and electrophysiology Chairs: Frans Maathuis, Vadim Demidchik	Rainer Hedrich, University of Würzburg, Germany From genome research: Venus flytrap exploits plant defenses in carnivorous lifestyle
09:50		Frans Maathuis, University of York, UK The vacuolar channel TPK1 forms a complex with a regulatory kinase involved in ABA induced stomatal closure
10:20		Igor Pottosin, Universidad de Colima, Mexico TPC1-based Ca^{2+} signaling: Slow and steady wins the race
10:50		Mary J. Beilby, University of New South Wales, Australia Modeling *Chara* action potential under salinity stress: Similarities to animal Ca^{2+} signaling?
11:10	Coffee and posters	
11:35	Session 2. Ion channels, transporters and electrophysiology Chairs: Frans Maathuis, Vadim Demidchik	Vadim Demidchik, Belarusian State University, Belarus; Komarov Botanical Institute RAS, Russia Cation channels are the target of ROS and oxidative stress in plants
12:05		Lana Shabala, University of Tasmania, Australia Membrane transporters mediating root signalling and adaptive responses to oxygen deprivation and soil flooding
12:30		Vladimir Vodeneev, University of Nizhniy Novgorod, Russia Variation potential in higher plants: Mechanisms of generation and propagation
12:50		Maria Shishova, St. Petersburg State University, Russia Ca^{2+} and H^{+} signaling in early auxin transduction
13:05		Vilma Kisnieriene, Vilnius University, Lithuania Neuroactive compounds and electrical signaling in "green axon" *Nitellopsis obtuse*
13:20	Lunch	

14:10	Session 3. Organelle, cell-to-cell and long distance signalling Chairs: Roberto Bassi Tessa Burch-Smith	Roberto Bassi, University of Verona, Italy A comparative analysis of photosynthetic light use efficiency regulation mechanisms from unicellular algae to higher plants through mosses
14:40		Ayumi Tanaka, Hokkaido University, Japan Mg-dechelatase initiates chlorophyll degradation and controls the gene expression of chlorophyll metabolism
15:10		Elena Tyutereva, Komarov Botanical Institute RAS, Russia Mechanisms of light stress tolerance in barley mutant plants lacking chlorophyll b
15:30		Sabine Carpin,Université d'Orléans, France Toward the identification of a partnership belonging to a multi-step phosphorelay system as signaling pathway in poplar drought perception
15:50		Alberta Pinnola, University of Verona, Italy Binding of the second messenger Zeaxanthin upon high light stress changes the functional properties of the LHCSR1 protein from *Physcomitrella patens*
16:10	Coffee and posters	
16:35	Session 3. Organelle, cell-to-cell and long distance signalling Chairs: Roberto Bassi Tessa Burch-Smith	Christine Faulkner, JIC, UK Receptor-mediated regulation of intercellular communication during pathogen attack
17:05		Tessa Burch-Smith, University of Tennessee, USA Regulation of intercellular trafficking: the chloroplast connection
17:35		Sergey Lomin, Institute of Plant Physiology RAS, Russia Cytokinin signal transduction is obviously initiated in the endoplasmic reticulum
18:05		Andrey Solovyev, Moscow State University, Russia Plant virus movement proteins encoded by triple gene block: functions, origin and evolutionary links
18:25		Anna Komarova, Moscow State University, Russia Cyclosis-mediated long distance communications of chloroplasts
18:45	Wine and posters. All posters with a focus on Sessions 1 to 5	

Time	**Tuesday, 21 June** **Incorporated sessions of School for early career and young scientists** **"Plant stress signaling"** Venue: Hall A; A.S. Popov Central Museum of Communications, Pochtamtskiy per. 4	
09:00	Session 4. Stress-induced signaling Chairs: Sergey Shabala, Marc Knight	Jimmy Botella, University of Queensland, Australia Plant G proteins come of age: Breaking the signaling bond with animal models
09:30		Sergey Shabala, University of Tasmania, Australia Sensing and signalling salt stress in plants
10:00		Axel Mithöfer, Max Planck Institute for Chemical Ecology, Germany CMLs in calcium-mediated plant defense against herbivory
10:30		Tatiana Bibikova, Moscow State University, Russia Possible components of sodium sensing pathway in plants
10:50		Vladislav Yemelyanov, St. Petersburg State University, Russia The role of polyamines in signaling and adaptation to oxygen deprivation and subsequent re-aeration in plants
11:10	Coffee and posters	
11:35	Session 4. Stress-induced signaling Chairs: Sergey Shabala, Marc Knight	Marc Knight, Durham University, UK Signalling in response to changes in low temperature in *Arabidopsis*
12:05		Emilio Gutierrez-Beltran, Swedish University of Agricultural Sciences, Uppsala, Sweden Molecular composition of stress granules in *Arabidopsis*
12:30		Thomas Vincent, JIC, UK Defending plants against the World's most pesticide-resistant insect, *Myzus persicae*: A role for calcium
12:50		Gioia Lenzoni, Durham University, UK Interaction between heat and light in chloroplast calcium signaling

13:10	Lunch
14:00	Excursion to Peterhof
19:00 until 23:00	Conference dinner A.S. Popov Central Museum of Communications, Pochtamtskiy per. 4

Time	**Wednesday, 22 June** **Incorporated sessions of School for early career and young scientists** **"Plant stress signaling"** Venue: Hall A; A.S. Popov Central Museum of Communications, Pochtamtskiy per. 4	
09:00	Session 5. Programmed cell death and autophagy Chairs: Olga Voitsekhovskaja, Diane Bassham	Diane Bassham, Iowa State University, USA RNA turnover in the plant vacuole via autophagy
09:30		Yule Liu, Tsingua University, China Cytoplastic glyceraldehyde-3-phosphate dehydrogenases interact with ATG3 to negatively regulate autophagy and immunity in plants
10:00		Andrei Vartapetyan, Moscow State University, Russia Phytaspases: role in plant cell death and beyond
10:30		Farida Minibaeva, Kazan Institute of Biochemistry and Biophysics RAS, Russia Redox regulation of autophagy in plants
11:00	Coffee and posters	
11:30	Session 5. Programmed cell death and autophagy Chairs: Olga Voitsekhovskaja, Diane Bassham	Olga Voitsekhovskaja, Komarov Botanical Institute RAS, Russia Autophagic degradation of plant organelles
12:00		Patrice Thuleau, CNRS, Toulouse, France Cytosolic glyceraldehyde-3-phosphate dehydrogenase is involved in sphingolipid signaling in plants
12:30		Viera Mackievic, Belarusian State University, Belarus Mechanisms of NaCl- and hydroxyl radical-induced programmed cell death in *Arabidopsis thaliana* roots
12:55	Lunch	
13:50	Session 6. Complex adaptive and neuron-like reactions Chairs: Stefano Mancuso, Liz Van Volkenburg	Alexander G. Volkov, Oakwood University, USA Electrical networks in plants, fruits and seeds
14:20		Liz Van Volkenburg, University of Washington, USA Plant behavior, flipped
14:50		Bernd Mueller-Roeber, University of Potsdam, Germany The control of growth plasticity by NAC transcription factors
15:15		Salma Balazadeh, University of Potsdam, Germany A novel control module for thermomemory in plants
15:35		Andrej Pavlovič, University of Olomouc, Czech Republic Short- and long-distance electrical signaling in carnivorous plants
15:55	Coffee and posters	
16:15	Session 6. Complex adaptive and neuron-like reactions Chairs: Stefano Mancuso, Liz Van Volkenburg	Susan Murch, University of British Columbia, Canada Auxins and indoleamines: Signaling in plant regeneration
16:45		Yariv Brotman, Ben Gurion University of the Negev, Israel Exploring the metabolome of higher plant species
17:15		Mannie Liscum, University of Missouri, USA Phototropin responses: Getting from intracellular biology to organ-level behavior, adaptation and fitness
17:40		Greg B. Clark, University of Texas, USA Using a self-referencing biosensor and kinematics to assay physiological differences mediated by altered apyrase expression in transgenic roots
18:00		Paco Calvo, University of Murcia, Spain Guidance of circumnutation of climbing bean stems: An ecological exploration
18:20 until 21:00	Wine and posters. All posters with a focus on Sessions 6 to 10	

Satellite Session "Techniques in Imaging and Photosynthesis Research" Venue: Hall B; A.S. Popov Central Museum of Communications, Pochtamtskiy per. 4	
16:30	Maria Lemak, Nikon Instruments Nikon confocal systems: what's new in advanced fluorescent microscopy
16:45	Rick L. Garcia, LI-COR Biosciences (USA). Exploring the power of parallel measurements of electron transport, CO_2 and H_2O flux in plant leaves
17:00 until 19:00	WORKSHOP (LI-COR, LABINSTRUMENTS). Li-Cor and LabInstrumens organize a workshop on new systems to study photosynthesis in vivo and will introduce the newest LI-6800 Portable Photosynthesis System (Li-Cor).

Time	Thursday, 23 June Incorporated sessions of School for early career and young scientists "Plant stress signaling" Venue: Hall A; A.S. Popov Central Museum of Communications, Pochtamtskiy per. 4	
9:00	Session 7. Phytohormone signaling Chairs: Georgy Romanov, Kirill Demchenko	Georgy Romanov, Institute of Plant Physiology RAS, Russia Cytokinin signaling system: new developments
9:25		Kirill Demchenko, Komarov Botanical Institute RAS, Russia Early cellular events and auxin response during lateral root initiation in the primary root meristem of squash
9:50		Joseph Dubrovsky, Institute of Biotechnology, Mexico Root developmental plasticity: to maintain the root apical meristem or become determinate?
10:15		Viktor Ivanov, Institute of Plant Physiology RAS, Russia Cytokinins determine *Arabidopsis* root meristem size and root growth rate by controlling cell proliferation rather than cell differentation
10:35		Juha Immanen, University of Helsinki, Finland Cytokinin and auxin display distinct but interconnected distribution and signaling profiles to stimulate cambial activity
10:55		Sebastjen Schoenaers, University of Antwerpen, Belgium An ARF7/ARF19-regulated kinase controls calcium-dependent tip growth in *Arabidopsis*
11:15	Coffee and posters	
11:40	Session 8. Interaction with bacteria and fungi Chairs: Igor A. Tikhonovich, Katharina Pawlowski	Igor A. Tikhonovich, ARRIAM, Saint Petersburg, Russia Plant-microbe signal exchange leads to the highly specific symbiosis development
12:10		Katharina Pawlowski, Stockholm University, Sweden Evolution of actinorhizal symbioses: Root nodules induced by members of the basal group of *Frankia* strains
12:35		Ingo Dreyer, University of Talca, Chile Cooperation through competition: Dynamics and microeconomics of a nutrient trade system in arbuscular mycorrhizal symbiosis
13:00		Ton Timmers, CRNS, Toulouse, France Nod factor perception and signal transduction during endosymbiotic interactions of *Medicago truncatula*
13:25		Ralf Oelmüller, University of Jena, Germany Local and systemic signaling in plant/microbe interaction mediated by a novel chemical mediator
13:45	Late Lunch	
14:35	Session 9. Response to radiation and gravity Chairs: Sergey Medvedev, Galina Shevchenko	Galina Shevchenko, Kholodny Insitute of Botany NAS, Ukraine Genome stability in plants from Chernobyl zone is facilitated by DNA-repair pathways
15:00		Tatiana Gorshkova, Kazan Institute of Biochemistry and Biophysics RAS, Russia Unexpected turns in gravitropic curvatures
15:25		Namik Rashydov, Institute of Cell Biology and Genetic Engineering NAS, Ukraine Long remote carry out of light and gene activity signals in plant seedling
15:45		Tatiana Bilova, St. Petersburg State University, Russia Simulated microgravity induces specific alterations in the metabolome and proteome of germinated *Brassica oleracea* and *Brassica napus* seeds

16:05		Marcela Hola, Czech Academy of Sciences, Prague, Czech Republic Molecular basis of environmental stresses-induced mutagenesis in *Physcomitrella patens*
16:25		Miroslav Perniš, Institute of Plant Genetics and Biotechnology, Slovakia Closer look on Chernobyl area-grown soybean seeds and their adaptation to increased level of ionizing radiation
16:45		Gregory A. Pozhvanov, St. Petersburg State University, Russia Ethylene is involved in the actin cytoskeleton rearrangement during the root gravitropic response of *Arabidopsis thaliana*
17:05	Coffee and posters	
17:25	Session 10. ROS/RNS and neurotransmitter signaling Chairs: Boris Ivanov, Satish Bhatla	Boris N. Ivanov, Institute of Basic Biological Problems RAS, Russia Formation of reduced reactive oxygen species in a photosynthetic electron transport chain, and their signaling role
17:50		Satish Bhatla, Delhi University, India Nitric oxide and melatonin crosstalk with reactive oxygen species scavenging enzymes in modulating abiotic stress tolerance
18:15		Viktor Tsyganov, ARRIAM, Saint Petersburg, Russia Pea (*Pisum sativum* L.) nodule development: Reactive oxygen species, antioxidants and phytohormones
18:35		Yana Toporkova, Kazan Institute of Biochemistry and Biophysics RAS, Russia Features of lipoxygenase cascade of different plant species
18:55	Closing remarks	

Time	**Friday, 24 June** **Discussion Groups within School for early career and young scientists "Plant stress signaling"** Venue: Halls A and B; A.S. Popov Central Museum of Communications, Pochtamtskiy per. 4		
9:00-11:00	Discussion Group A: **Neuron-like aspects of plant adaptive behavior** 15 participants 3-min presentations	Discussion Group B: **Stress: survival or death?** 15 participants 3-min presentations	Discussion Group C: **Encoding stress specificity** 15 participants 3-min presentations
11:00	Transportation to Sessions and Early Lunch		
12:30-16:00	Workshop "Cell biology techniques in plant signaling studies**"**	Introduction Leaders: Kirill N. Demchenko, Alexandra N. Ivanova, Grigory A. Pozhvanov St. Petersburg State University, Universitetskaya nab. 7/9	
		Session 1. St. Petersburg State University, Research Park Demonstrations based on Leica Microsystems CLSM Facilities Universitetskaya nab. 7/9	
		Session 2. Komarov Botanical Institute RAS, The OPTEC confocal microscopy reference Center in the Core Facilities "Cell and Molecular Technologies in Plant Science" in the Komarov Botanical Institute RAS (St.-Petersburg, Russia)	