

4th INTERNATIONAL FALL SCHOOL ON ORGANIC ELECTRONICS – 2018 (IFSOE-2018)

Organizers

Division of Chemistry and Material Science of Russian Academy of Sciences

The Ministry of Education and Science of the Russian Federation

Enikolopov Institute of Synthetic Polymeric Materials of Russian Academy of Sciences (ISPM RAS)

Lomonosov Moscow State University (MSU)

Printed Electronics Technologies Limited Liability Company (PrintEITech LLC)

Russian Foundation for Basic Research (RFBR)

Scientific program

- 1) **Fundamentals of organic electronics:** charge transport, modeling, photophysics, etc.
- 2) **Design and synthesis of materials for organic electronics:** organic conductors and semiconductors, dielectrics, substrates, etc.
- 3) **Organic field-effect transistors:** single crystal, polymer and monolayer OFETs, integrated circuits and related devices.
- 4) **Organic light-emitting devices:** OLEDs and OLETs, white light-emitting devices, TADF devices, organic lasers.
- 5) **Organic and hybrid solar cells:** small molecules and polymer photovoltaics, tandem cells, perovskites-based photovoltaics, etc.
- 6) **Organic sensors:** physical sensors (pressure, temperature, photo, etc.), chemo- and biosensors.
- 7) **Characterization techniques:** various spectroscopy, microscopy, and x-ray scattering techniques, charge mobility measurements, thermal and surface analysis, HOMO and LUMO evaluation, biomedical applications, etc.
- 8) **Technologies of organic electronics:** printing of organic materials and devices, roll-to-roll techniques, ink formulations, encapsulation, etc.

School-conference Chairs

Prof. Sergey Ponomarenko (Enikolopov Institute of Synthetic Polymeric Materials of RAS, Russia)

Prof. Dmitry Paraschuk (Lomonosov Moscow State University, Russia)

Chair of the Sensor Day

Dr.Sc. Alexey Vasiliev (Moscow Institute of Physics and Technology, Russia
NRC Kurchatov Institute, Russia)

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Victoria Chekusova – *workshop secretary*

Dr. Alexey Sizov

Askold Trul

Daniil Anisimov

The 4th International Fall School on Organic Electronics – 2018 Time Schedule

Sunday September 16th	Monday September 17th	Tuesday September 18th	Wednesday September 19th	Thursday September 20th	Friday September 21st
	<i>School-conference</i>				
9:00	Sergey Ponomarenko	Harald Ade	Vladimir Dyakonov	Natalie Stingelin	Jürgen Brugger 9:00
10:00	Michele Muccini	Anna Koehler	Maxim Pshenichnikov	Fabio Biscarini	Corrado Di Natale 10:00
11:00	Visit to Kolomenskoe Museum (optional)		Coffee-break		11:00
12:00	Pavel Troshin Aldo Di Carlo	Andreas Kafizas Elena Obraztsova	Alexandra Freidzon Andrey Sosorev	Annalisa Bonfiglio Oral talks 5	Alexey Vasiliev 12:00
13:00	Artem Bakulin Koen Vandewal	Oral talks 2	Yuriy Luponosov Oral talks 3	School-Conference closing	Carlo Bortolotti Oral talks 6 13:00
14:00	Lunch		Lunch		14:00
15:00	Registration at ISPM RAS				
16:00	16:00 Departure to Conference site	Evening lecture Stephan Kirchmeyer	Oral talks 4	15:00 Departure to Moscow	Departure to Moscow 15:00
17:00	Hotel arrival. Registration	Sport activities (swimming pool, wellness, spa)	Coffee-break	Sport activities (swimming pool, wellness, spa)	16:00
18:00	Poster session 1		Poster session 2		17:00
19:00	Dinner			Dinner	18:00
20:00	Opening ceremony. Vitaly Podzorov	Moscow sightseeing tour	Conference dinner	Sport activities (swimming pool, wellness, spa)	19:00
21:00	Welcome-party	Leisure time			20:00
22:00-22:30					21:00
					22:00-22:30

Sunday, September 16th

11:00 – 16:00	Visit to Kolomenskoe Museum (optional) Registration at ISPM RAS. Departure to conference site
19:00 – 20:00	Dinner
20:00 – 20:15	School-conference opening
20:15 – 21:15	T-1. Vitaly Podzorov. Avoiding artifacts and errors in characterization of organic field-effect transistors
21:15 – 22:30	Welcome-party

Monday, September 17th

8:00 – 9:00	Breakfast
	Chair: <i>Koen Vandewal</i>
9:00 – 10:00	T-2. Sergey Ponomarenko. Molecular design of highly efficient functional materials for organic electronics and photonics
10:00 – 11:00	T-3. Michele Muccini. Organic field-effect transistors as a truly multifunctional platform: from light-emission to cell stimulation and sensing
11:00 – 11:30	Coffee-break
	Chair: <i>Vitaly Podzorov</i>
11:30 – 12:00	I-1. Pavel Troshin. Perovskite solar cells with long operation lifetimes: myth or reality?
12:00 – 12:30	I-2. Aldo Di Carlo. Dye sensitized and perovskite photovoltaics: from cells to modules
12:30 – 13:00	I-3. Artem Bakulin. Photophysics of organic solar cells with non-fullerene acceptors
13:00 – 13:30	I-4. Koen Vandewal. The influence of charge-transfer state properties on the performance of organic photovoltaic and photo-detecting devices
13:30 – 15:00	Lunch
	Oral talks 1. Chair: <i>Artem Bakulin</i>
15:00 – 15:15	O-1. Andriy Zhugayevych. Polymorphism and charge transport in organic semiconductors
15:15 – 15:30	O-2. Ernest Pastor. Charge transport mechanism in transition metal oxides photoelectrocatalysts and its similarities to molecular crystals
15:30 – 15:45	O-3. Alexey Sizov. Langmuir monolayer OFETs for multiparametric detection of toxic gases
15:45 – 16:00	O-4. Vladimir Bruevich. Large-area single-crystal oligothiophene-based monolayers for field-effect devices

16:00 – 16:15	O-5. <i>Dmitry Maslennikov.</i> Impact of terminal substituents on Raman spectra, crystal structure, and charge mobility in diphenyl-bithiophene single crystals
16:30 – 17:00	Coffee-break
17:00 – 18:30	Poster session 1 (P-1 – P-28)
19:00 – 20:00	Dinner
20:00 – 21:00	Evening lecture. <i>Maxim Pschenichnikov.</i> How to keep up with the scientific literature?

Tuesday, September 18th

8:00 – 9:00	Breakfast
	Chair: <i>Heinz Bässler</i>
9:00 – 10:00	T-4. <i>Harald Ade.</i> Importance of molecular interactions and the need for vitrification in nonfullerene organic solar cells
10:00 – 11:00	T-5. <i>Anna Koehler.</i> How does delocalization affect exciton dissociation in organic solar cells?
11:00 – 11:30	Coffee-break
	Chair: <i>Maxim Pshenichnikov</i>
11:30 – 12:00	I-5. <i>Andreas Kafizas.</i> Can water fuel our future? Developing upscalable routes to economical devices
12:00 – 12:30	I-6. <i>Elena Obratsova.</i> Films of filled single-wall carbon nanotubes as transparent conductive electrodes
	Oral talks 2.
12:30 – 12:45	O-6. <i>Vasilij Trukhanov.</i> Cross-contact space-charge effect on performance of organic field-effect transistors
12:45 – 13:00	O-7. <i>Filipp Obrezkov.</i> Photoswitchable organic field-effect transistors with bis(hetaryl)ethene molecules at the semiconductor-dielectric interface: material structure – device performance
13:00 – 13:15	O-8. <i>Galina Yalovega.</i> Regularities of formation Me(Co,Cu)/PAN nanocomposites conducting structure: investigation using X-ray spectroscopy
13:30 – 15:00	Lunch
15:00 – 16:00	Evening lecture. <i>Stephan Kirchmeyer.</i> How to write a patent?
16:00 – 18:00	Sport activities
18:15 – 19:00	Dinner
19:00 – 23:00	Moscow sightseeing tour

Wednesday, September 19th

8:00 – 9:00	Breakfast
	Chair: <i>Anna Koehler</i>
9:00 – 10:00	T-6. <i>Vladimir Dyakonov.</i> Role of spins in next generation OLEDs
10:00 – 11:00	T-7. <i>Maxim Pshenichnikov.</i> Artificial light harvesters for molecular excitonics
11:00 – 11:30	Coffee-break
	Chair: <i>Vladimir Dyakonov</i>
11:30 – 12:00	I-7. <i>Alexandra Freidzon.</i> Theoretical prediction of operational stability of potential OLED host molecules by multireference quantum chemistry
12:00 – 12:30	I-8. <i>Andrey Sosorev.</i> Impact of low-frequency vibrations on charge transport in high-mobility organic semiconductors from Raman scattering data
12:30 – 13:00	I-9. <i>Yuriy Luponosov.</i> Alkyl-free donor-acceptor oligomers as highly stable electron donor materials for organic photovoltaics
	Oral talks 3.
13:00 – 13:15	O-9. <i>Anastasia Markina.</i> Non-fullerene acceptors with tailored properties for organic solar cells
13:15 – 13:30	O-10. <i>Raaghesh Vijayan.</i> Morphology control of bulk heterojunction solar cells with external electric field assisted annealing
13:30 – 15:00	Lunch
	Oral talks 4. Chair: <i>Stephan Kirchmeyer</i>
15:00 – 15:15	O-11. <i>Rashid Nazmitdinov.</i> On efficiency increase of perovskite photovoltaic elements
15:15 – 15:30	O-12. <i>Jinhan Wu.</i> Investigation of recombination processes in organic light-emitting diodes using Suns-Voc method
15:30 – 15:45	O-13. <i>Valentina Utochnikova.</i> Lanthanide-based OLEDs: the second wave
15:45 – 16:00	O-14. <i>Igor Koskin.</i> Way to highly emissive materials: increase of rigidity by introduction of a furan moiety in co-oligomers
16:00 – 16:15	O-15. <i>Oleg Borshchev.</i> New organic luminophores: only beautiful chemistry or new perspectives in organic photonics and electronics?
16:15 – 16:30	O-16. <i>Aleksandra Boldyreva.</i> Gamma ray induced degradation effects in triple cation perovskite solar cells
16:30 – 17:00	Coffee-break
17:00 – 18:30	Poster session 2 (P-29 – P-65)
19:00 – 22:30	Conference dinner

Thursday, September 20th

8:00 – 9:00	Breakfast
	Chair: <i>Sergey Ponomarenko</i>
9:00 – 10:00	T-8. Natalie Stingelin. Designing solution-processed photonic light- and heat-management structures for optoelectronic devices
10:00 – 11:00	T-9. Fabio Biscarini. Ion-gating in organic transistors: how it affects specific recognition of neurotransmitters
11:00 – 11:30	Coffee-break
	Chair: <i>Dmitry Paraschuk</i>
11:30 – 12:00	I-10. Annalisa Bonfiglio. Field effect organic devices for multimodal sensing platforms
	Oral talks 5.
12:00 – 12:15	Q-17. Yingquan Peng. Advances in broadband photodiodes and phototransistors exploiting organic semiconductors
12:15 – 12:30	Q-18. Maria Kotova. Charge transfer states and triplet excitons in non-fullerene acceptor based organic solar cells
12:30 – 13:30	Closing ceremony
13:30 – 15:00	Lunch
15:00 – 15:15	Departure to Moscow
15:00 – 19:00	Sensor day registration Sport activities
19:00 – 20:00	Dinner
20:00 – 22:00	Sport activities

Friday, September 21st – *Satellite: Sensor day*

8:00 – 9:00	Breakfast
	Chair: <i>Alexey Vasiliev</i>
9:00 – 10:00	T-10. Jürgen Brugger. Nanosystems fabrication: from rapid prototyping to scalable manufacturing
10:00 – 11:00	T-11. Corrado Di Natale. Porphyrins based chemical sensors
11:00 – 11:30	Coffee-break
	Chair: <i>Corrado Di Natale</i>
11:30 – 12:30	T-12. Alexey Vasiliev. Additive technologies for chemical sensors

12:30 – 13:00	I-11. <i>Carlo Bortolotti.</i> Organic electronic transistors as ultra sensitive and label free biosensors
	<u>Oral talks 6.</u>
13:00 – 13:15	O-19. <i>Daniil Anisimov.</i> Electronic nose based on Langmuir monolayer OFETs with metal-containing porphyrins as a selective layer
13:30 – 15:00	Lunch
15:00 – 15:15	Departure to Moscow

Poster session 1

Monday, September 17th, 17:00

Akkuratov, Alexander V.	P1	Design of novel low molecular weight donor molecules based on pyrrolo[3,4-c]pyrrole-1,4-dione, thiophene and benzothiadiazole for organic solar cells
Aleksandrov, Aleksey E.	P2	Hybrid photovoltaic diodes based on PbS quantum dots
Aslandukov, Andrey N.	P3	Lanthanide aromatic carboxylates as emitters for solution-processed OLEDs: new approach for host selection
Balakirev, Dmitry O.	P4	Novel triphenylamine-based luminophores: synthesis and property studying
Bauer, Marius	P5	Spectroscopic and microscopic characterization of RISC OLED thin films
Beletskaya, Elizaveta A.	P6	Light-induced charge separation at donor/acceptor composite PCDTBT/PC ₇₀ BM
Nevostruev, Danil A.	P7	Bis(dicyanothienoanthraquinoides) – novel promising acceptor materials for organic photovoltaics
Bhattacharyya, Kalishankar	P8	External electric field assisted charge transport in PCBM-SA48 solar cell: a theoretical perspective
Blinova, Lubov I.	P9	Visible and NIR-luminescent lanthanide complexes with perfluorinated 2-mercaptobenzothiazolate ligands
Bodrova, Ekaterina S.	P10	Gamma-ray induced degradation in organic solar cells
Borzduun, Natalia I.	P11	Molecular dynamics simulations of nanoarchitectures based on thiophene-phenylene oligomers
Brotsman, Victor A.	P12	Ternary solar cells based on highly soluble double-caged fullerene derivatives
Chekusova, Victoria P.	P13	Thiophene-based monolayer OFETs with metalloporphyrin receptor layers as a perspective devices for toxic gases detection
Dashitsyrenova, Dolgor D.	P14	Self-assembled monolayers of porphyrin dyads enable light-induced switching in OFET-based optical memory devices

Dashitsyrenova, Dolgor D.	P15	Impact of the semiconductor/dielectric interface modification on the performance of OFETs and memory devices
Fedorenko, Roman S.	P16	Ultrathin solution-processed thiophene-phenylene co-oligomers field-effect transistors with electrical performance exceeding single-crystal ones
Feriancova, Lucia	P17	Design and synthesis of bithiophene derivatives with anchoring groups for organic electronic applications
Frericks, Markus B.	P18	Electronic structure at interfaces of hole transport materials
Gultikov, Nikita V.	P19	Photothermal deflection spectroscopy as a probe of ppm-doping level in organic semiconductor single crystals
Juhasz, Peter	P20	Contact resistance temperature dependence of organic transistor
Kalinichenko, Nadezhda K.	P21	Synthesis and properties of novel conjugated donor-acceptor oligothiophenes with electron-withdrawing methylidynevinyl groups for organic photovoltaics
Kolesnikov, Efim A.	P22	Optical and luminescent properties of copper and silver cesium iodides
Komissarova, Ekaterina A.	P23	A new series of pyrimidine-containing chromophores naphthalene, anthracene and cyclic imide derivatives: synthesis, investigation of spectral and electrochemical behavior
Konstantinov, Vladislav G.	P24	Highly bendable thiophene-phenylene co-oligomer single crystals
Korovin, Alexey N.	P25	Effect of counter ion on structure of thin polyaniline films on air-water interface
Kotova, Maria S.	P26	In situ impedance spectroscopy of polymer structures by resistive switching
Kuevda, Alexey V.	P27	Photon counting multi-channel scaler for phosphorescence spectroscopy of organic semiconductors
Kumar, Rhea	P28	Vibronic control of organic electronic devices

Poster session 2

Wednesday, September 19th, 17:00

Dubinets, Nikita O.	P29	COPHEE: Condensed phase excitation energies database
Koshelev, Daniil S.	P30	Toward the design of lanthanide heteroaromatic carboxylates
Kushch, Nataliya D.	P31	New bifunctional organic conductor (BETS) ₂ Cu(dca) ₃ and semiconductor (BEDT-TTF) ₂ Cu ¹⁺ Cu ²⁺ (dca) ₄ with the dicyanamidocuprate anions
Kusnetsov, Ilja E.	P32	Novel low molecular weight semiconductor materials based on rhodanine, thiophene and benzothiadiazole for organic electronics
Lukonina, Natalia S.	P33	<i>p</i> -Doping of poly(3-hexylthiophene-2,5-diyl)/carbon nanotubes composites with strong acceptor C ₆₀ F ₄₈

Majhi, Koushik	P34	Photophysical behavior of <i>meta</i> -aminophenol in the hydrophobic environment of β -cyclodextrin nano-cage: An experimental and theoretical approach
Malakhova, Yulia N.	P35	Nonwoven materials in the development of organic memristive element based on polyaniline/polyethylene oxide
Mannanov, Artur L.	P36	Charge generation and recombination in single material organic solar cells based on donor-acceptor star-shaped molecules
Martynov, Ilya V.	P37	Fullerene derivatives as promoters or inhibitors of the photo-oxidation of conjugated polymers used in organic solar cells
Martynova, Natalia A.	P38	Electrochemical formation of ZnO(Al) films for photoanodes in photovoltaic devices
Meier, Tobias	P39	Investigating the influence of morphology on the charge-carrier mobility in organic field-effect transistors
Nuraliev, Muzaffar K.	P40	Assessment of charge transfer reorganization energy for organic semiconductors by Raman spectroscopy
Prudnov, Fedor A.	P41	Photoactive layer / metal electrode interface as one of the origins of the burn-in degradation of organic solar cells
Rohnacher, Valentina	P42	Infrared spectroscopic study on solution-processed metal oxides as efficient charge transport layer in organic photovoltaic cells
Savchenko, Peter	P43	Application of spectral technique for accurate efficiency measurements of organic and perovskite solar cells
Sivanesan, Vipilan	P44	Excited states dynamics in TIPS-Pentacene studied with femtosecond time-resolved second harmonic generation
Sizov, Alexey S.	P45	Langmuir films of organosilicon conjugated oligomers: thermodynamics of their self-assembly on the water surface
Skorotetcky, Maxim S.	P46	New nanostructured luminophores based on 1,3,5-benzene
Skorotetcky, Maxim S.	P47	Novel organosilicon luminophores based on arylenevinylenes for organic photonics
Sobolev, Vitaliy S.	P48	Influence of the carboxylic acid anhydride substitution on the electronic properties of the ultra thin naphthalene films
Sobolev, Vitaliy S.	P49	Modification of the work function and of the conduction band density of states profile using end substituents in thiophene/phenylene co-oligomers
Solodukhin, Aleksandr N.	P50	Novel donor-acceptor triphenylamine-based oligomers of different architecture for organic photovoltaics
Susarova, Diana K.	P51	The impact of the molecular structure of conjugation polymers on the indoor operation stability of solar cells
Trainov, Konstantin P.	P52	Novel D- π -A chromophores based on the hydrazono-cyclopentadiene accepting moiety
Travkin, Vladislav V.	P53	Light-induced processes in the multilayer structures incorporating molecular and perovskite-type materials
Trukhanov, Vasiliy A.	P54	Organic single-crystal light-emitting transistors with polycrystalline under-electrode interlayers
Trul, Askold A.	P55	Toxic gas detection with fully printed organic field-effect transistor

Tukachev, Nikita	P56	On theoretical prediction of electronic properties of novel conjugated polymers
Witte, Katharina	P57	Molecular orientation in thin films of conjugated polymers
Doroshkevich, Aleksandr S.	P58	Functional environments for precision humidity sensors based on dielectric nanoparticles in a hydrophilic polymer
Inasaridze, Liana N.	P59	Photoinduced degradation of a series of conjugated polymers under different oxygen level conditions
Shmelin, Pavel S.	P60	Synthesis of unsymmetrical 2-[2-vinyl-chromen-4-ylidene]-malononitrile dyes via Knoevenagel reaction
Umedov, Shodruz T.	P61	New materials in CsI-SnI ₄ -GaI ₃ ternary system
Zelenyak, Tatyana Yu.	P62	Synthesis of perovskite of methylammonium triiodide and study of structural degradation
Dominskiy, Dmitry I.	P63	Thiophene-phenylene co-oligomer single crystals: effect of molecular end-groups on structural and electronic properties
Rehamnia, Rabah	P64	Electrochemical preparation of MoO ₃ buffer layer deposited
Wang, Nianxing	P65	The application of viologen materials in organic electronics