MEMBRANE PROCESS MODELING

Web conference in celebration of the 60th anniversary of
Professor A.N. Filippov

Scientific Program

Thursday, December 3

Session 1. 11.00 A.M. – 1.00 P.M. (MOSCOW TIME)

Chairman: Boris Zaltzman

OPENING CEREMONY

11^{05}-11^{25} Victor Starov *(Loughborough University, Loughborough, UK)*
CONTRIBUTION OF PROFESSOR ANATOLY FILIPPOV TO MODELLING OF MEMBRANE PROCESSES

KEYNOTE LECTURES

11^{30}-11^{50} Reinhard Miller, Valentin B. Fainerman, Nenad Mucic, Aliyar Javadi, Libero Liggieri, Francesca Ravera, Giuseppe Loglio, Alexander V. Makievski and Emanuel Schneck (*Technische Universität Darmstadt, Darmstadt, Germany; SINTERFACE Technologies, Berlin, Germany; University of Novi Sad, Novi Sad, Serbia; Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Institute of Fluid Dynamics, Dresden, Germany; Institute of Condensed Matter Chemistry and Technologies for Energy, Genoa, Italy)*
STRUCTURE OF SURFACTANT ADSORPTION LAYERS AT THE WATER/ALKANE INTERFACE – COMPETITIVE AND COOPERATIVE EFFECTS

Music break

12^{05}-12^{25} Maarten Biesheuvel, Slawomir Porada, and Jouke Dykstra (*Wetsus, European Centre of Excellence for Sustainable Water Technology; Wageningen University, Wageningen, The Netherlands)*
THE ORIGIN OF OSMOSIS AND ELECTRO-OSMOSIS

ORAL PRESENTATIONS

12^{30}-12^{45} Michele Tedesco (*Wetsus, European Centre of Excellence for Sustainable Water Technology, Leeuwarden, The Netherlands)*
UNDERSTANDING THE ROLE OF MEMBRANE THICKNESS IN ELECTRO-MEMBRANE PROCESSES VIA NERNST-PLANCK APPROACH

12^{50}-1^{05} Jouke Dykstra and Maarten Biesheuvel *(Wageningen University, Wageningen; Wetsus, European Centre of Excellence for Sustainable Water Technology, Leeuwarden, The Netherlands)*
PROTON TRANSPORT ACROSS ANION EXCHANGE MEMBRANES IN ELECTROCHEMICAL SYSTEMS

Session 2. 2.00-4.00 P.M. (MOSCOW TIME)

Chairman: Andrey Yaroslavtsev

KEYNOTE LECTURES

2^{00}-2^{20} Victor Nikonenko, Dmitrii Butylskii, Semyon Mareev, Andrey Kislyi, Natalia Pismenskaya, and Pavel Apel *(Kuban State University, Krasnodar; Joint Institute for Nuclear Research, Dubna, Russia)*
HIGHLY SELECTIVE SEPARATION OF CATIONS WITH THE SAME CHARGE BY A NEW MEMBRANE METHOD USING SIMULTANEOUSLY APPLIED ELECTRIC AND PRESSURE FIELDS

2^{25}-2^{45} Ilya Ryzhkov, Atrur Krom, Mikhail Simunin (*Institute of Computational Modelling SB RAS; Siberian Federal University, Krasnoyarsk, Russia)*
THEORY OF ION TRANSPORT AND SELECTIVITY IN MEMBRANES WITH ELECTRICALLY CONDUCTIVE SURFACE

Music break

3^{00}-3^{20} Valery Ugrozov (*Financial University under the Government of the Russian Federation, Moscow, Russia*)
MATHEMATICAL SIMULATION OF GAS TRANSPORT THROUGH COMPOSITE MEMBRANES

ORAL PRESENTATIONS

3^{25}-3^{40} Maxim Shalygin, Alina Kozlova, and Vladimir Teplyakov (*A.V.Topchiev Institute of Petrochemical Synthesis, Russian Academy of Sciences, Moscow, Russia*)
MODELING OF ALCOHOLS RECOVERY FROM DILUTED WATER SOLUTIONS WITH MEMBRANE VAPOR SEPARATION

3^{45}-4^{00} Irina Falina, Olga Demina, and Victor Zabolotsky (*Kuban State University, Krasnodar, Russia*)
CAPILLARY MODEL OF ELECTROOSMOTIC TRANSFER IN ION-EXCHANGE MEMBRANES

4^{05} Discussion

Friday, December 4

Session 3. 11.00 A.M. – 1.00 P.M. (MOSCOW TIME)

Chairman: Victor Starov

KEYNOTE LECTURE

11^{00}-11^{20} Vasily Kirsch (*A.V. Topchiev Institute of Petrochemical Synthesis, A.N. Frumkin Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Moscow, Russia)*
SIMULATION OF SOLUTE TRANSPORT IN A CROSS-FLOW PAST A ROW OF HOLLOW-FIBER MEMBRANES

ORAL PRESENTATIONS

11^{25}-11^{40} Anna Trybala and Victor Starov (*Loughborough University, Loughborough, UK)*
CURRENT PROBLEMS IN KINETICS OF WETTING AND SPREADING

11^{45}-12^{00} Asmat Ullah, Victor Starov (*University of Engineering & Technology Peshawar, Pakistan; Loughborough University, UK*)
OSCILLATORY MEMBRANE MICROFILTRATION FOR THE SEPARATION OF CRUDE OIL DROPS FROM PRODUCED WATER

Music break

12^{10}-12^{25} Satya Deo, Deepak Kumar Maurya, and Anatoly Filippov (*University of Allahabad, Prayagraj; Institute of Physical Sciences for Study and Research, V. B. S. Purvanchal University, Jaunpur, India; Gubkin Russian State University of Oil and Gas, Moscow, Russia)*
INFLUENCE OF MAGNETIC FIELD ON HYDRODYNAMIC PERMEABILITY OF BIPOROUS MEMBRANE

12^{30}-12^{45} Amit Kumar Saini, Satyendra Singh Chauhan, and Ashish Tiwari (*Birla Institute of Technology and Science Pilani, Rajasthan, India*)
CREEPING FLOW OF VISCOELASTIC FLUID THROUGH A SWARM OF POROUS CYLINDRICAL PARTICLES: BRINKMAN-FORCHHEIMER MODEL

12^{50}-1^{05} Anatoly Filippov, Yulia Koroleva, Amit Verma (*Gubkin Russian State University of Oil and Gas, Moscow, Russia; Indian Institute of Technology Patna, Bihta, Patna, India)*
NUMERICAL STUDY OF STOKES-BRINKMAN SYSTEMS WITH VARYING LIQUID VISCOSITY

Session 4. 2.00-4.00 P.M. (MOSCOW TIME)

Chairman: Victor Nikonenko

KEYNOTE LECTURES

2^{00}-2^{20} Isaak Rubinstein, Boris Zaltzman (*Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede-Boqer, Israel)*
MECHANISMS OF HYDRODYNAMIC INSTABILITY IN CONCENTRATION POLARIZATION

2^{25}-2^{45} Anna Kovalenko, Matthias Vessling, Victor Nikonenko, Elizaveta Evdochenko, Machamet Urtenov (*Kuban State University, Krasnodar, Russia; Chemical Process Engineering AVT.CVT, RWTH Aachen University, Aachen, Germany)*
THE PHENOMENON OF SPACE CHARGE BREAKDOWN IN ELECTRO-MEMBRANE SYSTEMS

Music break

ORAL PRESENTATIONS

3^{00}-3^{15} Anna Kovalenko, Makhamet Urtenov (*Kuban State University, Krasnodar, Russia)*
ANALYSIS OF THE CURRENT VOLTAGE CURVE OF ELECTROMEMBRANE SYSTEMS

3^{20}-3^{35} Aminat Uzdenova (*Umar Aliev Karachai-Cherkess State University, Karachaevsk, Russia)*
MATHEMATICAL MODELING OF ELECTROCONVECTION IN FLOW-THROUGH ELECTRODIALYSIS MEMBRANE CELLS: INFLUENCE OF THE INLET BOUNDARY CONDITION FOR THE ION CONCENTRATION

3^{40}-3^{55} Semyon Mareev, Victor Nikonenko, and Natalia Pismenskaya *(Kuban State University, Krasnodar, Russia)*
CHRONOPOTENTIOMETRY OF MONOPOLAR ION-EXCHANGE MEMBRANES: MODELING AND EXPERIMENT

4^{00} Discussions

CLOSING CEREMONY