

PROGRAM

of International Seminar with involvement of young scientists (scientific school)
“**Topical issues of heat and mass transfer at phase transformations and multiphase flows in modern chemical technology apparatuses and energy equipment**”,
held at Kutateladze Institute of Thermophysics on December 2-3, 2014.

2 December (Tuesday)

Morning Session

Conference Hall of IT SB RAS

9.00-9.15. Welcome speech of A.N. Pavlenko, the Chairman of Seminar, Head of Laboratory, Corr. Member of RAS, Doctor of Sciences.

Topic presentations

9.15-9.35. A.N. Pavlenko (Corr. Member of RAS, Doctor of Sciences, Head of Laboratory, IT SB RAS).

The current state of research on heat and mass transfer and mixture separation at distillation by the structured packings.

9.35-9.55. V.V. Kuznetsov (Professor, Doctor of Sciences, Head of Department, IT SB RAS).

The problem of simulation of binary mixtures rectification in a column with the structured packing.

9.55.- 10.15. Xingang Li (Professor, Tianjin University, China), Hong Li (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China), Xin Gao (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China), Hong Sui (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China).

Application of Distillation Technology in China.

10.15.- 10.35. Luhong Zhang (PhD in Chemical Engineering, Professor, Tianjin University, Tianjin-Basic Chemical Experiments Dept., China), Xiaoming Xiao (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China).

Enhanced Heat Transfer in Heat Exchangers with Optimal Design of Flow Stream.

10.35.- 10.55. Coffee break.

10.55.- 11.15. G. Meski (PhD, research engineer, Air Products and Chemicals, Inc., Allentown, USA), N.I. Pecherkin (Candidate of Sciences, senior researcher, IT SB RAS), A.N. Pavlenko (Corr. Member of RAS, Doctor of Sciences, Head of Laboratory IT SB RAS), V.E. Zhukov (Candidate of Sciences, senior researcher, IT SB RAS), S. Sunder (PhD, research engineer, Air Products and Chemicals, Inc., Allentown, USA).

Studying mixture separation on non-circular structured packings as applied to dividing wall columns.

11.15.- 11.35. Hong Sui (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China), Xingang Li (Professor,

Tianjin University, China), Lin He (Tianjin University, China), Jianqiang Zhang (Tianjin University, China), Jie Feng (Tianjin University, China).

Thermodynamic and Mass Transfer Characteristics in Oil Sands Development Process.

11.35.- 11.55. Yufeng Zhang (Professor, National Engineering Research Center for Distillation Technology NERCDDT at Tianjin University, National PeiYang Distillation Tech. Eng. Limited Company, Tianjin, China), Xiaohui Yu (Professor, National Engineering Research Center for Distillation Technology NERCDDT at Tianjin University, National PeiYang Distillation Tech. Eng. Limited Company, Tianjin, China).

Low temperature heat recovery technology.

11.55.- 12.15. Xin Gao (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China), Hong Li (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China).

A series of novel high-effective mass transfer unit elements in distillation columns based on SiC ceramic foam material.

12.15.- 14.00. Lunch.

Afternoon Session Conference Hall of IT SB RAS

Topic presentations

14.00.- 14.20. V.I. Terekhov (Professor, Doctor of Sciences, Head of Department, IT SB RAS).
Heat and mass transfer in channels at evaporation (condensation) on a surface.

14.20.- 14.40. T. Keller (BASF SE, Ludwigshafen, Germany), R. Eiswirth (BASF SE, Ludwigshafen, Germany), C. Knosche (BASF SE, Ludwigshafen, Germany), A.N. Pavlenko (Corr. Member of RAS, Doctor of Sciences, Head of Laboratory IT SB RAS), N.I. Pecherkin (Candidate of Sciences, senior researcher, IT SB RAS), V.E. Zhukov (Candidate of Sciences, senior researcher, IT SB RAS).

Maldistribution in packed columns – new findings, old challenges.

14.40.- 15.00. V.E. Zhukov (Candidate of Sciences, senior researcher, IT SB RAS), A.N. Pavlenko (Corr. member of RAS, Doctor of Sciences, Head of Laboratory IT SB RAS), M.I. Moiseev (post-graduate, IT SB RAS), D.V. Kuznetsov (Master's student, NSU, Laboratory assistant, IT SB RAS).

Transient characteristics of temperature maldistribution in the packing of the distillation column at disturbing influence of packing irrigation.

15.00.- 15.20. A.S. Shamirzaev (Candidate of Sciences, senior researcher, IT SB RAS).

Experimental study of self-organization of the vapor-liquid flow in a complex channel systems.

15.20.- 15.40. I.A. Kozulin (Candidate of Sciences, researcher, IT SB RAS).

Transverse convective dispersion at gas motion in channels of the structural packaging.

15.40.- 16.00. Coffee break.

Topic presentations

16.00.-16.20. Bin Jiang (Professor, Tianjin University, Deputy Director of National Engineering Research Center for Distillation Technology NERCDDT at Tianjin University, China), Luhong Zhang (PhD in Chemical Engineering, Professor, Tianjin University, Tianjin-Basic Chemical Experiments Dept., China), Xingang Li (Professor, Tianjin University, China).

CFD modeling of the gas-liquid two phase flow on the plate and packings.

16.20.-16.40. Hong Li (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China),

Xin Gao (Ph.D. in Chemical Engineering, Associate Professor in School of Chemical Engineering and Technology, Tianjin University, China).

New challenges of reaction distillation technology.

16.40.- 17.00. M.I. Nizovtsev (Doctor of Sciences, Head of Laboratory, IT SB RAS), V.Yu. Borodulin (leading engineer, IT SB RAS), V.N. Letushko (leading engineer, IT SB RAS).

Recovery of heat and moisture of ventilation air in irrigated distillation columns.

17.00.- 17.20. Xiaohui Yu (Professor, National Engineering Research Center for Distillation Technology NERCDDT at Tianjin University, National PeiYang Distillation Tech. Eng. Limited Company, Tianjin, China), Yufeng Zhang (Professor, National Engineering Research Center for Distillation Technology NERCDDT at Tianjin University, National PeiYang Distillation Tech. Eng. Limited Company, Tianjin, China).

High temperature heat pump.

3 December (Wednesday)

Morning Session Conference Hall of IT SB RAS

Oral Presentations

9.00.-9.15. N.I. Pecherkin (Candidate of Sciences, senior researcher, IT SB RAS), A.N. Pavlenko (Corr. Member of RAS, Doctor of Sciences, Head of Laboratory, IT SB RAS), O.A. Volodin (research engineer, IT SB RAS).

The effect of surface structure on heat transfer and hydrodynamics of falling liquid films.

9.15.-9.30. O.A. Volodin (research engineer, IT SB RAS), N.I. Pecherkin (Candidate of Sciences, senior researcher, IT SB RAS).

Heat transfer and wave characteristics at the film flow of binary refrigerant mixture.

9.30.-9.45. E.A. Chinnov (Doctor of Sciences, chief researcher, IT SB RAS).

Thermocapillary-wave effects in the heated falling film of liquid.

9.45.- 10.00. A.S. Surtaev (Candidate of Sciences, researcher, IT SB RAS), A.N. Pavlenko (Corr. Member of RAS, Doctor of Sciences, Head of Laboratory IT SB RAS), V.S. Serdyukov (Master's student, NSU, laboratory assistant, IT SB RAS).

Application of the modern high-speed measurement techniques for the study of heat transfer characteristics and crisis phenomena in the falling liquid films.

10.00.- 10.15. A.N. Chernyavskiy (research engineer, IT SB RAS), A.N. Pavlenko (Corr. Member of RAS, Head of Laboratory IT SB RAS).

Modeling of heat transfer and pattern map of crisis phenomena development in the falling liquid films at unsteady heat release.

10.15.- 10.30. I.P. Starodubtseva (Candidate of Sciences, researcher, IT SB RAS), A.N. Pavlenko (Corr. Member of RAS, Head of Laboratory IT SB RAS), A.S. Surtaev (Candidate of Sciences, researcher, IT SB RAS), V.S. Serdyukov (Master's student, NSU, laboratory assistant, IT SB RAS), A.N. Tsoy (Candidate of Sciences, researcher, IT SB RAS).

Investigation of rewetting dynamics of the overheated surfaces by the falling liquid films.

10.30.- 10.50. Coffee break.

10.50.- 11.05. S.V. Dimov (Candidate of Sciences, senior researcher, IT SB RAS).

Heat transfer and friction losses at the gas flow in the plate-fin heat exchangers with minichannels.

11.05.- 11.20. G.V. Bartkus (Master's student, NSU, laboratory assistant, IT SB RAS), I.A. Kozulin (Candidate of Sciences, researcher, IT SB RAS).

Gas-liquid flow regimes and the method of measuring the liquid film thickness at the gas-liquid flow in a minichannel.

11.20.- 11.35. V.V. Kuznetsov (Professor, Doctor of Sciences, Head of Department, IT SB RAS), S.A. Safonov (leading programmer, IT SB RAS).

Development of the mathematical model of heat and mass transfer at evaporation of single-component liquid in a vicinity of the liquid-vapor-wall contact line.

11.35.- 11.50. V.E. Zhukov (Candidate of Sciences, senior researcher, IT SB RAS), A.N. Pavlenko (Corr. Member of RAS, Head of Laboratory IT SB RAS), M.I. Moiseev (post-graduate, IT SB RAS, research engineer, IT SB RAS), D.V. Kuznetsov (Master's student, NSU, laboratory assistant, IT SB RAS).

Characteristics of pulsation and stability of the interface of the self-sustaining evaporation front.

11.50.- 12.05. V.E. Zhukov (Candidate of Sciences, senior researcher, IT SB RAS), M.I. Moiseev (post-graduate, IT SB RAS, research engineer, IT SB RAS), D.V. Kuznetsov (Master's student, NSU, laboratory assistant, IT SB RAS).

Development of hydrodynamic instability of the evaporation front in Freon R21.

12.05.- 12.20. V.E. Zhukov (Candidate of Sciences, senior researcher, IT SB RAS), M.I. Moiseev (post-graduate, IT SB RAS, research engineer, IT SB RAS), D.V. Kuznetsov (Master's student, NSU, laboratory assistant, IT SB RAS).

Dynamics of the phase transition front in Freon R21 with nanoparticles.

12.20.- 12.35. V.V. Ovchinnikov (Candidate of Sciences, senior researcher, IT SB RAS), B.P. Avksentyuk (Vinnitsa Trade and Economic Institute of the Kyiv National Trade and Economic University, Vinnitsa, Ukraine).

Investigation of the third heat transfer crisis on surfaces depleted by vaporization centers.

12.35.- 14.00. Lunch.

Afternoon Session

Conference Hall of IT SB RAS

Oral Presentations

14.00.- 14.15. M.A. Pakhomov (Doctor of Sciences, leading researcher, IT SB RAS).

Mathematical simulation of flow dynamics and heat and mass transfer in turbulent gas-droplet flows.

14.15.- 14.30. A.D. Nazarov (Doctor of Sciences, leading researcher, IT SB RAS), A.F. Serov (Doctor of Sciences, chief researcher, IT SB RAS), V.I. Terekhov (Professor, Doctor of Sciences, Head of Department, IT SB RAS).

Pulsed gas-droplet jet and its interaction with a flat heat exchanger.

14.30.- 14.45. M.S. Makarov (Candidate of Sciences, researcher, IT SB RAS).

Thermal and diffusion flows at evaporation and injection into the boundary layer.

14.45.- 15.00. S.N. Makarova (Candidate of Sciences, researcher, IT SB RAS).

Heat and mass transfer at adiabatic evaporation of binary liquid mixtures.

15.00.- 15.15. S.L. Elistratov (Doctor of Sciences, leading researcher, IT SB RAS), V.S. Morozov, IT SB RAS).

Evaporation of water-salt solutions in the spheroidal state.

15.15.- 15.30. S.Ya. Misyura (Candidate of Sciences, researcher, IT SB RAS).

Experimental investigation of heat and mass transfer with phase transitions in droplets of a complex composition.

15.30.- 15.45. I.V. Mezentsev (Candidate of Sciences, researcher, IT SB RAS), A.V. Meleshkin (post-graduate, IT SB RAS, research engineer, IT SB RAS), A.N. Tsoi (Candidate of Sciences, researcher, IT SB RAS).

Experimental investigation of structure of a cryogenic liquid jet at injection into water.

15.45.- 16.00. Coffee break.

16.00.- 16.15. I.V. Marchuk (Doctor of Sciences, senior researcher, IT SB RAS).

Condensation of vapor on curvilinear ribs.

16.15.- 16.30. P.D. Lobanov (Candidate of Sciences, senior researcher, IT SB RAS).

Investigation of hydrodynamics in a single cell of a slug flow.

16.30.- 16.45. V.I. Zhukov (Candidate of Sciences, Associate Professor, NSTU), A.N. Pavlenko (Corr. Member of RAS, Head of Laboratory IT SB RAS), Yu.V. Nagaitseva (student, NSTU).

Pulsations of temperature, pressure and heat fluxes at intensive evaporation of a horizontal layer of liquid under low pressures.

16.45.- 17.00. V.I. Zhukov (Candidate of Sciences, Associate Professor, NSTU), A.N. Pavlenko (Corr. Member of RAS, Head of Laboratory IT SB RAS), Deniss Vaiss (Bachelor, NSTU, Germany).

Growth rate and movement of “craters” in a horizontal layer of liquid at its intense evaporation under low pressures.

17.00.- 17.15. A.F. Serov (Doctor of Sciences, chief researcher, IT SB RAS), A.D. Nazarov (Doctor of Sciences, leading researcher, IT SB RAS), V.N. Mamonov (Candidate of Sciences, researcher, IT SB RAS).

Problems of wide application of wind energy.

17.15 -17.30. Closing speech of A.N. Pavlenko, the Chairman of Seminar, Head of Laboratory, Corr. Member of RAS, Doctor of Sciences.

17.30 -17.45. Closing of the Seminar. Discussion of results of the International Seminar and arrangement plans, programs for the next seminar with involvement of young scientists.