

INTERNATIONAL CONFERENCE

Heat pipes for space application

15-19 September 2014
Moscow, Russia



IberEspacio
Tecnología Aeroespacial



Organizing Committee of the Second International Conference “Heat Pipes for Space Application (2HPSA)” invites you to take part in the work of the Conference to be held in Moscow, Russia on September 15-19, 2014.



The Conference is devoted to 100th anniversary from the date of birth of **Georgy Babakin** - eminent designer of the first automatic space vehicles developed for investigation of Moon, Mars and Venus, Corresponding member of Academy of Sciences of the Soviet Union, General designer of Lavochkin Association.

The First International Conference “Heat Pipes for Space Application (1HPSA)” was held in Moscow in September 2009. 94 heat pipe specialists from 11 countries took part in the 1HPSA. There were presented 58 papers.

2HPSA will be held under support of Russian Federal Space Agency (Roscosmos), Government of Moscow region, Administration of the city of Khimky and at the initiative of Heat Pipe Center of Roscosmos. The Partners of the Conference are leading manufacturers of the heat pipes for space application.

Main goals of the conference are:

- Extend cooperation between designers of thermal control systems and manufacturers of units for such systems;
- Coordinate investigations of units developed on base of heat pipes between different countries and companies, specify main problems in heat pipes development taking into account current needs for thermal control systems;
- Ensure wide experience exchange in the field of heat pipes application for space crafts;
- Draw together system approaches to designing and testing of units developed on base of heat pipes application.

Main language of the conference is English.

To simplify your discussions with Russian colleagues we will invite simultaneous interpreters. The papers to be presented on the Conference will be selected by International Scientific Committee.

Paper Presentations.

Oral Papers.

The time allowed for oral presentations of individual papers is 20 minutes, including five minutes for discussion. Please, give your slides to projectionist 15 minutes prior to the start of your session. The equipment allows to present materials prepared in Power Point or Adobe Acrobat with the help of transparencies.

Posters.

The suggested lettering size for the title of a paper, author's name is 30 mm high. Diagrams, figures, tables, photos, typed text of a paper should be prepared by authors to fill up the width of 1-5 poster boards. Poster board size: 450 mm wide to 1500 mm height.

Technical Exhibition.

Exhibition of technical and commercial literature, new equipment, models, and services will be held in parallel with the Conference. Inquiries are invited from potential exhibitors.

Name Badges.

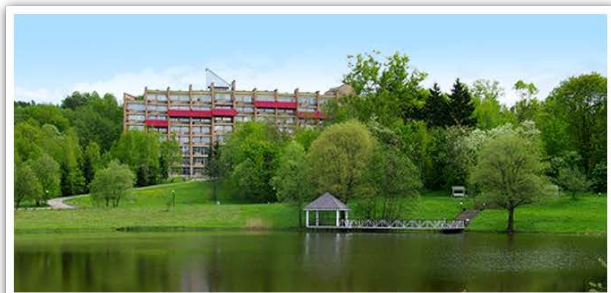
Your Conference name badge will be your admission ticket to all seminar sessions. Each participant should obtain a name badge at the registration desk.

Guests Program.

Guests are invited to participate in daytime tours and evening social events. The details will be available at the registration desk.

Place of the Conference holding is hotel “Planernoje”.

Hotel “Planernoje” is located in one of the beautiful places of Moscow region, nearby Leningradsky highway, between airport Sheremetyevo and center of Moscow.



Natural complex located on the bank of Skhodnya River has unique landscape grounds, beauty slopes, park with mixed forest, natural lake. More detailed information on this place you can find on the site www.planernoje.ru

The participants accommodation will be arranged in the hotel “Planernoje” and health center “Nightingale Grove”. Delivery of participants to the place of the conference holding will be arranged by buses. There will be arranged meeting and dispatch of the conference participants.

For the participants and guests who would like to stay at Moscow hotels, Organizing Committee of the Conference recommends the hotels listed below. You can send request for hotel reservation right now.



Hotel “Nightingale Grove” ***
Khimki, md. Navagorsk
Tel/fax:
+ 7 (495) 575-61-15,
+ 7 (495) 575-61-16.



Hotel “Aerostar” ****

Moscow, Leningradskiy prospekt,
37, bldg. 9

www.aerostar.ru

E-mail: info@aerostar.ru

Tel/fax:

+ 7 (496) 988-31-31,

+ 7 (495) 988-31-30.



Hotel “Soyuz” ***

Moscow, Levoberejnaya street,
12

www.soyuzmsk.ru

E-mail: pochta@soyuzmsk.ru

Tel/fax:

+7 (495) 956-29-99,

+7 (499) 457-20-88.



Hotel “Dubki” ***

Khimki, Parkovaya Street, 8

E-mail: otel.dubki@ya.ru

Tel:

+7 (495) 793-01-00.

This hotel is located nearby the
place of the Conference holding.

From the hotels “Aerostar”, “Soyuz” and “Dubki” there will be arranged delivery of participants to the place of the conference holding by buses. The buses schedule will be presented later.

The format of the conference include general papers presented in oral and poster sections, keynote lectures by invited speakers, equipment and books exhibitions, social and tour program. Papers were selected for oral presentations by

International Scientific Conference Committee taking into account their technical content and interest.

Flash memory and CD with proceedings will contain the general and keynote papers and will be handed to the participants at the beginning of the conference.

List of the Conference Sections:

1. New types of heat pipes and two-phase devices.
2. Development of thermal control systems on the base of application of two-phase devices. Modeling of units and systems.
3. Experimental investigations and heat pipes application.
4. Heat pumps, refrigerators, honeycomb panels.
5. Poster section.

International Scientific Committee of the Conference

- Committee Chairman – Professor A. Leontyev (Russia);
- Committee Vice-Chairman – K. Goncharov (Russia);
- Professor L. Vasilyev (Byelorussia);
- Dr. Yu. Maidanik (Russia);
- Dr. A. Torres (Spain);
- Professor T. Kaya (Canada);
- Dr. V. Vlassov (Brazil);
- M. Nikitkin (USA);
- Dr. D. Mishkinis (Spain);
- Dr. V. Buz (Ukraine);
- A. Khmel'nitsky (Russia);
- D. Tulin (Russia).

Organizing Committee of the Conference

- Committee Chairman – K. Goncharov (Russia);
- Committee Vice-Chairman – Professor A. Moishev (Russia);
- V. Kolesnikov (Russia);
- Dr. A. Zhuravlev (Byelorussia);
- N. Savchenkova (Russia);
- V. Bosenko (Russia);
- S. Novichkova (Russia).

Event Overview:


September 15, 2014

9:30-10:45	Opening ceremony of the Second International Conference “Heat Pipes for Space Application (2HPSA)”.
10:45-11:30	Section №1. New types of heat pipes and two-phase devices.
11:30-11:45	Coffee Break
11:45-13:00	Section №1. New types of heat pipes and two-phase devices.
13:00-14:00	Lunch
14:00-16:00	Section №1. New types of heat pipes and two-phase devices.
16:00-16:15	Coffee Break
16:15-18:00	Section №1. New types of heat pipes and two-phase devices.
18:00-21:00	Welcome party

September 16, 2014

9:00-11:00	Section №2. Development of thermal control systems on the base of two-phase devices. Modeling of units and systems.
11:00-11:15	Coffee Break
11:15-13:15	Section №2. Development of thermal control systems on the base of two-phase devices. Modeling of units and systems.
13:15-14:00	Lunch
14:00-15:30	Section №3. Experimental investigations and heat pipes application.
15:30-15:45	Coffee Break
15:30-17:45	Section №3. Experimental investigations and heat pipes application.
17:45-19:00	Poster section.

September 17, 2014

9:00-11:00	Section №3. Experimental investigations and heat pipes application.
11:00-11:15	Coffee Break
11:15-13:15	Section №3. Experimental investigations and heat pipes application.
13:15-14:00	Lunch
14:00-16:00	Visiting of Lavochkin Association museum.
16:00-21:00	<div style="display: flex; align-items: center; justify-content: center;">  <div style="text-align: left;"> <p>Cultural Program Sightseeing bus tour of Moscow</p> </div> </div>

September 18, 2014

9:00-11:00	Section №4. Heat pumps, refrigerators, honeycomb panels.
11:00-11:15	Coffee Break
11:15-13:15	Section №4. Heat pumps, refrigerators, honeycomb panels.
14:00-22:00	<div style="display: flex; align-items: center; justify-content: center;">  <div style="text-align: left;"> <p>Closing ceremony of the Second International Conference “Heat Pipes for Space Application”. http://www.oldtower.ru/ Restaurant “The Old Tower” in the Red Square.</p> </div> </div>

Conference Schedule:

September 15, 2014

(9:30-10:45)

Opening ceremony of the Second International Conference
“Heat Pipes for Space Application (2HPSA)”.

(10:45-18:00)

Section №1. New types of heat pipes and two-phase devices.
Dr. Yu. Maidanik (Russia), Dr. D. Mishkinis (Spain).

№	Authors	Title paper
1.1	Manfred Groll	Heat pipe science and technology: A historical review

(11:30-11:45) Coffee Break

1.2	Leonard Vasiliev, Leonid Grakovich, Mikhail Rabetsky, Leonid Vasiliev Jr, Dmitry Tulin	Innovative heat pipes with complex compound polymer envelope
1.3	D. Mishkinis, J. Corrochano, A. Torres	Development of Advanced Control Heat Transfer Loop with Remote Compensation Chamber

(13:00-14:00) Lunch

1.4	Semenov Sergey	Thin Titanium Vapor Chamber: Second Generation
1.5	Pastukhov V.G., Maydanik Yu.F.	Development and Investigation of a Combined PHP-LHP Heat-Transfer System
1.6	D. Mishkinis, A. Kulakov, P. Prado, A. Torres, S. Lapensee	Development of Multiline Loop Heat Pipe with Remote Reservoir

1.7	Klimakov V.V., Ulitenko A.I., Chirkin M.V., Molchanov A.V.	Serpentine loop heat pipe meant for heat rejection from moving objects
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(16:00-16:15) Coffee Break

1.8	Piatsiushik Y.Y., Klevchenya D.I., Afanaseva N.A., Romanenkov V.E., Evtukhova T.E.	Capillary structure for heat pipe with axial grooves
1.9	Seryakov A.V., Pavlov A.A., Mihailov U.E.	Pulsation vortex flow in the vapour channel of short low temperature range heat pipes
1.10	Wei Qu, Siyuan Chen, Jijun Yu	Design and performance of one sodium heat pipe furnace
1.11	Wei Qu, XUE Zhihu, Bangcheng Ai	New wick design and performance of a thin heat pipe heat spreader

(18:00-21:00)
Welcome party

September 16, 2014

(9:00-18:00)

Section №2. Development of thermal control systems on the base of two-phase devices. Modeling of units and systems.

Dr. V.Vlassov (Brazil), D. Tulin (Russia).

№	Authors	Title paper
2.1	Sokolov A.N., Tarnovsky N.N., Schedrinsky M.Z., Rybas K.V., Vorobiev M.G., Sukharev K.N., Sobolevskaya T.N.	Experimental investigation of spacecraft thermal control system with regular loop heat pipes
2.2	Denis Nesterov, Gennady Dmitriev	Modeling of loop heat pipe for the oscillating behavior
2.3	V. Antonov, M. Balykin, A. Golikov, K. Goncharov, K. Korzhov, V. Buz	Design and analysis of precision TCS with LHP
2.4	Panin Y.V.	Application of gas-controlled heat pipe for spacecraft thermal control system

(11:00-11:15) Coffee Break

2.5	Sasin V.Y., Savchenkova N.M.	Influence of the surface curvature of liquid-vapor boundary on the heat transfer in open capillary channels
2.6	Gulya V.M., Kopyatkevich R.M.	Calculation of characteristics of two-phase loop with mechanical pump and thermal accumulator. Computer investigation of thermal accumulator operation.
2.7	Tulin D.V., Tulin I.D., Shabarchin A.F.	Thermal control system of the precision instrument board integrated into meteorological satellites
2.8	Vinokurov D.K., G.V. Kukina, A.S. Mitroshin, G.S. Mishin	Heat pipe application in the thermal-control subsystem of infrared radiometer

(13:15-14:00) Lunch

**Section №3. Experimental investigations and heat pipes application.
V. Buz (Ukraine), N. Savchenkova (Russia).**

3.1	Michael Nikitkin	Loop Heat Pipes, Made in the USA
3.2	Valery M. Kiseev	The first ammonia loop heat pipe: life test during 38 years
3.1	Nadjara dos Santos, Valeri Vlassov, Jorge Bertoldo Jr, Gino Genaro, José Batista Neto, Geraldo Orlando Mendes, Olga Kchoukina, Pedro Candido, Rafael Costa.	TUCA Heat Pipe experiment
3.2	Valeri Vlassov, Jorge Bertoldo Jr, Ulisses Tadeu Vieira Guedes	An accelerated technique of the tilt performance test of straight axially grooved heat pipes

(15:30-15:45) Coffee Break

3.3	Jorge Bertoldo Junior, Valeri V. Vlassov, Gino Genaro, Nadjara Santos, Pedro Antônio Cândido	A noninvasive technique of verification of embedded heat pipes in integrated satellites
3.4	CHEN Siyuan, XUE Zhihu, DENG Daiying, QU Wei, XIE Minghui, LI Wei	Accurate temperature measurement of heat pipe with pressure-controlling: design descriptions and test results
3.5	Shigeki Hirasawa, Yusuke Takeuchi, Tsuyoshi Kawanami, Katsuaki Shirai	Evaporation Heat Transfer Characteristics of Heated Surface with Thin Powder Porous Layer
3.7	Atsushi Okamoto, Makiko Ando, Hiroyuki Sugita	On-orbit Performance Evaluation of Oscillating Heat Pipe with Check Valves

(17:45-19:00)

Poster section.

5.1	XUE Zhihu, QU Wei, WANG Tao	An investigation of pulsating heat pipe with ammonia working fluid for advanced thermal control
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5.2	V. Pichulin, V. Antonov, N. Kudryavtseva, V. Alekseev, A. Karabin, A. Denisova	Experiment-calculated temperature field of thermal honeycomb panel with axial groove heat pipes when impulsive heat generating
5.3	V. Lavrenov	Efficiency of heat pipes application in passive cooling system of optical-electronic converter
5.4	David Schwaller, Amaury Larue de Tournemine, Isabel Soto Armananzas, Julien Hugon, Pavlo Gakal	Two-phase mechanically pumped loop for the thermal dissipation management of an Active Antenna: simulation results
5.5	Smirnov Genrikh Fedorovich Kuznyetsov Igor Olegovich	The pulsating heat pipes investigations statement devoting to their production & application and different devices and system on their base analysis
5.6	Burdo O.G., Smirnov G.F., Zykov A.V.	The problem of research and determination of reliable characteristics of heat pipes and heat pipe heat exchangers life – time
5.7	Burdo O.G., Smirnov G.F., Tersiev S.G.	The problems of the mechanical contact thermal resistances of the heat pipe thermal control systems
5.8	Nikolay N. Zubkov	Microgrooved Wicks for Heat Pipes, Made by Edge Cutting Machining

September 17, 2014

(9:00-13:00)

**Section №3. Experimental investigations and heat pipes application.
V. Buz (Ukraine), N. Savchenkova (Russia).**

№	Authors	Title abstract
3.9	V. Antonov, K. Goncharov, A. Kochetkov, L. Kalachova	Comparison of contact thermal resistance values obtained when different thermal conductive materials are used for units mounting to thermal honeycomb panels
3.10	Yakomaskin A.A., Zubkov N.N.	Investigation of heat transfer in open capillary evaporator
3.11	Gutkin A.R. Kononenko Y.M. Chobit'ko A.V.	Flight-design tests the system of maintenance of a thermal mode of the Small Space Craft The Remote Earth Sounding "Kanopus-V" №1
3.12	Yuri Kuzma-Kichta, Aleksandr Lavrikov, Mikhail Shustov, Igor Prokopenko, Yuri Shtefanov	Investigation of boiling in a microchannel with a relief of nanoparticles

(11:00-11:15) Coffee Break

3.13	A. Kolobov, K. Goncharov, A. Mironov, A. Karachev	Reliability of dual core axial grooved heat pipes
3.14	G. Guidi, P. Di Marco, S. Filippeschi, M. Mameli	Local Void Fraction Measurements in Capillary Pipes with Optical Probes
3.15	V. Dvirny, V. Golovanova, M. Elfimova, G. Dvirny	Application of two-phase heat transfer units in shipping containers for nuclear power plants of space crafts
3.16	N. Koneva	Recent results for isothermal two-phase platforms thermal control experiments

(13:15-14:00) Lunch

(14:00-16:00) Visiting of Lavochkin Association museum

(16:00-21:00) Cultural Program

September 18, 2014

(9:00-19:00)

Section №4. Heat pumps, refrigerators, honeycomb panels.
Professor L. Vasilyev (Byelorussia), A. Khmelnitsky (Russia).

4.1	Krivososov Gennadiy Melnikov Dmitriy	Cooler on heat pipes for the converter of big energy space particles to x-ray radiation
4.2	Liu En'guang, Yang Fan, Mu Yongbin	Experimental investigations and applications of cryogenic heat pipes
4.3	A.B.Batracov, Yu.N.Volkov, Yu.F.Lonin, A.G.Ponomarev	Neon Cryovacuum system for endurance tests of electrojet propulsion systems
4.4	Victor V. Maziuk, Pawel S. Anchevsky	Dimensional control of capillary structures of loop heat pipes at sintering

(11:00-11:15) Coffee Break

4.5	K.A. Goncharov, V.K. Sysoev, P.A. Vyatlev, V.N. Sigaev	Production of Glass Elements for Thermal and Optical Coating of Parts for Space Application
4.6	R. Kopyatkevich, V. Gulia, K. Goncharov, A. Basov	Analysis methods of operation ability of radiation heat exchangers with heat pipes applied for Russian module of International space station
4.7	Dubrov Y.S., Dubrov D.Y.	The use of cutters with two-phase cooling devices in the processing of titanium alloys
4.8	A.K. Khmelnitsky, O.V. Shirina, D.A. Kuzmichev	Prospects and efficiency of applying new materials in spacecraft temperature control panels

(14:00-22:00)

Closing ceremony of the Second International Conference
“Heat Pipes for Space Application (2HPSA)”.
Restaurant “The Old Tower” in the Red Square.

If you have any additional questions, please, contact Organizing Committee.

Registration fee:

- For the participants of the Conference – 450 Euro;
- For attendants – 300 Euro;
- For students – 100 Euro;
- For one-day participation – 100 Euro.

Registration fee can be made by direct wire transfer to Organizer account or by cash when registration. All information necessary for registration fee payment you can find on the Conference site <http://www.heatpipe.ru>.

On behalf of Organizing Committee we would like to invite you to take part in the Second International Conference “Heat Pipes for Space Application to be held in Moscow, Russia on September 15-19, 2014.

Contact information:

Ph/fax: +7 (495) 572-36-71, +7 (495) 573-63-74, +7 (496) 539-99-66

Site of the Conference: <http://www.heatpipe.ru>

E-mail of Organizing Committee: info@heatpipe.ru

Chairman of International Scientific Committee,
Member of Russian Academy of Sciences

A. Leontyev

Chairman of Organizing Committee,
Chief Designer, Head of Heat Pipe Center of Roscosmos

K. Goncharov