

**THE SCHEDULE OF CONFERENCE
OF THE INTERNATIONAL YOUTH CONFERENCE
MECHATRONICS AND ROBOTICS**

September 6-8, 2011

CR&DI RTC, 21, Tikhoretsky prospect, Saint-Petersburg, Russia

September 5, 2011, Monday				
Transfer and Accommodation				
September 6, 2011, Tuesday				
09:00 – 13:00	Registration. Hall of Conference-Hall			
10:00 – 10:30	Conference Opening. Conference-Hall			
10:30 – 13:00	Plenary Session. Conference-Hall			
11:30 – 12:00	Coffee-Break			
13:00 – 14:00	Lunch			
14:00 – 15:00	Excursion to CRDI RTC exhibition-demonstration facilities and zero-gravitation imitation stand for development tests of space robotic means			
15:00 – 15:30	Coffee-Break			
15:30 – 17:00	Meetings. Negotiations. Discussions.			
September 7, 2011, Wednesday				
10:00 – 15:00	Sessions of Sections			
	Section I. 207 Room	Section II. 208 Room	Section II. Small Conference-Hall	Section IV. Conference-Hall
11:30 – 12:00	Coffee-Break			
13:00 – 14:00	Lunch			
15:00 – 15:30	Coffee-Break			
15:30 – 17:00	Round Table “Simulation of Elettromechanic Modules’ Life Cycle”. Conference-Hall		Exhibition of Youth Robotic Competition “EUROBOT”. CRDI RTC exhibition-demonstration Hall	
September 8, 2011, Thursday				
10:00 – 15:00	Sessions of Sections			
	Section I. 207 Room	Section II. 208 Room	Section II. Small Conference-Hall	Section IV. Conference-Hall
11:30 – 12:00	Coffee-Break			
13:00 – 14:00	Lunch			
15:00 – 15:30	Coffee-Break			
15:30 – 16:30	Exhibition of Youth Robotic Competition “EUROBOT”. CRDI RTC exhibition-demonstration Hall			
16:30 – 17:00	Conference Closing. Conference-Hall			
September 9, 2009, Friday				
Participants and Guests Departure				

THE PROGRAM OF THE INTERNATIONAL YOUTH CONFERENCE MECHATRONICS AND ROBOTICS

September 6, 2011, Tuesday

10:00 – 10:30

Conference Opening

Conference-Hall

*Welcoming speeches to Conference participants:
corresponding member of RAS Lopota Vitaly, S.P. Korolev RSC Energia, Moscow region, Russia
Lopota Alexander, CR&DI RTC, Saint-Petersburg, Russia
Prof. Eugeny Yurevich, SPbSPU; CR&DI RTC Saint-Petersburg, Russia*

10:30 – 11:30

Plenary Session

Conference-Hall

*Chairman:
Prof. Eugeny Yurevich
(Oral presentation duration is up to 20 minutes. Answers to questions is up to 10 minutes)*

1. *Teriayev E., Petrin K., Filimonov A., Filimonov N (Academician A.A. Blagonravov Institute for Machine and Engineering Sciences (Russian Academy of Sciences), Moscow) Challenges and perspectives to automate ergatic systems for moving objects control*
2. *Yushchenko A. (Bauman Moscow State Technical University) Ergatic robotic intelligent systems*
3. *Lopota V., Yurevich E. (OJS S.P. Korolev Rocket-and-Space Corporation "Energia", Korolev, Moscow Area; CRDI RTC, St.-Petersburg) About some promising directions of space robotics development*
4. *Andreev V., Kuvshinov S., Pryanichnikov V., Prysev E. (International laboratory Sensorika; Keldysh Institute for Applied Mathematics; Institute for New Educational Technologies and Informatization Russian State University for the Humanities Moscow) Experience of building creative educational millieu*

September 7, 2011, Wednesday

10:00 – 15:00

Section I. Theory and Analysis Methods

207 Room

*Co-Chairmen:
Prof. Eugeny Yurevich
Prof. Vladimir Shiryayev
(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)*

1. *Nikiforov V., Pavlov V. (St-Petersburg Institute for Informatics and Automation of Russian Academy of Sciences; CRDI RTC) Static analysis of logical correctness of multitasking real-time systems based on structured models*
2. *Alexandrov V., Kobrin A. (Moscow Power Engineering Institute) Group of robots collective algorithm of operational subspaces division for solving the task of area coverage*
3. *Fokin L. (South Ural State University, Chelyabinsk) Mathematical descriptions for the task of closely-coupled integration of inertial and satellite navigation systems*
4. *Sychev V., Prokopovich G. (State Scientific Institution «Associated Institute for Problems in Informatics», Belorussian National Academy of Sciences) Genetic algorithms application for the tasks of group of robots control*
5. *Prokopovich G. (State Scientific Institution «Associated Institute for Problems in Informatics», Belorussian National Academy of Sciences) Neural associative model of goal achievement for the tasks of manipulator control*
6. *Krylov I. (Moscow Aviation Institute) About the problem of applying groups of unmanned aerial vehicles for the tasks of surveillance*
7. *Hussein Tbena Kadhim, Jamal Waheeb Salman AL Obaidi (Ministry of Science & Technology Iraq, Baghdad) Simulation of flight control and navigation tasks for autonomous unmanned aerial vehicles*

- using Matlab and Aerosim aeronautical simulation block approach
8. **Suhoruchkina O. (International scientific center of information technologies and systems of National Academy of Sciences of Ukraine and Ministry of Education and Science of Ukraine)** Parallel information processes of the mobile robot intellectual control
 9. **Elsakov S., Shiryayev V. (South Ural State University, Chelyabinsk)** About problem of detecting one-dimensional chaotic
 10. **Ilyin E., Podivilova E., Shiryayev V. (South Ural State University, Chelyabinsk)** Evaluation of the dynamic system state in conditions of uncertainty

10:00 – 15:00

Section II. Products

208 Room

Co-Chairmen:

Prof. Vladimir Dyachenko

Prof. Vladimir Zaborovsky

(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)

1. **Ashpakova D., Blinov V., Klipikov I., Charushina E. (Omsk State Technical University)** Construction features of microthrust propulsion engines with electrothermic micromotors for the tasks of orbital maneuvering for light space vehicles
2. **Kononov A., Rusina A. (Ustinov Baltic State Technical University “Voenmeh”, Saint-Petersburg)** Motion of bi-environmental vehicles under the water
3. **Malygin D. (Ustinov Baltic State Technical University “Voenmeh”, Saint-Petersburg)** Mini space vehicles as personal entrance into space
4. **Serenkov A. (Ustinov Baltic State Technical University “Voenmeh”, Saint-Petersburg)** About some systems of unmanned aerial vehicles
5. **Redouane Boumghar, Cyril Roussillon, Arnaud Degroote, Paul Cox, Vivien Delsart, Bertrand Vandepoortaele, Matthieu Herrb and Simon Lacroix (LAAS, France)** Over the hill and far away: aerial ground cooperation for long range navigation
6. **Kral Erik (Tomas Bata University in Zlin, Czech Republic)** Optoelectronic man-operator interface for the object positioning in virtual reality
7. **Ostroumov G. (Bauman Moscow State Technical University)** Television system for recognition and graduation of flat image details
8. **Sukhomlinov V. (Bauman Moscow State Technical University)** Ships detection in water areas
9. **Khritonenkov A. (Saint-Petersburg State Polytechnic University, Saint-Petersburg)** Monitoring and security system based on API hooking / Система мониторинга и обеспечения безопасности на базе API
10. **Khritonenkova E. (Saint-Petersburg State Polytechnic University, Saint-Petersburg)** Application of artificial immune system for intrusion detection

10:00 – 15:00

Section III. Information Providing

**Small
Conference-Hall**

Co-Chairmen:

Prof. Arkady Yuschenko

Prof. Valentin Pryanichnikov

(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)

1. **Devyaterikov E. (Bauman Moscow State Technical University)** Computer vision system for measuring mobile robot coordinates
2. **Ryzhova T. (Bauman Moscow State Technical University)** Motion control for group of robots
3. **Titov V. (CRDI RTC, St-Petersburg)** Control of wall-climbing robots
4. **Tachkov A. (LLC, Scientific-and-Production Company “Specsystems”, Tver)** Dynamic model of motion for the tracked
5. **Orlov I., Chung Ch. (Moscow Power Engineering Institute)** Control of the mobile two-segment manipulator
6. **Gerasimov V. (Bauman Moscow State Technical University)** Navigation system of the service mobile robot

7. **Kirik K., Kobrin A. (Moscow Power Engineering Institute)** Wheeled mobile robot navigation on the basis of computer vision system DATA
8. **Pismennay E., Avedikov G. (R&DI of Mechanics MSU by M. Lomonosov, Moscow)** Synthesis of control algorithms for mobile robots
9. **Bonaccorso F., Cantelli L., Longo D., Melita D., Muscato G., Prestifilippo M. (University of Catania, Italy)** The U-GO robot, a multifunction rough terrain outdoor tracked vehicle for R&D on autonomous navigation algorithms
10. **Kuznetsov S. (Moscow Aviation Institute)** Stitching images of the underlying surface, which are received from the small-sized unmanned aerial vehicle to form digital map of the area

10:00 – 16:00

Section IV. Functional Components

Conference-Hall

Co-Chairmen:

Prof. Igor Suminov

Prof. Vyacheslav Shkodyrev

(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)

1. **Sheludko A., Shiryaev V. (South Ural State University, Chelyabinsk)** Model identification of the sensor measuring errors using linear combination of chaotic maps
2. **Gryaznov N., Kochkarev D., Modyagin A., Pryadko A., Ushakov F. (CRDI RTC, St-Petersburg)** Universal catching device for multifunctional adaptive manipulators
3. **Makarenko N. (Bauman Moscow State Technical University)** Computer vision system for faces images recognition
4. **Pryamitsyn I. (CRDI RTC, St-Petersburg)** Accuracy of scanning laser measuring manipulators
5. **Chernus P. (Ustinov Baltic State Technical University “Voenmeh”, Saint-Petersburg)** Development of the control system for anthropomorphic manipulator phalanx
6. **Generalov S., Polomoshnov S. (Scientific-Industry Complex «Technological Center», Moscow, Zelenograd)** Semiconductor converters doses of ionizing radiation
7. **Nikiforov S. (Scientific-Industry Complex«Technological Center», Moscow, Zelenograd)** Investigation of design and technological features of a micromechanical silicon transducer acoustic pressure capacitive
8. **Kostuk D. (Scientific-Industry Complex«Technological Center», Moscow, Zelenograd)** The use of magnetically sensitive elements in the structures of promising micromagneto-electronics
9. **Hanin A. (OJS “V.V.Solomatina All-Russian Research Institute for Automation Control in non-industrial sphere”)** Hybrid method of text recognition including correction of the recognition results
10. **Bolshakova N., Spiryakin D. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Method of semiconductor gas sensor selectability increase

September 8, 2011, Thursday

14:00 – 16:30

Section I. Theory and Analysis Methods

207 Room

Co-Chairmen:

Prof. Eugeny Yurevich

Prof. Vladimir Shiryaev

(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)

11. **Bakshiev A (CRDI RTC, St-Petersburg)** Prospects for application of models of biological neural structures in the motion control system
12. **Kravchuk L. (Institute for Problems in Mechanics of the Russian Academy of Sciences, Moscow)** Sphere-like vehicle
13. **Ignatiev S., Stepanov A., Zavialov P., Vinokurov I. (OJC “Concern “Central Scientific Research Institute ELEKTROPRIBOR””, St-Petersburg)** Concerning determination of the optimal-control law for modulation rotation driving gear on the basis of minimizing inertial-satellite system errors

14. **Semenov I., Aksenenko V. (OJC “Concern “Central Scientific Research Institute ELEKTROPRIBOR””, St-Petersburg)** Decreasing influence of unlubricated friction effect on the accuracy of gyroscopic stabilization system
15. **Moskvichev S., Munasyrov P., Shahmeyev T. (Ufa State Aviation Technical University)** Morphologic evolution of autonomous mobile robots
16. **Dyachenko A., Kapustyan S. (Scientific-Research Institute of Multiprocessor Computing Systems (SRI MCS), South Federal University, Taganrog)** Task of freight traffic distribution within multi-robotic storage-and retrieval system
17. **Pryanichnikov V., Andreev V., Kiy K., Kirsanov K., Levinsky B. (International laboratory Sensorika; Keldysh Institute for Applied Mathematics; Institute for New Educational Technologies and Informatization Russian State University for the Humanities Moscow)** Mobile material-processing robots: real-time analysis of chromatic images

10:00 – 15:00

Section II. Products

208 Room

Co-Chairmen:

Prof. Vladimir Dyachenko

Prof. Vladimir Zaborovsky

(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)

11. **Zhukov K., Bunyakov V. (CRDI RTC, St-Petersburg)** System of orientation for visually impaired people, based on stereocamera
12. **Churaev S. (CRDI RTC, St-Petersburg)** Development of a universal multipurpose gripper
13. **Hisamutdinov M. (Scientific-Research Institute of Multiprocessor Computing Systems (SRI MCS), South Federal University, Taganrog)** Methods and means of remote inventory of fuel rod array within WWER-1000 atompile active zone
14. **Prischeva M., Baranov K. (St-Petersburg Institute for Informatics and Automation (Russian Academy of Sciences), St-Petersburg)** Structure of interactive model of the mobile information robot for the shopping centers
15. **Budakov V., Ronzhin Al. (St-Petersburg Institute for Informatics and Automation of Russian Academy of Sciences)** Technological platform for web cast of events from the intelligent room

10:00 – 15:00

Section III. Information Providing

**Small
Conference-Hall**

Co-Chairmen:

Prof. Arkady Yuschenko

Prof. Valentin Pryanichnikov

(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)

11. **Pryamitsyn I. (CRDI RTC, St-Petersburg)** Laser scanning of nominally flat surfaces
12. **Melehov A. (Bauman Moscow State Technical University)** System of automatic motion control for the car following
13. **Shkolny M. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Development of the Router for wireless sensor systems
14. **Konovalova A. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Development and investigation of intellectual system to optimize discreet devices’ synthesis
15. **Polyansky V. (Moscow Aviation Institute)** Development of the expert system to control the unmanned aerial vehicle with mechanical frame damages
16. **Haisam Amer (Saint Petersburg State Polytechnical University, Saint-Petersburg)** An implementation of artificial life using greedy algorithm with java programming language
17. **Ashihmina I., Fradkov A. (Saint-Petersburg State University)** Synchronization control for generating machinery nets
18. **Bashaev V. (State Technical University, Ulyanovsk)** General concept of creation of the intelligent terminology management system for CAD
19. **Kirsanov K. (International laboratory Sensorika, Moscow)** Turing-complete protocols and integration software for mobile robotics

20. **Filaretov V., Yukhimets D., Mursalimo E. (Institute of Automation and Control Processes for Eastern Branch of RAS, Vladivostok)** Software Development for Autonomous Underwater Vehicle Missions Control

10:00 – 16:00 | **Section IV. Functional Components** | **Conference-Hall**

Co-Chairmen:

Prof. Igor Suminov

Prof. Vyacheslav Shkodyrev

(Oral presentation duration is up to 15 minutes. Answers to questions is up to 5 minutes)

11. **Zhelyukov I. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Simulator of satellite radio navigation systems’ signals
12. **Kondutorov A. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Development and investigation of the commutation module for 5 – 15 HHZ range
13. **Kurtaev I. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Development and investigation of the wireless gas sensor with increased data transfer range
14. **Mashlov V., Koptseva N. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Investigating the possibility of structural-technological variants standardization for co-axial low-noise frequency converters
15. **Seredenko V., Butrilov V., Mishenina T. (“MATI” – Russian State Technological University n.a. K. Tsiolkovsky, Moscow)** Development of control system for base amplifiers unit on the basis of modularity
16. **German-Galkin S. Lyapin A. (Ustinov Baltic State Technical University “Voenmeh”, Saint-Petersburg)** Structural model of asynchronous electro-hydraulic drive with direct torque control
17. **Medvedev Y. (Vladimir State University)** Analysis of dynamic characteristics for multi-motor electro-hydraulic drive by means of sensitivity functions
18. **Medvedev Y. (Vladimir State University)** Energy determination for electro-hydraulic drives with random parameter variations
19. **Medvedev Y. (Vladimir State University)** Analysis of multi-motor electro-hydraulic drive as the actuating element of Automation Control System

16:30 – 17:00 | **Conference Closing** | **Conference-Hall**

Leading:

Prof. Eugeny Yurevich

Conference Conclusion: Chairmen about work in sections.
Summary on conference results.