

Conference Agenda

19th International & 14th European-African Regional Conference of the ISTVS

Aquaworld Resort Budapest Hotel
1044 Budapest, Íves út 16. (Hungary)

Date: Sunday, 24/Sep/2017

12:00pm	Lunch for BoD Members
1:20pm	Registration for BoD Location: Registration Desk (first floor) Chair: Dr. Laszlo Mathe
1:20pm	BoD Meeting Location: Ganges 3 (first floor) Chair: Prof. Peter Kiss
5:20pm	Registration & Poster Collection Location: Nilus (eighth floor) Chair: Dr. Laszlo Mathe
6:00pm	Ice Breaker Party Location: Nilus (eighth floor)

Date: Monday, 25/Sep/2017

8:00am	Registration & Poster Collection Location: Registration Desk (first floor) Chair: Dr. Laszlo Mathe
9:00am	<u>Opening Ceremony</u> Location: Ganges 1+2 (first floor) Chair: Prof. Peter Kiss Chairship Introduction President Address, Prof. Peter Kiss General Overview, Dr. Laszlo Mathe ISTVS Report, Dr. Lutz Richter Report on JoT, Prof. Vladimir V. Vantsevich ISTVS Awards, Prof. Peter Kiss Recipient's Speech
9:50am	Coffee Break Location: Lobby of Ganges 1+2 (first floor)

10:20am	PLENARY: St. Christopher Lecture, Hungarian Defence Forces Logistics Center and Rába Axle Ltd Presentation Location: Ganges 1+2 (first floor) Chair: Prof. Peter Kiss	
10:20am	St. Christopher Lecture: NEW CHALLENGES AND OPPORTUNITIES FOR TERRAMECHANICS Prof. György Sitkei University of Sopron, Hungary	
10:50am	THE MISSION AND TASK OF THE HUNGARIAN DEFENCE FORCES LOGISTICS CENTRE Brigadier General István Baráth Commander, Hungarian Defence Forces Logistics Center, Hungary	
11:15am	DEVELOPMENT OF RABA AGRICULTURAL AXLES AND LATEST TECHNOLOGIES Dr. Mark Lelkes Rába Axle Ltd, Hungary	
11:45am	Conference Photo Location: Terrace or staircase	
12:00pm	Lunch Location: Hotel Restaurant	
1:30pm	<u>SES-01: Innovative system designs for terrain and road-vehicle applications</u> Location: Ganges 1+2 (first floor) Chair: Prof. Kyeong Uk Kim	<u>SES-02: Mobile robotics for ground applications, planet exploration and other environments</u> Location: Ganges 3+4 (first floor) Chair: Dr. Hiroshi Nakashima
1:30pm	INFLUENCING FACTORS OF TORQUE TRANSMISSIBILITY IN DRY FRICTION CLUTCHES Gábor Magdics¹, Prof. Peter Kiss² 1: LuK Savaria Kft., Hungary; 2: Szent Istvan University, Department of Automotive Technology	DYNAMICAL MODELING AND SIMULATION OF THE FOUR-WHEEL MICRO ROVER IN SANDY TERRAIN Takuto Oikawa¹, Nicolo Carletti², Prof. Kazuya Yoshida¹ 1: Tohoku University, Japan; 2: Politecnico di Milano, Italy
1:50pm	SOIL PROPERTY CHARACTERISATION AND EVALUATION BY VARIOUS IMAGE ACQUISITION TECHNIQUES Shwetha Shivanna, Dr. Takaaki Yokoyama, Dr. Kazuyoshi Tateyama Department of Environmental Systems Engineering, Ritsumeikan University, Japan	EXPERIMENT STUDY ON DURABILITY OF THE BIONIC WHEELS FOR MARS ROVERS Prof. MENG ZOU¹, Dr. YUNPENG YAN², Dr. BAOFENG YUAN³, Dr. YUNCHENG LIN⁴, Prof. JIANQIAO LI⁵ 1: Jilin University, China, People's Republic of China; 2: Jilin University, China, People's Republic of China; 3: China Academy of Space Technology, Beijing 100083; 4: China Academy of Space Technology, Beijing 100083; 5: Jilin University, China, People's Republic of China
2:10pm	APPLICATION OF TIRE RATING WITH AIM TO IMPLEMENT THE MATTER ON AGRICULTURAL TIRES Dr. Patrik Prikner¹, Prof. Alexandr Grečenko², Dr. Radek Pražan³ 1: Czech University of Life Sciences Prague, Prague, Czech Republic; 2: Fragnerova 2396/15, Prague, Czech Republic; 3: Research Institute of Agricultural Engineering, p.r.i., Prague, Czech Republic	REACTION FORCE/TORQUE SENSING WHEEL SYSTEM FOR IN-SITU MONITORING ON LOOSE SOIL Dr. Shoya Higa, Dr. Kenji Nagaoka, Prof. Kazuya Yoshida Tohoku University, Japan

2:30pm	REAL-TIME VEHICLE MEASUREMENTS USING IMAGE CORRELATION Devin K. Johnson, <u>Dr. Theunis R. Botha</u> , Prof. P. Schalk Els University of Pretoria, South Africa	UTILIZATION OF SHAPE MEMORY ALLOYS IN A NOVEL, NON-PNEUMATIC TIRE FOR HIGH LOAD APPLICATIONS <u>Dr. Santo Anthony Padula II</u> ¹ , Colin Creager ¹ , Darrell Gaydos ² , Kyle Johnson ¹ 1: NASA Glenn Research Center, United States of America; 2: Ohio Aerospace Institute, United States of America
2:50pm	A FOUNDATION FOR REAL-TIME TIRE MOBILITY ESTIMATION AND CONTROL Prof. Vladimir Vantsevich ¹ , Prof. Andriy Lozynskyy ² , Dr. Lyubomyr Demkiv ² , <u>Sviatoslav Klos</u> ² 1: The University of Alabama at Birmingham; 2: Lviv Polytechnic National University, Ukraine	COMPLIANT NITI SPRING TIRE WITH HIGH ENVELOPMENT CAPABILITY FOR MARS <u>Colin Creager</u> ¹ , Dr. Santo Padula II ¹ , Dr. Scott Moreland ² , Kyle Johnson ¹ 1: NASA Glenn Research Center, United States of America; 2: NASA Jet Propulsion Laboratory, United States of America
3:10pm	Coffee Break Location: Lobby of Ganges 1+2 (first floor)	
3:40pm	<u>SES-03: Agricultural, forestry, construction, and mining equipment and vehicles</u> Location: Ganges 1+2 (first floor) Chair: Dr. Patrik Prikner	<u>SES-04: Advances in mobility, energy transfer, efficiency, ground vehicle dynamics, safety</u> Location: Ganges 3+4 (first floor) Chair: Prof. Corina Sandu
3:40pm	DEVELOPING A METHOD OF THEORETICAL EVALUATION OF THE TRACKED TIMBER HARVESTING MACHINE UNDERCARRIAGE ELEMENT LOADING <u>Vladislav Klubnichkin</u> , Evgeny Klubnichkin, Prof. George Kotiev Bauman Moscow State Technical University, Russian Federation	HIL-TESTBENCH FOR SIMULATION OF LIGHT COMMERCIAL VEHICLES EQUIPPED BY ESC <u>Anton Tumasov</u> , Anatoly Groshev, Evgeny Toropov, Viktor Kryaskov Nizhny Novgorod State Technical University n.a. R.E. Alekseev, Russian Federation
4:00pm	EFFECT OF RAMMER GROUND PRESSURE FOR COMPACTION PERFORMANCE <u>SOTA SHIMATANI</u> , Dr. TADAOMI EGUCHI National Institute of Technology, AKASHI College, Japan	THE MOST EFFECTIVE PASSIVE CONTROL OF A SUSPENSION <u>Alexander Pieper</u> , Prof. Khanh Chau Le Ruhr Universität Bochum, Germany
4:20pm	MODELING OF SIDEWAYS OVERTURNING BEHAVIOR OF AN AGRICULTURAL CARRIER ON SLOPE USING A PHYSICS ENGINE <u>Dr. Chaoran Sun</u> , Prof. Hiroshi Nakashima, Prof. Hiroshi Shimizu, Juro Miyasaka, Katsuaki Ohdoi Division of Environmental Science & Technology, Graduate School of Agriculture, Kyoto University, Kyoto, 606-8502, Japan	MODELLING AND VALIDATION OF ABS AND TYRE INTERACTION ON ROUGH TERRAIN <u>Nico A. van der Merwe</u> ¹ , Dr. Vidas Žuraulis ² , Odette Scholtz ¹ , Prof. P. Schalk Els ¹ 1: Vehicle Dynamics Group, Department of Mechanical and Aeronautical engineering, University of Pretoria; 2: Department of Automobile Transport, Vilnius Gediminas Technical University

4:40pm	STUDY OF WORKING EFFICIENCY OF A REMOTE CONTROL TYPE HYDRAULIC EXCAVATOR <u>Dr. Takeshi Hashimoto</u> ¹ , Kenichi Fujino ¹ , Dr. Shinichi Yuta ² 1: Public Works Research Institute, Japan; 2: Shibaura Institute of Technology, Japan	INVESTIGATING DIFFERENT VEHICLE VELOCITY ESTIMATORS AND AN ADAPTIVE KALMAN FILTER FOR ANTI-LOCK BRAKING SYSTEMS FOR OFF-ROAD VEHICLES Alexander Etienne Berndt, <u>Wietsche Clement William Penny</u> , Prof. Pieter Schalk Els University of Pretoria, South Africa
5:00pm	THEORETICAL FOUNDATIONS OF PRELIMINARY ASSESSMENT OF THE IMPACT OF THE TIMBER-HARVESTING VEHICLES ON FOREST SOILS IN THE COURSE OF LOGGING Vladislav Klubnichkin, <u>Evgeny Klubnichkin</u> Bauman Moscow State Technical University, Russian Federation	STUDY OF THE EFFECTS OF CASTER TRAIL AND KINGPIN OFFSET ON KINEMATICS AND LATERAL DYNAMICS OF LONG WHEELBASE SOLID AXLE BUS <u>SAGAR JAMBUKAR</u> , Prof. SUJATHA C INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI, INDIA

Date: Tuesday, 26/Sep/2017

7:30am	Meeting for Technical Tour Location: Lobby of Hotel Aquaworld (ground floor)
7:40am	BUS TRIP-01: Travelling to Győr (Rába Axle Ltd)
10:00am	TECHNICAL TOUR-01: Visit of Rába Axle Ltd Location: Rába Axle Ltd.
10:55am	Sandwich Buffet, Soft Drink, Coffee Location: Rába Axle Ltd.
11:30am	BUS TRIP-02: Travelling to Écs (Rába Test Track)
12:20pm	TECHNICAL TOUR-02: Vehicle Demonstration at Rába Test Track Location: Rába Test Track
3:00pm	Lunch (Goulash Party) Location: Rába Test Track
4:30pm	BUS TRIP-03: Travelling to Budapest (Hotel Aquaworld)
7:00pm	Estimated arrival

Date: Wednesday, 27/Sep/2017

7:50am	Registration & Poster Collection Location: Registration Desk (first floor) Chair: Dr. Laszlo Mathe	
8:00am	<u>SES-05: Terramechanics, terrain/soil-wheel/tire/track interaction, modelling and characterization</u> Location: Ganges 1 (first floor) Chair: Prof. Vladimir Vantsevich	<u>SES-06: Terramechanics, terrain/soil-wheel/tire/track interaction, modelling and characterization</u> Location: Ganges 2 (first floor) Chair: Prof. Schalk Els
8:00am	PROCEDURE FOR THE CREATION OF TERRAIN FILES FOR MOBILITY ANALYSIS UTILIZING SATELLITE IMAGERY <u>Prof. George Lamar Mason</u> Mississippi State University, United States of America	DYNAMIC 3D MEASUREMENT OF TIRE-TERRAIN INTERACTION <u>Alan Glenn Guthrie</u> ¹ , Dr. Theunis Richard Botha ¹ , Emilio Jimenez ² , Prof. Schalk Els ¹ , Prof. Corina Sandu ² 1: University of Pretoria, South Africa; 2: Virginia Polytechnic Institute and State University, USA
8:20am	A COMPARATIVE ANALYSIS OF DESTRUCTIVE FORCES RESULTING FROM ROAD PROFILE ACTING ON OFF-ROAD TOWED VEHICLES <u>Dr. László Gurmai</u> ¹ , Prof. Péter Kiss ² 1: CLAAS Hungaria Kft., Hungary; 2: Szent István University, Hungary	EFFECT OF FRONTAL PROFILE SHAPE OF RIGID WHEEL TREAD ON TRAVELING PERFORMANCE ON SANDY SOIL <u>Dr. Ryosuke Eto</u> , Hiroki Yabe, Prof. Junya Yamakawa National Defense Academy, Japan
8:40am	A TECHNICAL SURVEY ON TERMINOLOGY, TESTING METHODOLOGIES, AND EQUIPMENT USED IN MODELING AND PARAMETERIZATION OF SOFT SOIL FOR VEHICULAR APPLICATIONS <u>Rui He</u> ¹ , Aamir Khan ¹ , A. Glenn Guthrie ² , Prof. Corina Sandu ¹ , Prof. P. Schalk Els ² 1: Virginia Tech, Blacksburg, Virginia, United States of America; 2: University of Pretoria, Pretoria, South Africa	MEASUREMENT OF TIRE CHARACTERISTICS TRAVELING IN ACTUAL GROUND ENVIRONMENT WITH AN INSTRUMENTED VEHICLE <u>Prof. Junya Yamakawa</u> The National Defense Academy, Japan
9:00am	A WHEEL ROTATIONAL VELOCITY CONTROL STRATEGY FOR AN OPEN-LINK LOCOMOTION MODULE Prof. Vladimir Vantsevich ¹ , Prof. Andriy Lozynskyy ² , <u>Dr. Lyubomyr Demkiv</u> ² 1: The University of Alabama at Birmingham; 2: Lviv Polytechnic National University, Ukraine	THE INFLUENCE OF SPATIAL DATABASE QUALITY ON MODELLING OF VEHICLE MOVEMENT IN TERRAIN Vaclav Talhofer, <u>Marian Rybansky</u> , Martin Bures, Katerina Simkova University of Defence, Czech Republic
9:20am	ROLLING RESISTANCE TESTS OF ATV TIRE <u>Karol Kończalski</u> , Dr. Marian Janusz Łopatka, Dr. Tomasz Muszyński Military University of Technology, Poland	DYNAMIC SIMULATION OF WHEELED VEHICLES: MODELS AND ALGORITHMS Albert Peiret ¹ , Laszlo Kovacs ¹ , Daniel Holz ² , <u>Marek Teichmann</u> ² , Jozsef Kovecses ¹ 1: McGill University, Canada; 2: CM Labs Simulations, Canada

9:40am

Poster Session and Coffee Break

Location: **Ganges 1+2** (first floor)

STUDY OF IMPACT FORCE CALCULATION METHOD FOR OBLIQUE LANDING ON LUNAR SURFACE

Dr. Takaaki Yokoyama¹, Ryouta Matukura², Prof. Kazuyoshi Tateyama¹

1: Ritsumeikan University, Japan; 2: KINDEN Corporation, Japan

DEVELOPMENT OF A GROUND MOBILE ROBOT FOR MOTION IN CONDITIONS OF COASTAL ZONES

Dr. Denis Zeziulin, Dr. Vladimir Makarov, Dmitriy Porubov, Prof. Andrey Kurkin

Nizhny Novgorod State Technical University n.a. R.E.Alekseev, Russian Federation

DYNAMOMETER VEHICLE FOR FIELD TESTS IN AGRICULTURAL MACHINERY

Gábor Bércesi, Adrienn Bablena, László Kovács, Dr. Kornél Szalay

NAIK Institute of Agricultural Engineering, Hungary

ESTIMATION OF LIGHT COMMERCIAL VEHICLES DYNAMICS BY MEANS OF REAL TIME SIMULATION

Anton Tumasov, Alexey Vasiliev, Danila Butin, Andrey Vashurin, Yury Trusov, Pavel Moshkov

Nizhny Novgorod State Technical University n.a. R.E. Alekseev, Russian Federation

NEW CRITERION FOR DYNAMIC SHEARING RESISTANCE OF SOILS

Prof. Piotr Antoni DUDZIŃSKI

Wrocław University of Science and Technology, Poland

NEW GENERATION TEST EQUIPMENT FOR EXPERIMENTAL IDENTIFICATION ON ROLL-OVER STABILITY IN WHEELED OFF-ROAD MACHINES AND VEHICLES

Prof. Piotr Dudziński, **Gustaw Sierzputowski**

Wrocław University of Science and Technology, Poland

NEW TEST DEVICE FOR DETERMINATION OF DYNAMICAL SHEARING RESISTANCE OF SOILS

Prof. Piotr Dudziński, **Dr. Damian Stefanow**

Wrocław University of Science and Technology, Poland

NOVEL LABORATORY METHOD TO DETERMINE THE CONDITION OF SHOCK ABSORBERS USING ACCELEROMETER SENSORS

Niki Galbenisz, **Csongor Horváth**, **Csaba Farkas**

Szent István University, Hungary

ON INTERNAL RESISTANCE OF RUBBER TRACK Systems

Prof. Piotr Dudziński, **Jakub Chodowski**

Wrocław University of Science and Technology, Poland

PRESSURE-SINKAGE RELATIONSHIP OF AN ARTIFICIAL SOIL MODEL

Dr. Hiroshi Nakashima, Ryo Nakanishi, Prof. Hiroshi Shimizu, **Dr. Juro Miyasaka**, **Dr. Katsuaki Ohdoi**

Graduate School of Agriculture, Kyoto University, Japan

SIMULATION OF ROAD IMPACTS FOR FORECASTING OF DURABILITY OF VEHICLE'S SUSPENSION ELEMENTS AND SUPPORTING SYSTEM

Pavel Beresnev, **Dr. Denis Zeziulin**, **Dr. Vladimir Makarov**, **Dr. Anton Tumasov**

Nizhny Novgorod State Technical University n.a. R.E.Alekseev, Russian Federation

STUDY OF EFFICIENCY OF USING ALL-TERRAIN VEHICLES DURING THE WINTER PERIOD

Dmitriy Porubov¹, **Dr. Vladimir Makarov¹**, **Dr. Denis Zeziulin¹**, **Prof. Vladimir Belyakov¹**, **Dr. Alexey Anikin²**

1: Nizhny Novgorod State Technical University n.a. R.E.Alekseev, Russian Federation; 2: LLC Plant of All-terrain Vehicles (ZVM), Russian Federation

**STUDY OF TRAFFICABILITY CONDITIONS OF
TYPICAL SOILS OF COASTAL ZONES OF
SAKHALIN ISLAND (RUSSIAN FEDERATION)**

Dr. Vladimir Makarov, Valery Filatov, Dr. Umar
Vahidov, Prof. Andrey Kurkin, Prof. Vladimir
Belyakov

Nizhny Novgorod State Technical University n.a.
R.E.Alekseev, Russian Federation

**SURVEY OF THE EUROPEAN
MANUFACTURERS OF TOWED
AGRICULTURAL VEHICLES AND MACHINERY
AND THEIR MARKET**

Prof. Péter Kiss¹, Dr. József Hajdú², Dr. László
Máthé¹, **Dr. László Magó¹**

1: Szent István University, Hungary; 2: Hungarian
Institute of Agricultural Engineering

**PRESSURE REGULATION IN PNEUMATIC
TRACTOR TYRES**

Dr. György Pillinger, Dr. Laszlo Mathe, Prof. Peter
Kiss

Szent István University, Department of Automotive
Technology, Hungary

**EFFECTS OF STEEL FLEXIBLE TRACKS ON
FORWARDER PEAK LOAD DISTRIBUTION:
RESULTS FROM A PROTOTYPE LOAD TEST
PLATFORM**

Prof. Eric R. Labelle¹, Prof. Dirk Jaeger²

1: Technische Universität München; 2: Albert-Ludwigs-
Universität Freiburg

**THE EFFECTS OF TERRAIN PROFILE ON
OFF-ROAD VEHICLE MOBILITY**

Prof. Lajos Laib, Dr. Laszlo Mathe, **Dr. György
Pillinger**

Szent Istvan University, Faculty of Mechanical
Engineering, Department of Automotive Technology

**WATER REGIME OF RIVERS AND ITS IMPACT
ON CROSS-COUNTRY MOBILITY**

Filip Dohnal, **Dr. Marian Rybansky**, Martin Hubacek
University of Defence, Czech Republic

Paper Submission Only

**DEVELOPMENT AND VALIDATION OF A
SYSTEM FOR MONITORING OF TIP OVER-
STABILITY OF A SINGLE BUCKET
EXCAVATOR**

Andrzej Kosiara, Damian Stefanow

Wroclaw University of Science and Technology, Poland

**INVESTIGATING THE MOTION OF VEHICLES
ON TERRAIN**

Dr. Laszlo Mathe, Dr. Gyorgy Pillinger, Prof. Peter
Kiss

Szent Istvan University, Faculty of Mechanical
Engineering, Hungary

**ONLINE NON-PARAMETRIC TERRAIN
EVALUATION FOR PLANETARY ROVERS**

Dr. Han Huang¹, Prof. **Jjiangqiao Li¹**, Dr. Baichao
Chen², Prof. Meng Zou¹

1: Key Laboratory of Bionic Engineering, Ministry of
Education, Jilin University, Changchun 130022, China.; 2:
China Academy of Space Technology, Beijing
100094, China.

**A NEW ROLLOVER DETECTION SYSTEM FOR
TRIPPED AND UNTRIPPED ROLLOVERS FOR
ANTIROLL SAFETY SYSTEMS**

Hari Muraleedharan Nair, Prof. Sujatha C

Indian Institute of Technology Madras, Chennai, India

10:30am	<u>SES-07: Land locomotion, off-road and military vehicles, operation snow and ice</u> Location: Ganges 1 (first floor) Chair: Dr. Alex Phillip Keen	<u>SES-08: Terramechanics, terrain/soil-wheel/tire/track interaction, modelling and characterization</u> Location: Ganges 2 (first floor) Chair: Prof. Junya Yamakawa
10:30am	CALCULATION OF TRACTION CAPABILITIES OF WHEELED VEHICLES ON LOW-PRESSURE TIRES ON SNOW Dr. Alexey Anikin¹, Prof. Vladimir Belyakov², Dr. Denis Zeziulin², Dr. Vladimir Makarov² 1: LLC Plant of All-terrain Vehicles (ZVM), Russian Federation; 2: Nizhny Novgorod State Technical University n.a. R.E.Alekseev, Russian Federation	THE EFFECTS OF AGE ON THE STIFFNESS PROPERTIES OF A SUV TYRE Kraig Wright, Prof. Schalk Els University of Pretoria, South Africa
10:50am	DISCRETE ELEMENT SNOW MODEL FOR IMPACT LOADING Thiemo Claas Theile¹, Denes Szabo¹, Martin Schneebeil¹, Yoshio Kaji², Kazumasa Hagiwara², Shintaro Hatanaka² 1: WSL Institute for Snow and Avalanche Research SLF, Switzerland; 2: Bridgestone Corporation, Tokyo Japan	THREE-DIMENSIONAL DYNAMIC MODEL FOR OFF-ROAD VEHICLES USING DISCRETE ELEMENT METHOD Michal Shani¹, Yaron Franco¹, Gilad Gat¹, Prof. Itzhak E Shmulevich¹, David Zaphir² 1: Faculty of Civil and Environmental Engineering, Technion, Israel; 2: Elbit systems LTD, Israel
11:10am	THE IMPACT OF DRAINAGE ON TERRAIN VEHICLE MOVEMENT Dr. Marian Rybansky University of Defence, Czech Republic	TYRE LONGITUDINAL VELOCITY AND SLIP MEASUREMENTS FROM INSIDE A TYRE Dr. Theunis Richard Botha¹, Glenn Guthrie¹, Emilio Jimenez², Prof. Schalk Els¹, Prof. Corina Sandu² 1: University of Pretoria, South Africa; 2: Virginia Polytechnic Institute and State University
11:30am	DURABILITY ASSESSMENT: A VIRTUAL PROVING GROUND APPROACH László Takács, Gergely Erdős eCon Engineering Kft., Hungary	INVESTIGATING THE DIFFERENCE OF THE EFFECTIVE ROLLING RADIUS OF A TIRE ON A SOFT SOIL AND A RIGID SURFACE Rui He¹, Prof. Corina Sandu¹, Javier E. Osorio² 1: Virginia Tech, Blacksburg, Virginia, United States of America; 2: Engineer Research and Development Center, Vicksburg, Mississippi, United States of America
11:50pm	OFF-ROAD LOCOMOTION CAPABILITY IN THE HUNGARIAN DEFENCE FORCES Szabolcs Vágner Ministry of Defence, Hungary	DESIGN OF A MODULAR AMPHIBIOUS VEHICLE FOR CONDUCTING RESEARCH IN SURFZONE Pavel Beresnev, Prof. Andrey Kurkin, Dr. Dmitry Tyugin, Dr. Denis Zeziulin Nizhny Novgorod State Technical University n.a. R.E.Alekseev, Russian Federation
12:10pm	ADVANCED TIRE-ICE MODEL FOR PNEUMATIC TIRE PERFORMANCE Emilio Jimenez, Prof. Corina Sandu Virginia Tech, United States of America	THE EFFECT OF TRACKED-VEHICLES MULTI-PASSES ON RUT DEPTH AND SOIL PROPERTIES Dr. Dror Rubinstein, Yaron Franco, Prof. Itzhak Shmulevich Technion - Israel Institute of Technology, Israel

12:30pm	Lunch Location: Hotel Restaurant	
2:00pm	<u>SES-09: Terramechanics, terrain/soil-wheel/tire/track interaction, modelling and characterization</u> Location: Ganges 1 (first floor) Chair: Prof. Kazuyoshi Tateyama	<u>SES-10: Terramechanics, terrain/soil-wheel/tire/track interaction, modelling and characterization</u> Location: Ganges 2 (first floor) Chair: Dr. Jeremy P. Gray
2:00pm	MODELING OF BUCKET-SOIL INTERACTION MECHANICS BASED ON IMPROVED RESISTIVE FORCE THEORY Ryota Yoneyama, Takuya Omura, <u>Dr. Genya Ishigami</u> Department of Mechanical Engineering, Keio University, Japan	SLIP COMPENSATED ODOMETRY FOR TRACKED VEHICLE WHEN ROTATING ON A LOOSE WEAK SLOPE <u>Genki Yamauchi</u>¹, Prof. Keiji Nagatani¹, Dr. Takeshi Hashimoto², Kenichi Fujino² 1: Tohoku University, Japan; 2: Public Works Research Institute, Japan
2:20pm	SLIP ESTIMATION AND CLASSIFICATION USING IN-WHEEL SENSOR FOR MOBILE ROBOT IN SANDY TERRAIN <u>Takuya Omura</u>, Dr. Genya Ishigami Keio University, Japan	FAST ENERGY-EFFICIENT TORQUE DISTRIBUTION AMONGST MULTIPLE DRIVETRAINS <u>Dr. Arash M. Dizqah</u>¹, Prof. Mike Blundell¹, Prof. Vladimir Vantsevich², Brandon Ballard¹ 1: Coventry University, UK; 2: The University of Alabama at Birmingham, US
2:40pm	TERRAMECHANICS ANALYSIS OF WHEEL WITH GROUSERS BASED ON RESISTIVE FORCE THEORY <u>Hiroataka Suzuki</u>, Prof. Shingo Ozaki Yokohama National University, Japan	MODELLING OF AN UNMANNED GROUND VEHICLE WITH NEW SKID-STEERING INPUTS <u>Siyuan Zhang</u>, <u>Prof. Vladimir Vantsevich</u> The University of Alabama at Birmingham, United States of America
3:00pm	APPLICATION OF THE HOHENHEIM TYRE MODEL FOR THE DRIVING COMFORT INVESTIGATIONS OF AGRICULTURAL TRACTORS <u>Alexander Bürger</u>, Prof. Stefan Böttinger, Prof. Heinz Dieter Kutzbach Institute of Agricultural Engineering, University of Hohenheim, Germany	STUDY ON TRAVELING PERFORMANCE FOR ROVERS EQUIPPED WITH WHEEL-BASE LENGTH VARIABLE MECHANISM TO TRAVELING LOOSE SOIL WITH SLOPE <u>Daisuke Fujiwara</u>, Kojiro Iizuka Shibaura Institute of Technology, Japan
3:20pm	Coffee Break Location: Lobby of Ganges 1+2 (first floor)	
3:50pm	<u>Closing Ceremony</u> Location: Ganges 1+2 (first floor) Chair: Prof. Peter Kiss	
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4:50pm	Best Paper Award, Prof. Peter Kiss Outgoing President address, Prof. Peter Kiss Incoming President address, Dr. Hiroshi Nakashima Nomination of 2nd Vice President, Dr. Hiroshi Nakashima Next ISTVS Conference, Dr. Hiroshi Nakashima Closing Remarks, Prof. Peter Kiss	
5:40pm	Meeting for Banquet Location: Lobby of Hotel Aquaworld (ground floor)	
7:00pm	Banquet on River Danube Location: Boat Trip on River Danube	

Date: Thursday, 28/Sep/2017

8:00am Meeting for Post Conference Tour
Location: **Lobby of Hotel Aquaworld** (ground floor)

8:20am DAY-01: Post Conference Tour
Location: **Center of Budapest**

Date: Friday, 29/Sep/2017

8:00am Meeting for Post Conference Tour
Location: **Lobby of Hotel Aquaworld** (ground floor)

8:20am DAY-02: Post Conference Tour
Location: **Countryside**

19th International & 14th European-African Regional Conference of the
International Society for Terrain-Vehicle Systems

Technical Tour Program

September 26, 2017 (Tuesday)



Location: Rába Automotive Holding Plc. Győr, Rába Test Ring, Écs

Sponsored by: **Rába Automotive Holding Plc.**, Hungarian Defense Forces, Hungarian
Defense Forces Logistics Centre, GAMMA Technical Corporation



We engineer, you drive



istvs2017.hu

Technical Tour Program, 19th International & 14th European-African Regional Conference of the ISTVS, September 26, 2017 (Tuesday)

Program

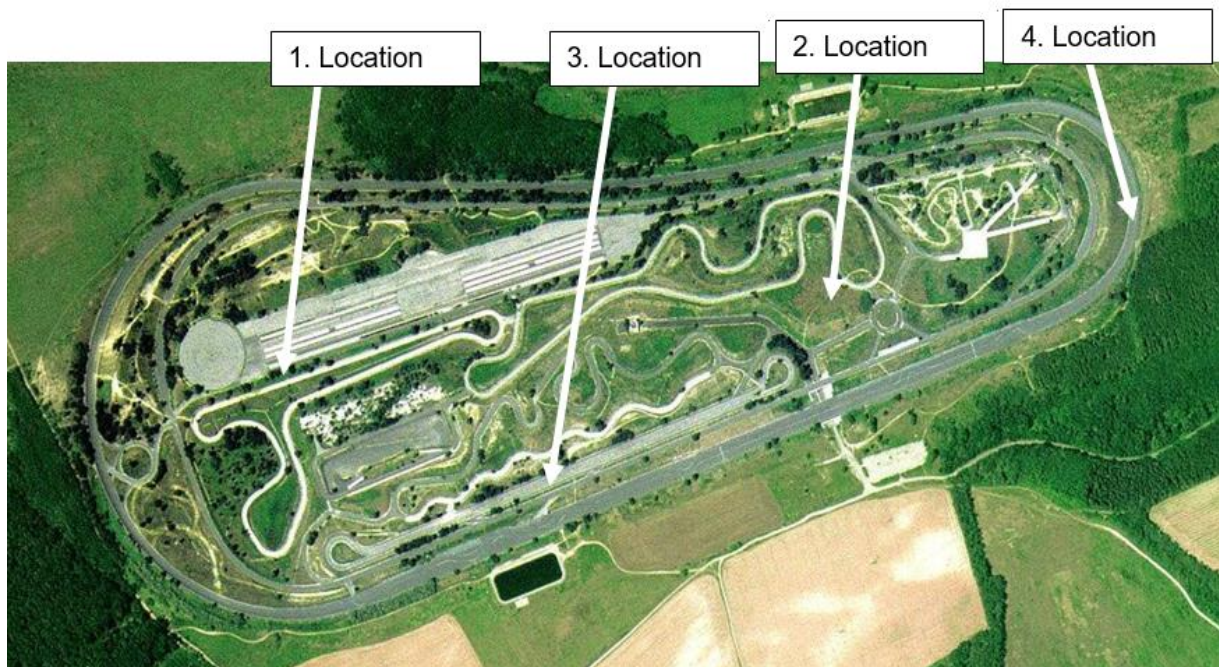
- 7:30 Meeting at the lobby of the Hotel Aquaworld
- 7:40 Buses leave the Hotel (sharp!)
- 10:00 Arrive to **Rába Automotive Holding Plc. Technology Centre (Győr)**
- 10:05 General greeting and information
- 10:15 Company presentation and Technology Centre visit (shared, two groups)
- 10:55 Sandwich Buffet, Soft Drink, Coffee
- 11:30 Leave Rába **Automotive Holding Plc. and drive to Rába Test Ring (Écs)**
- 12:20 Arrive to the Test Track
- 12:20 General facility overview, vehicles introduction (6 vehicles) (vehicle's parameters)
- 13:00 Vehicles demonstration (moving) (details below)
- 14:50 Drive around the Test Track by buses
- 15:00 Lunch (Goulash party)
- 16:30 Leave Rába Test Track
- 19:00 Estimated arrival to the Hotel Aquaworld

The Rába Test Track



Moving Vehicle Demonstration

1. **Location:** Special testing roads (Gravel and sinus road)
2. **Location:** Test hill with sandy-loam surface (Gradient: 30°, 58 %)
3. **Location:** Test hill with concrete surface (Gradient: 30°, 58%)
4. **Location:** Parabolic road (Side gradient: ~20°, ~36%)



Area of proving ground: 647 066 m²

Circumference of proving ground area: 3619 m

Vehicles



RÁBA H14.206 AEL-002



RÁBA H18.240 DAE-102



RÁBA H25.324DAE-101



RÁBA H18.240 DAEZ-111



**RDO-3221 KOMONDOR Light Armoured
Vehicle 4x4**



**RDO-3221 KOMONDOR Light Armoured
Cargo Vehicle 6x6**

Program for Accompanying Persons

Sunday, 24/Sep/2017

5:20pm Registration, Location: Nilus (Hotel Aquaworld, 8. floor)
6:00pm Ice Breaker Party, Location: Nilus (Hotel Aquaworld, 8. floor)

Monday, 25/Sep/2017 (Casual-Sporty outfit with very comfortable shoes suggested)

8:50am Meeting at Registration Desk, Location: Lobby of Ganges (Hotel Aquaworld, 1. floor)
9:00am Bus transport to the Buda Castle
Visit at Castle district, Matthias Church, Fisher Bastion
Lunch
Visit at Royal Palace district
Visit at Royal Garden Bazaar
3:00pm Bus transfer to the Hotel Aquaworld
3:30pm Arrive at the Hotel Aquaworld

Tuesday, 26/Sep/2017 (Casual outfit suggested)

7:30am Meeting for Technical Tour, Location: Lobby of the Hotel Aquaworld, (ground floor)
7:40am Bus transfer to Gyor
The program is same as the conference program (see Technical Tour Program)
7:00pm Arrive at the Hotel Aquaworld

Wednesday, 27/Sep/2017 (Casual-Sporty outfit with very comfortable shoes suggested)

8:50am Meeting at Registration Desk, Location: Lobby of Ganges (Hotel Aquaworld, 1. floor)
9:00am Bus transport to the Heroes' Square
Sightseeing at Heroes' Square
Sightseeing with bus: Andrassy avenue, Opera, Danube bank
Market Hall
Fashion Street (Vaci utca)
Vorosmarty Square
Lunch
St. Stephen Cathedral
2:30pm Bus transfer to the Hotel Aquaworld
3:00pm Arrive at the Hotel Aquaworld
5:40pm Meeting for Banquet with other conference participants
5:50pm Bus transfer to the Banquet
7:00pm Banquet on the River Danube
10:00pm Bus transfer to the Hotel Aquaworld
10:30pm Arrive at the Hotel Aquaworld