World Congress: 11th International Conference on Mathematical Problems in Engineering, Aerospace and Sciences

La Rochelle, France, July 5 - July 8, 2016
Welcome Message from the Conference General Chair

As the general chair of the conference, I am delighted to welcome you all to the ICNPAA 2016 World Congress - 11th International Conference on Mathematical Problems in Engineering, Aerospace and Sciences.

La Rochelle is on the western coast of France, in the Charente-Maritime department. La Rochelle is certainly among the most attractive port towns of France, and is a very pleasant place to visit and to pass a few days, because there is a great deal to see and do in La Rochelle. There are several 'regions' including: the harbour, with the old town and historical centre, is the centre of activity and interest within the town and contains many of the most important monuments; the three towers and the ramparts; the section around the old market; the large, modern port section a couple of kilometres south at Port des Minimes. The focus of the town is the old harbour, a lovely part of the town and very picturesque with its two monumental towers (St Nicolas Tower and the Tower of the Chain) either side of the port entrance, through which you can watch the boats enter. A third tower, the 'Tower of the Lantern' is connected to the Chain Tower by a section of the ramparts that originally defended the town. The old town, just behind the harbour, is extensive and also very well preserved and restored and dates mostly from the 17th and 18th centuries. The main shopping streets especially have many fine buildings, but you will also need to explore the side streets in this part of the town. The whole of the historic centre of La Rochelle has an impressive unified appearance, with arcaded streets, houses constructed in the local light stone, and light grey shutters. Boutiques now occupy the ground floor of many of the buildings.

The 10th ICNPAA Conference was held in Narvik, Norway in 2014, and shattered the attendance records of all the previous conferences. This year, in La Rochelle, France, despite the current worldwide economic constraints, and the security concerns around the world, we have an even larger number of attendees/delegates and there were many more that wanted to attend but could not due to lack of funding.

We have an outstanding program with several keynote addresses, general sessions, and special sessions on areas including: **Mini-Symposia:** New Methods and Applications in Aero elasticity and Structural Mechanics/Dynamics; Modelling, Simulation and Optimization in Engineering; Functional Analysis and Related Topics with Applications; Modern approximation methodologies for functions and arrays in science and engineering computations; Control of nonlinear systems under deterministic and stochastic loads; New Methods and Applications in Aeroelasticity and Structural Mechanics/Dynamics; Modelling, Simulation and Optimization in Engineering. **Tutorial sessions:** The Beauty of Simple Adaptive Control and Old and New results in Stability Analysis of Nonlinear Systems; Multivariate Function Decomposition and Data Analysis with a Basic Focus on HDMR and EMPR. **Special sessions:** Modern approximation methodologies for functions and arrays in science and engineering computations; Analysis of Fractional Differential, Integral and Difference equations with Applications; Nonlinear Problems of Guidance, Navigation and Control; Inverse Problems: Theory and Application to Science and Engineering; Control and Estimation: Theory and
I would like to thank the international advisory committee and the international awards committee, the local advisory and local organizing committee, the sponsors AIAA: American Institute of Aeronautics and Astronautics; IFNA: International Federation of Nonlinear Analysts; IFIP: International Federation of Information Processing; AIP: American Institute of Physics; ULR: University of La Rochelle; AFM: Association Française de Mécanique; ALPC: Aquitaine-Limousin-Poitou-Charente region; CMD: Charente-Maritime department; LaSIE: Laboratoire des Sciences de l'Ingénieur pour l'Environnement for their assistance and support in the preparation of the conference. I also wish to express my special thanks to all who have helped in planning, organizing and chairing the sessions to make this conference a very successful event.

Finally, I would especially like to thank the local organizers Dina Razafindralandy (University of La Rochelle, France), Svetlin Georgiev (Sorbonne University, France), the conference coordinator Eva Kaslik (West University of Timisoara, Romania), the co- coordinators Iren Siva and Dianthe Siva and the administrative chair Jose Ruiz for their tireless efforts to make this a successful conference. Special thanks go also to the local advisory team and organizing team of the conference for their diligent contributions to make this event a successful one.

I hope that you all enjoy the conference and the natural beauty of the city, have an exciting scholarly cooperation, collaboration, interaction, and have a pleasant stay in La Rochelle, France.

Seenith Sivasundaram
ICNPAA General Chair
Professor A.V. Balakrishnan was born on December 4, 1922 in Palgat, India. He earned his M.S. Degree in Electrical Engineering and his Ph.D. in Mathematics from the University of Southern California in 1950 and 1954, respectively. From cinema to aerodynamics, he never imagined he would wind up in aerodynamics. Bal grew up in Chennai (Madras), India. He earned his B.Sc. and an M.A. from the University of Madras in the early 1940s and won a scholarship competition from the Indian government to study in the United States and learn to produce documentaries. He mentioned in his own words: "The problem was that the job they had waiting for me at the Indian Institute of Science just didn’t measure up to the opportunities I knew I would have with a Ph.D. in the U.S. So I stayed.” After earning his Ph.D. in 1954, he went to the East Coast and worked in radar at The Radio Corporation of America (RCA) for two years. He also mentioned, "That was a hotbed of activity at the time, but I didn’t want to stay in Camden because it was known only for Campbells soup, he laughed. Instead, I joined the wagon going west, like so many other engineers did.”

Professor Balakrishnan’s contributions to applied mathematics, control theory and aerodynamics spanned several diverse areas: From his revolutionary and highly influential Ph.D. dissertation on fractional powers of operators, written under mathematical giant Ralph S. Phillips in 1954 at the USC; to his contributions in both deterministic and stochastic control and communication; to his ingenious Springer-Verlag book on Applied Functional Analysis of 1976 and the second edition of 1981, written with a focus on stability theory, optimal control theory and stochastic optimization for systems defined by operator semigroups, one of his favorite topics; all the way to the last phase of his research activities in continuum aero-elasticity. Starting in 1961,
Professor A.V. Balakrishnan’s academic activities evolved mostly at the University of California Los Angeles (UCLA) as Professor of Engineering since 1962 and as Professor of Mathematics since 1965. During 1969-1975 and 1980-1983 he was Chairman of the Department of Systems Science in the School of Engineering, and from 1986 until he passed away he was Director of the NASA-UCLA Flight Systems Research Center.

Of gentle and well-disposed personality, ready to help junior faculty and students, he had a very unique maverick approach to science and life in general, while keeping a strong sense of independence of mind, spirit and action. Indeed, during the severe stages of the cold war, he was able to maintain scientific contacts with the former Soviet Union by inviting Soviet mathematicians such as Leon S. Pontryagin and others to visit UCLA. With Leon S. Pontryagin, Jacques-Louis Lions and Gurii I. Marchuk, he funded the Springer-Verlag journal Applied Mathematics and Optimization and gave birth to IFIP’s TC7 Committee on Modeling and Optimization which was spearheaded simultaneously in Rome (Jacques-Louis Lions and A.V. Balakrishnan) and Moscow (Gurii I. Marchuk and Leon S. Pontryagin) in 1963.

Professor Balakrishnan was chairman of the IEEE’s Information Theory Group and during 1970–1980 he chaired the Technical Committee on System Modeling and Optimization as U.S. Delegate, and the International Federation on Information Processing (IFIP). From 1980 until 1995 he was Chair of the Working Group 7.1 on System Modeling and Optimization at IFIP. From 1984 until he passed away he was Chairman of the IEEE Subcommittee on Large Space Structures and from 1987 he was President of the ComCon Conference Board. Professor A.V. Balakrishnan had the ability of mastering difficult engineering problems in a rigorous mathematical way and of producing effective engineering solutions. A number of his textbooks have become standard references in their field and his Department at UCLA became a leading example of school to which talented young students and researchers looked for advice and inspiration. During over sixty years of academic activities, Professor A.V. Balakrishnan lectured as invited professor at many universities and prestigious international conferences. He supervised the work of numerous Ph.D. students and post-doctoral fellows. His research contributions have been published in over two hundred scientific papers, and in over twenty one books published by prestigious publishing houses. Professor A.V. Balakrishnan made important contributions in the areas of Communication Theory, Stochastic Differential Equations, Kalman Filtering Theory, State Space Theory of Systems, Random Processes Theory in Engineering, Laser Propagation in Atmospheric Turbulence, Functional Analysis, Semigroups of Operators Theory, and other areas.

Professor A.V. Balakrishnan also lent his expertise to industry and the government, including to Optimization Software, Inc.; NADC US Navy; and to the NASA Dryden Flight Research Center. He held patents on the modes of interconnected lattice trusses using continuum models and laser beam log amplitude temporal scintillation spectrum due to crosswind. The work of Professor A.V. Balakrishnan has been a source of inspiration for generations of engineers and applied mathematicians. In more than sixty years of an outstanding scientific career, he made seminal contributions to the analysis and design of control systems. His contributions span from the theory of optimal control (where in the 60s, he developed a celebrated method the epsilon technique for the computation of optimal controls for distributed parameter systems), to filtering and identification theory, to a number of very difficult engineering applications which include the
control of aircraft under wing turbulence, the control of flexible structure in space and aero-elastic modelling of aircraft wings.

The editorial activities of Prof. A.V. Balakrishnan were impressive as well. He was the founding editor of three important journals: Journal of Computer and System Science (1968 at Academic Press), Journal of Applied Mathematics and Optimization (1968 at Springer-Verlag), Selecta Mathematica Sovietica (1981 at Birkhauser) and he was the editor of the following three book series: Applications of Mathematics (Springer-Verlag since 1974), Lecture Notes In Information and Control (Springer-Verlag 1976-1986), and Translations Series in Mathematics and Engineering (Optimisation Software, Inc.Publications since 1983). He served as the coeditor-in-chief of the journal Mathematics in Engineering Science and Aerospace from its very beginning.

Professor A.V. Balakrishnan’s professional contributions were appreciated by the international mathematical and electrical engineering communities. He was elected an IEEE Life Fellow for contributions to communication theory. He was honored with the Silver Core Award of IFIP (1977); the Certificate of Recognition of NASA (1978) for flight-test data reduction; the Guillemin Prize (1980) in recognition of the major impact that his original contribution have had in setting the research direction of communications and control; the Group Achievement Award of NASA Langley Flight Research Center (1986) for spacecraft control laboratory experiment; the Honorary Superior Accomplishment Award of NASA Langley Research Center (1992), the Public Service Medal (1996) in recognition of exceptional continuous theoretical and administrative contributions in establishing the UCLA-NASA Flight Systems Research Center to create increased research interactions between the university community and NASA; the Richard E. Bellman Control Heritage Award (2001), an American Automatic Control Council Award, given for distinguished career contributions to the theory or application of automatic control. The award is the highest recognition of professional achievement for US Control Systems engineers and scientists; and the Distinguished Alumni Award in Academia (2004) – Viterbi School of Engineering at University of Southern California.

The impact of Professor Balakrishnan’s professional contributions were and still are discernible at many universities. People who prepared for their Ph.D. in control theory in 1970-1975 took full advantage of his results obtained in this area. There are also today young colleagues who have already or will defend their Ph.D. theses, using Professor Balakrishnan’s books as a primary source of inspiration. Professor Balakrishnan received the title Doctor Honoris Causa from the West University of Timis¸oara, Romania in June 2004.

The Science, Engineering and Aerospace community mourns an icon, a colleague, and a friend. Bal is survived by his unwaveringly supportive and beloved wife Sophia (Sonya) Balakrishnan, and five children from his first marriage.

This conference is officially dedicated to Prof. Dr. A.V. Balakrishnan for his exemplary contributions to scientific endeavor and this conference series from the very beginning.

Anthony N. Michel, Stefan Balint, Seenith Sivasundaram
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09.00-17.00</td>
<td>Pre-conference TUTORIAL WORKSHOPS</td>
</tr>
<tr>
<td>Room C01</td>
<td>The Beauty of Simple Adaptive Control and Old and New results in</td>
</tr>
<tr>
<td></td>
<td>Stability Analysis of Nonlinear Systems</td>
</tr>
<tr>
<td>Room C02</td>
<td>Multivariate Function Decomposition and Data Analysis with a Basic</td>
</tr>
<tr>
<td></td>
<td>Focus on HDMR and EMPR</td>
</tr>
<tr>
<td></td>
<td>Instructors: Itzhak Barkana, Haim Weiss, Ilan Rusnak</td>
</tr>
<tr>
<td></td>
<td>Instructors: Professor Metin Demiralp, Professor N. Abdülbaki Baykara,</td>
</tr>
<tr>
<td></td>
<td>Süha Tuna, Zeynep Gündoğar, Ayla Okan, Derya Bodur</td>
</tr>
<tr>
<td>17.00-20.00</td>
<td>REGISTRATION – La Rochelle University, Orbigny building,</td>
</tr>
<tr>
<td>20.00-21.00</td>
<td>WELCOME RECEPTION – La Rochelle University, Pascal building 000</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>9.00-9.30</td>
<td>OPENING CEREMONY - A400</td>
</tr>
<tr>
<td>9.30-10.30</td>
<td></td>
</tr>
<tr>
<td>10.30-11.00</td>
<td>coffee break</td>
</tr>
<tr>
<td>11.00-11.25</td>
<td>Engineering, Modern Simple and Engineering</td>
</tr>
<tr>
<td></td>
<td>Robust Adaptive Control</td>
</tr>
<tr>
<td></td>
<td>Control methodologies</td>
</tr>
<tr>
<td></td>
<td>Simple and Robust Adaptive Control</td>
</tr>
<tr>
<td></td>
<td>Engineering Problems with Singularities</td>
</tr>
<tr>
<td></td>
<td>General Session</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>11.25-11.50</td>
<td>Mathematics: Navigation and approximation</td>
</tr>
<tr>
<td></td>
<td>Robust Adaptive Problems with Space systems</td>
</tr>
<tr>
<td></td>
<td>Wavelets...</td>
</tr>
<tr>
<td></td>
<td>Control methodologies</td>
</tr>
<tr>
<td></td>
<td>Control Singularities</td>
</tr>
<tr>
<td>11.50-12.15</td>
<td></td>
</tr>
<tr>
<td>12.15-14.00</td>
<td>lunch break</td>
</tr>
<tr>
<td>14.00-14.50</td>
<td>KEYNOTE: Prof. Stefan BALINT</td>
</tr>
<tr>
<td>14.50-15.40</td>
<td>KEYNOTE: Prof. Francesco DELL'ISOLA</td>
</tr>
<tr>
<td></td>
<td>KEYNOTE: Prof. Sergei SILVESTROV</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
</tr>
<tr>
<td>16.40-17.05</td>
<td></td>
</tr>
<tr>
<td>17.05-17.30</td>
<td>coffee break</td>
</tr>
<tr>
<td>17.30-17.55</td>
<td></td>
</tr>
<tr>
<td>17.55-18.20</td>
<td></td>
</tr>
<tr>
<td>18.20-18.45</td>
<td></td>
</tr>
<tr>
<td>18.45-19.10</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>8.30-9.20</td>
<td>KEYPONTE: Prof. Milan STEHLIK</td>
</tr>
<tr>
<td>9.20-10.10</td>
<td>KEYNOTE: Prof. Metin DEMIRALP</td>
</tr>
<tr>
<td>10.10-10.40</td>
<td>coffee break</td>
</tr>
<tr>
<td>10.40-11.05</td>
<td>Engineering Guidance, Modern Analysis of Stochastic Integral Engineering</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Mathematics: Navigation and approximation Fractional Processes and Equations and Problems with wavelets, Control methodologies Equations with Fields in Applications Singularities</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Engineering Fractals...Applications Engineering</td>
</tr>
<tr>
<td>12.20-14.00</td>
<td>lunch break</td>
</tr>
<tr>
<td>14.00-14.25</td>
<td>Engineering Guidance, Modern Analysis of Statistics Integral Control and</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Engineering Mathematics: wavelets, fractals, networks and matrices... Applications</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Statistics and Modelling Integral Equations and Applications Control and Estimation Theory and Applications</td>
</tr>
<tr>
<td>15.40-16.05</td>
<td>Engineering Fractals...Applications and matrices... Applications</td>
</tr>
<tr>
<td>16.30-18.00</td>
<td>AQUARIUM visit</td>
</tr>
<tr>
<td>20.00-</td>
<td>BANQUET - Restaurant Océanides/Hotel Mercure</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------</td>
</tr>
<tr>
<td>8.40-9.30</td>
<td>M3</td>
</tr>
<tr>
<td>9.30-10.20</td>
<td>M6</td>
</tr>
<tr>
<td></td>
<td>M1</td>
</tr>
<tr>
<td></td>
<td>M5</td>
</tr>
<tr>
<td></td>
<td>S16</td>
</tr>
<tr>
<td></td>
<td>S18</td>
</tr>
<tr>
<td></td>
<td>S9</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>M3</td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>M6</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>M1</td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>M5</td>
</tr>
<tr>
<td></td>
<td>S16</td>
</tr>
<tr>
<td></td>
<td>S18</td>
</tr>
<tr>
<td></td>
<td>S9</td>
</tr>
<tr>
<td>12.10-14.00</td>
<td></td>
</tr>
<tr>
<td>14.00-14.50</td>
<td>M3</td>
</tr>
<tr>
<td></td>
<td>M6</td>
</tr>
<tr>
<td></td>
<td>M1</td>
</tr>
<tr>
<td></td>
<td>S5</td>
</tr>
<tr>
<td></td>
<td>S13</td>
</tr>
<tr>
<td></td>
<td>S8</td>
</tr>
<tr>
<td></td>
<td>S9</td>
</tr>
<tr>
<td>15.00-15.25</td>
<td>M3</td>
</tr>
<tr>
<td>15.25-15.50</td>
<td>M6</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>M1</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>S5</td>
</tr>
<tr>
<td></td>
<td>S13</td>
</tr>
<tr>
<td></td>
<td>S8</td>
</tr>
<tr>
<td></td>
<td>S9</td>
</tr>
<tr>
<td>16.40-17.00</td>
<td></td>
</tr>
<tr>
<td>17.00-17.25</td>
<td>M3</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>S4</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>M1</td>
</tr>
<tr>
<td>18.15-18.40</td>
<td>S5</td>
</tr>
<tr>
<td></td>
<td>S13</td>
</tr>
<tr>
<td></td>
<td>S8</td>
</tr>
<tr>
<td></td>
<td>S9</td>
</tr>
</tbody>
</table>
### Keynote talks

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30-9.20</td>
<td>A400</td>
<td>M3</td>
<td>Modelling, Mathematical Methods and Modelling in Engineering</td>
</tr>
<tr>
<td>9.20-10.10</td>
<td></td>
<td>M6</td>
<td>Modelling, Mathematical Methods and Modelling in Engineering</td>
</tr>
</tbody>
</table>

### coffee break

**Room: A300 A400 C21 C01 C02 C24 C27**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.00-10.30</td>
<td>S2</td>
<td>Clifford Algebras and Applications</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>S7</td>
<td>Inverse Problems: Theory and Applications</td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>S17</td>
<td>Aeroelasticity and Structural Mechanics/ Dynamics</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>S4</td>
<td>Control of Nonlinear Systems</td>
</tr>
<tr>
<td>11.45-11.55</td>
<td>S9</td>
<td>New Era in Mathematics</td>
</tr>
</tbody>
</table>

### lunch break

#### Parallel sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.20-14.00</td>
<td>A300</td>
<td>M3</td>
<td>Modelling, Mathematical Methods and Modelling in Engineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M6</td>
<td>Modelling, Mathematical Methods and Modelling in Engineering</td>
</tr>
</tbody>
</table>

### CLOSING CEREMONY

**Room: A400**

### END OF CONFERENCE
09.00-09.30  OPENING CEREMONY - Room A400
09.30-10.30  PLENARY TALK: Prof. Naira HOVAKYMIAN - Cooperative Control of UAVs

10.30-11.00  coffee break

11.00-12.15  Parallel sessions

<table>
<thead>
<tr>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
</table>
| Room A300 | M2: Engineering Mathematics: wavelets, fractals, networks and matrices in computational electromagnetics, antennas, fluid dynamics and biomathematics  
Chair: Sergei Silvestrov |
| 11.00-11.25 | Dmitrii Silvestrov  
Asymptotic Expansions for Stationary Distributions of Perturbed Semi-Markov Processes |
| 11.25-11.50 | Betuel Canhanga  
Numerical methods and asymptotic expansions for multi-parameter stochastic differential equations modeling |
| 11.50-12.15 | Karl Lundengård  
Construction of moment-matching multinomial lattices using Vandermonde matrices and Gröbner bases. |

| Room A400  | M5: Nonlinear Problems of Guidance, Navigation and Control  
Chair: Yevgeny Somov |
| 11.00-11.25 | Yevgeny Somov  
Guidance and adaptive-robust attitude & orbit control of a small information satellite |
| 11.25-11.50 | Oleg Bogdanov  
Application of GNSS-INS simulator for testing algorithms of the airborne vector gravimetry problem. |
| 11.50-12.15 | Andrey Shevchenko  
Methods for Predicting Unsteady Takeoff and Landing Trajectories of the Aircraft |

| Room C21  | M4: Modern approximation methodologies for functions and arrays in science and engineering computations  
Chair: Metin Demiralp |
| 11.00-11.25 | Nasır Abdülbaki Baykara  
Multivariate Numerical Integration via Fluctuationlessness Theorem: Case Study |
| 11.25-11.50 | Berfin Kalay  
A Space Pruning Approach to the Determination of Spectral Entities for a Quantum System Described by a Singular Potential |
| 11.50-12.15 | Derya Bodur  
Certain Implementative Applications of Separate Node Ascending Derivatives Expansion (SNADE) |

| Room C01  | S12: Simple and Robust Adaptive Control  
Chair: Itzhak Barkana |
| 11.00-11.25 | Devika K. B.  
On the Synthesis of Nonlinear Sliding Mode Controller for the Autopilot Design of Free Flight System |
| 11.25-11.50 | Ilan Rusnak  
Implementation of SAC in Target Tracking Loop |
| 11.50-12.15 | Oleg Borisov  
Simple Adaptive Control for Quadcopters with Saturated Actuators |

| Room C02  | S11: Nonlinear Engineering Problems with Singularities  
Chair: Marat Dosaev |
| 11.00-11.25 | Maria Kulikovskaya  
Comparison of energy costs for different control laws of a vibratory robot |
| 11.25-11.50 | Oleg Cherkasov  
Range Maximization and Brachistochrone Problem with Dry Friction, Viscous Drag and Accelerating Force |
| 11.50-12.15 | Yury Selyutskiy  
On auto-oscillations of a plate in flow |

| Room C24  | General Session  
Chair: Seenith Sivasundaram |
| 11.00-11.50 | Ryspek Usubamatov  
Mathematical Models for Principles of Gyroscope Theory |
| 11.50-12.15 | Christopher Jesudason  
Second Law considerations for Fourier Heat Conduction in relation to intermolecular potentials |

12.15-14.00  lunch break

14.00-15.40  Keynote talks

Room A300  
Chair: Prof. Motin Demiralp
14.00-14.50  Prof. Stefan BALINT  
Space-Time Evolution of the Perturbations of a Spatially Developing Constant Gas Flow
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.50-15.40</td>
<td>Prof. Sergei SILVESTRO</td>
<td>Engineering Mathematics for big data networks and computational electromagnetics</td>
</tr>
<tr>
<td>14.00-14.50</td>
<td>Prof. Francesco DELL'ISOLA</td>
<td>Pantographic lattice based metamaterials: Modelling, prototype experiments and possible engineering applications</td>
</tr>
<tr>
<td>14.50-15.40</td>
<td>Prof. Marc GARBEEY</td>
<td>Vascular Repair &amp; Vascular Adaptation: Challenges and Opportunities</td>
</tr>
<tr>
<td>15.50-17.05</td>
<td></td>
<td>Parallel sessions</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Prof. Jonas Österberg</td>
<td>Power series expansion of functions involving generalized Vandermonde matrices</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>Prof. Karl Lundengård</td>
<td>Multi-Peaked Analytically Extended Function Representing Electrostatic Discharge (ESD) Currents</td>
</tr>
<tr>
<td>16.40-17.05</td>
<td>Prof. Sergei Silvestrov</td>
<td>Calculating PageRank in a changing network</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Prof. Sergey Somov</td>
<td>Attitude guidance and control of the GLONASS navigation satellites at passage of singular orbit sites</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>Prof. Alexander Kochetkov</td>
<td>Tracking problem for electromechanical system under influence of unknown unmatched perturbation</td>
</tr>
<tr>
<td>16.40-17.05</td>
<td>Prof. Svetlana Krasnova</td>
<td>Block Design of Tracking Systems under Unmatched Disturbances via Sigmoidal Feedbacks</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Prof. Ercan Gürvit</td>
<td>Recovery of Missing Data via Wavelets Followed by High-Dimensional Modeling</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>Prof. Süha Tuna</td>
<td>A Numerical Comparison between Bivariate Enhanced Multivariance Products Representation and Smoothing Bicubic Spline Method</td>
</tr>
<tr>
<td>16.40-17.05</td>
<td>Prof. Evrim Korkmaz Özay</td>
<td>Face Recognition using Tridiagonal Matrix Enhanced Multivariance Products Representation (TMEMPR)</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Prof. Stanislav Tomashchevich</td>
<td>Passification based simple adaptive control of quadrotor attitude: algorithms and testbed results</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>Prof. Anton Putov</td>
<td>Adaptive control of an unmanned aerial vehicle</td>
</tr>
<tr>
<td>16.40-17.05</td>
<td>Prof. Alexander Popov</td>
<td>A Direct Implicit Reference Model Adaptive Control for SIMO Linear Time Invariant Systems with Super-Twisting-Like Terms</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Prof. Marat Dosiev</td>
<td>Stability domains for vane with viscose filling</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>Prof. Roger Khayat</td>
<td>Treatment of flow singularity for exiting liquid jet from a hydrophobic channel</td>
</tr>
<tr>
<td>16.40-17.05</td>
<td>Prof. Malika Yaici</td>
<td>Helicopter Flight Control by Dynamic Compensator</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Prof. Andrey Shornikov</td>
<td>Boundary problem solution of an optimal control transfer between circular orbits for an electric propulsion spacecraft in an irregular gravitational field of an asteroid</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>Prof. Irina Gorbunova</td>
<td>An approach for the control method's determination for an interplanetary mission with solar sail</td>
</tr>
<tr>
<td>16.40-17.05</td>
<td>Prof. Vadim Salmin</td>
<td>Optimization methods of near-Earth and interplanetary flights with low thrust</td>
</tr>
<tr>
<td>17.05-17.30</td>
<td></td>
<td>coffee break</td>
</tr>
</tbody>
</table>
### Parallel sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A300</th>
<th>Room A400</th>
<th>Room C21</th>
<th>Room C01</th>
<th>Room C02</th>
<th>Room C24</th>
<th>Room C27</th>
</tr>
</thead>
</table>
| 17.30-19.10| **M2: Engineering Mathematics**
  - Wavelets, fractals, networks and matrices in computational electromagnetics, antennas, fluid dynamics and biomathematics.
  - Chair: Sergei Silvestrov
  - Data Classifications with Support Vector Machines and Generalized Support Vector Machine
  - Test Application for Support Vector Machines: The Estimation of Adults’ Cognitive Skills through Certain Kernel Types based on WAIS-R
  - Identification and functional characterization of a glioma specific retroviral integration landscape
| **M5: Nonlinear Problems of Guidance, Navigation and Control**
  - Chair: Yevgeny Somov
  - Arrangement of spacecraft onboard equipment with minimizing the influence of external factors
  - Liquid oscillations in the tanks’ level sensors of aerospace objects
| **M4: Modern approximation methodologies for functions and arrays in science and engineering computations**
  - Chair: Metin Demiralp
  - Classical Symmetric Fourth Degree Potential Systems in Probabilistic Evolution Theoretical Perspective: Most Facilitative Conicalization and Squarification of Telescope Matrices
  - An Implementative Application of Probabilistic Evolution Theory: A Case Study for Two Particles Celestial Mechanical System
  - More Practicalization of Probabilistic Evolution Theory: Case Studies for the Squarification of Telescope Matrices
| **S12: Simple and Robust Adaptive Control**
  - Chair: Ilan Rusnak
  - Adaptive synchronization of robot-manipulators for tracking problem
  - The new Theorem of Stability and Gain Convergence in Simple Adaptive Control
  - Quasi-Periodic Dynamics of a High Angle of Attack Aircraft
  - A Dynamic Controller Guaranteeing Almost Strict Positive Realness of the Interconnected System
| **S11: Nonlinear Engineering Problems with Singularities**
  - Chair: Yury Selyutskiy
  - Modeling of indentation into inhomogeneous soft tissues
  - Mechanical Systems with Singularities
  - Evolution of rotational motions of a rigid body similar to pseudoregular precession in the Lagrange case
| **S10: Nonlinear analysis, optimal design and guidance of space systems with low thrust**
  - Chair: Olga Starinova
  - Approximate approach for optimization space flights with a small thrust on the basis of sufficient optimality conditions
  - Methods of Optimal Control Choice of Non-Keplerian Orbits
  - Pulse-width control of electro-reaction engines for a station-keeping of land-survey satellite on sun-synchronous orbit
  - Control geostationary spacecraft in orbital plane using a low thrust engine
| **S2: Clifford algebras, Clifford analysis and their applications**
  - Chair: Joao Morais
  - New Aspects on Moisil-Teodorescu System
  - Unraveling of equations in quaternionic and osp(4|2) monogenicity
  - Uncertainty Principles For The Clifford-Fourier transform

### Keynote talks

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Speaker / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30-10.10</td>
<td>A300</td>
<td>Chair: Prof. Gangaram S. Ladde</td>
</tr>
<tr>
<td>8.30-9.20</td>
<td></td>
<td>Prof. Milan STEHLIK: Extracting Fractal and extreme aspects from series</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of random dynamical systems</td>
</tr>
<tr>
<td>9.20-10.10</td>
<td></td>
<td>Prof. Metin DEMIRALP: Enhanced multivariance products representation (empr)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>from scratch to its most recent status</td>
</tr>
</tbody>
</table>

### Coffee break

<table>
<thead>
<tr>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.10-10.40</td>
</tr>
</tbody>
</table>

### Parallel sessions

#### Room A300
**M2: Engineering Mathematics: wavelets, fractals, networks and matrices in computational electromagnetics, antennas, fluid dynamics and biomatics.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Emanuel Guariglia: Fractional derivative of the Zeta Functions and Functional</td>
</tr>
<tr>
<td></td>
<td>Equations</td>
</tr>
<tr>
<td>10.05-11.30</td>
<td>Sergei Silvestrov: Iterated function systems, wavelets, fixed points, fractal</td>
</tr>
<tr>
<td></td>
<td>attractors and commutative and non-commutative families of operators</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Jawali Channabasappa Umavathi: Double diffusive convection in a Porous Medium</td>
</tr>
<tr>
<td></td>
<td>Layer Saturated with an Oldroyd Nanofluid</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Mahesha Narayana: Thermocapillary flow of a non-Newtonian nanoliquid film</td>
</tr>
<tr>
<td></td>
<td>over an unsteady stretching sheet</td>
</tr>
</tbody>
</table>

#### Room A400
**M5: Nonlinear Problems of Guidance, Navigation and Control**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Sergey Ulyanov: A VLF-based technique for analysis and synthesis of nonlinear</td>
</tr>
<tr>
<td></td>
<td>digital control systems and its applications</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Sergey Ulyanov: Automation of Multi-Agent Control for Complex Dynamic Systems</td>
</tr>
<tr>
<td></td>
<td>in Heterogeneous Computational Network</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Roman Kabibullin: Nonlinear Modeling and Study for Control of the Research</td>
</tr>
<tr>
<td></td>
<td>Spacecraft with Solar Sail</td>
</tr>
</tbody>
</table>

#### Room C21
**M4: Modern approximation methodologies for functions and arrays in science and engineering computations**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Nasir Abdülbaki Baykara: Overflow Removal from the Images of an Infinite</td>
</tr>
<tr>
<td></td>
<td>Linear Combination Over a Basis Function Set Under the Quantum System</td>
</tr>
<tr>
<td></td>
<td>Hamiltonian to Evaluate the System’s Spectral Entities</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Berfin Kalay: A Wavefunction Free Exponential Function Expectation Value</td>
</tr>
<tr>
<td></td>
<td>Determination Based ODE Construction and Solution to Get Spectral Entities</td>
</tr>
<tr>
<td></td>
<td>For the Systems Having Coulombic Attractions</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Cosar Gozkirmizi: Squarification of Telescope Matrices in the Probabilistic</td>
</tr>
<tr>
<td></td>
<td>Evolution Theoretical Approach to the Two Particle Classical Mechanics as an</td>
</tr>
<tr>
<td></td>
<td>Illustrative Implementation</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Süha Tuna: A Novel Compression Algorithm for Hyperspectral Images Using Enhanced</td>
</tr>
<tr>
<td></td>
<td>Multivariance Products Representation</td>
</tr>
</tbody>
</table>

#### Room C01
**S1: Analysis of Fractional Differential, Integral and Difference equations with Applications**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker / Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Amit Setia: Haar based numerical solution of Fredholm-Volterra fractional</td>
</tr>
<tr>
<td></td>
<td>integro-differential equation with nonlocal boundary conditions</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Belmekhi Firouz: Integral equation in functional spaces / Generalized</td>
</tr>
<tr>
<td></td>
<td>Lebesgue space $\mathbb{R}^d$</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Abdon Atangana: New trends on Fractional operators and Applications</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Cemil Tunc: On qualitative properties in nonlinear Volterra integro-differential</td>
</tr>
<tr>
<td></td>
<td>equations with delay</td>
</tr>
</tbody>
</table>

WEDNESDAY – July 6
### Room C02  
**S15: Stochastic Processes and Fields in Engineering**  
*Chair: Anatoliy Malyarenko*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Anatoliy Malyarenko</td>
<td>Spectral expansions of tensor-valued random fields (invited talk)</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Nikolai Leonenko</td>
<td>Fractional Poisson Random Fields</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Ying Ni</td>
<td>Approximation methods of European option pricing in multiscale stochastic volatility model</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Dmitri Silvestrov</td>
<td>Randomly Stopped Stochastic Processes</td>
</tr>
<tr>
<td>12.20-12.40</td>
<td>Anatoliy Malyarenko</td>
<td>Anatoliy Malyarenko and Martin Ostoj-Starzewski. Random fields related to the symmetry classes of second-order symmetric tensors</td>
</tr>
</tbody>
</table>

### Room C24  
**S6: Integral Equations and Their Applications in Science and Technology**  
*Chair: Jozef Banas*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.30</td>
<td>Luis Castro</td>
<td>On the solvability of a class of convolution integral equations with symmetry</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Rita Guerra</td>
<td>Fourier cosine and Fourier sine integral equations and their convolutions</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Anabela Silva</td>
<td>Invertibility of Wiener-Hopf plus Hankel integral equations</td>
</tr>
</tbody>
</table>

### Room C27  
**S11: Nonlinear Engineering Problems with Singularities**  
*Chair: Marat Dosaev*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Anton Putov</td>
<td>Electromechanical imitator of antilock braking modes of wheels with pneumatic tire and its application for the runways friction coefficient measurement</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Qingchun Yang</td>
<td>A Predication model for combustion modes of the scramjet-powered aerospace vehicle based on the nonlinear features of the isolator flow field</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Mehmet Pakdemirli</td>
<td>Nonlinear Mathematical Models for Paths Maintaining Constant Normal Accelerations</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Çiğdem A. Bektas</td>
<td>On a new space of defined by using Orlicz functions</td>
</tr>
</tbody>
</table>

12.20-14.00  
**lunch break**

14.00-16.05  
**Parallel sessions**

### Room A300  
**M2: Engineering Mathematics: wavelets, fractals, networks and matrices in computational electromagnetics, antennas, fluid dynamics and biomathematics.**  
*Chair: Sergei Silvestrov*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Prashant G. Metri</td>
<td>Lie group analysis for MHD boundary layer flow and heat transfer over stretching sheet with viscous dissipation and uniform heat source</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Prashant G. Metri</td>
<td>Hypergeometric Steady Solution of Hydromagnetic Nano Liquid Film Flow over an Unsteady Stretching Sheet</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Brice Montagné</td>
<td>Influence of nozzle shape, Reynolds number and nozzle-to-plate distance on flow characteristics, wall shear rate and mass transfer generated by submerged round impinging jets</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Pierre Bragança</td>
<td>Passive control of supplied air jets for thermal comfort improvement in ventilated spaces</td>
</tr>
</tbody>
</table>

### Room A400  
**M5: Nonlinear Problems of Guidance, Navigation and Control**  
*Chair: Yevgeny Somov*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Alexander Kozlov</td>
<td>An analytic approach to the relation between GPS attitude determination accuracy and antenna configuration geometry</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Tatyana Somova</td>
<td>Attitude guidance and simulation with animation of a land-survey satellite motion</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Andrey Shevchenko</td>
<td>Nonlinear Algorithm for Navigation of a Moving Object in Magnetic Field</td>
</tr>
</tbody>
</table>

### Room C21  
**M4: Modern approximation methodologies for functions and arrays in science and engineering computations**  
*Chair: Metin Demiralp*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Zeynep Gündoğar</td>
<td>Transformational Tridiagonal Folmat Enhanced Multivariance Products Representation (TTFEMPR) Possibilities in Multivariate Array Decomposition</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Ayla Okan</td>
<td>A TMEMPR Based Approach for Transforming Arrowheaded Matrices to Tridiagonal Forms</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Ayşegül Karcılı</td>
<td>High Dimensional Model Representation (HDMR) with Clustering for Image Retrieval</td>
</tr>
<tr>
<td>Time</td>
<td>Speaker(s)</td>
<td>Title</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14.00-14.25</td>
<td>Sowmya Muniswamy</td>
<td>Generalized Monotone Method and Numerical Approach for Coupled Reaction Diffusion Systems</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Amit Setia</td>
<td>Numerical method to solve cauchy type singular integral equation with error bounds</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Berikbol Torebek</td>
<td>On a nonlinear fractional boundary value problem</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Suaires Clovis Oukouomi Noutchie</td>
<td>Global solvability of a class of fractional integro-differential equations with applications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>S14: Statistics and Modeling</td>
<td>Polychronis Economou</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Ilia Frenkel</td>
<td>Importance assessment of aging multi-state water cooling system by LZ-transform method</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Orietta Nicolis</td>
<td>Spatio-temporal modelling for assessing air pollution in Santiago of Chile</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Klaus Poetzeltberger</td>
<td>Estimating The Quantization Dimension of Distributions</td>
</tr>
<tr>
<td>15.40-16.05</td>
<td>Sabri Salima</td>
<td>Recognition of human activities from situation based model</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Room C24</td>
<td>Alberto Simões</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>M. Manuela Rodrigues</td>
<td>Some new properties and applications of a fractional Fourier transform</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Ahu Ercan</td>
<td>Stability Problem for Singular Dirac Equation System on Finite Interval</td>
</tr>
<tr>
<td>15.40-16.05</td>
<td>Sinan Ercan</td>
<td>The dual spaces of new lambda^m-sequence spaces and their matrix maps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>S3: Control and Estimation: Theory and Applications</td>
<td>Tuan Duong</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Endre Nagy</td>
<td>Model Predictive Control: a new approach</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Stephen Stubberud</td>
<td>Submarine Harbor Navigation Using Image Data</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Zoleikha Abdollahi Biron</td>
<td>Observer based fault diagnostics for networked control systems in presence of delay</td>
</tr>
<tr>
<td>15.40-16.05</td>
<td>Allen Stubberud</td>
<td>A Unified Kalman Filter</td>
</tr>
</tbody>
</table>

16.30-18.00  AQUARIUM visit

20.00-       BANQUET - Restaurant Océanides/Hotel Mercure
<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Event</th>
<th>Speaker(s)</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9.30-10.20</strong></td>
<td>Room A300</td>
<td>Keynote talks</td>
<td>Chair: Dr. Svetlin Georgiev</td>
<td>Outline of the new era in mathematics and its applications</td>
</tr>
<tr>
<td>8.40-9.30</td>
<td>Room A400</td>
<td></td>
<td>Prof. Ruggero Maria SANTILLI</td>
<td>Novel non-linear phenomena exhibited by interacting structural members</td>
</tr>
<tr>
<td>9.30-10.20</td>
<td>Room A400</td>
<td></td>
<td>Prof. Jan AWREJCEWICZ</td>
<td></td>
</tr>
<tr>
<td><strong>10.30-12.10</strong></td>
<td>Room A300</td>
<td>Parallel sessions</td>
<td>Chair: Prof. Stefan Balint</td>
<td>The influence of time dependent flight and maneuver velocities and elastic or viscoelastic flexibilities on aerodynamic and stability derivatives</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room A400</td>
<td></td>
<td>Prof. Harry HILTON</td>
<td>Stochastic Partial Differential Equations: Modeling, Methods and Applications</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room A400</td>
<td></td>
<td>Prof. Gangaram S. LADDE</td>
<td></td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>Room A400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>Room A400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>Room A400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10.30-12.10</strong></td>
<td>Room C21</td>
<td>M3: Mathematical modeling, numerical algorithms and aerospace techniques</td>
<td>Chair: Alexandru Dumitrache</td>
<td>Lyapunov stability of a spatially developing constant 2D gas flow</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room C21</td>
<td></td>
<td>Robert Szabo</td>
<td>Non Lyapunov stability of the constant spatially developing 1-D gas flow in presence of solutions having strictly positive exponential growth rate</td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>Room C21</td>
<td></td>
<td>Agneta Balint</td>
<td>Numerical Analysis of NREL VI Wind Turbine Rotor Performance</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>Room C21</td>
<td></td>
<td>Andreea Cernat</td>
<td>Aerodynamics investigations of a disc-wing UAV</td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>Room C21</td>
<td></td>
<td>Florin Frunzulica</td>
<td></td>
</tr>
<tr>
<td><strong>10.30-12.10</strong></td>
<td>Room C24</td>
<td>M6: Studies on Mathematical Methods and Models in Engineering, Sciences and Technology</td>
<td>Chair: Frederic Muttin</td>
<td>Modification of perturbation-iteration method to solve different types of nonlinear differential equations</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room C24</td>
<td></td>
<td>Necdet Bildik</td>
<td>A new version of the generalized F-expansion method and its applications</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>Room C24</td>
<td></td>
<td>Simge Öztuşçu</td>
<td>Determining Critical Load in the Multispan Beams with the Nonlinear Model</td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>Room C24</td>
<td></td>
<td>Duygu Dönmez Demir</td>
<td></td>
</tr>
<tr>
<td><strong>10.30-12.10</strong></td>
<td>Room C01</td>
<td>M1: Functional Analysis and Related Topics with Applications</td>
<td>Chair: Lars-Erik Persson and Maria Alessandra Ragusa</td>
<td>Homogenization and thin film flow</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room C01</td>
<td></td>
<td>Peter Wall</td>
<td>Nonlinear research of an image motion stabilization system embedded in a space land-survey telescope</td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>Room C01</td>
<td></td>
<td>Afonso Fernando Tsandzana</td>
<td>The concept of very weak multiscale convergence and some applications to homogenization of evolution problems</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>Room C01</td>
<td></td>
<td>Anders Holmborn</td>
<td>SIO in non-standard spaces</td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>Room C01</td>
<td></td>
<td>Evgeniya Burtseva</td>
<td></td>
</tr>
<tr>
<td><strong>10.30-12.10</strong></td>
<td>Room C02</td>
<td>M5: Nonlinear Problems of Guidance, Navigation and Control</td>
<td>Chair: Yevgeny Somov</td>
<td>Homogenization of a mathematical model of thin film flow</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room C02</td>
<td></td>
<td>Yevgeny Somov</td>
<td>Time-Optimal Control of the Spacecraft Trajectories in the Earth-Moon System</td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>Room C02</td>
<td></td>
<td>Maxim Fain</td>
<td>Estimation of Land Remote Sensing Satellites Operational Efficiency</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>Room C02</td>
<td></td>
<td>Alexander Kuchero</td>
<td>Nonlinear modeling of an aerospace object dynamics</td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>Room C02</td>
<td></td>
<td>Igor Davydov</td>
<td></td>
</tr>
<tr>
<td><strong>10.30-12.10</strong></td>
<td>Room C24</td>
<td>S16: Modelling, Simulation and Optimization in Engineering</td>
<td>Chair: Amer Farhan Rafique</td>
<td>Atmospheric icing Intensity on Slowly Rotating Hexagonal Prism and Cylinder with Fins</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room C24</td>
<td></td>
<td>Umair Najeeb Mughal</td>
<td>Models and finite element approximations for interacting nanosized piezoelectric bodies and acoustic medium</td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>Room C24</td>
<td></td>
<td>Andrey Nasedkin</td>
<td>Optimization of Wall Thickness and Lay-Up for the Shell-Like Composite Structure Loaded by Non-Uniform Pressure Field</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>Room C24</td>
<td></td>
<td>Sergey Shevtsov</td>
<td>A Survey of Multidisciplinary Design and Optimization in UAVs</td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>Room C24</td>
<td></td>
<td>Amer Farhan Rafique</td>
<td></td>
</tr>
<tr>
<td><strong>10.30-12.10</strong></td>
<td>Room C24</td>
<td>S18: Recent Integral Transforms Advances (RITA)</td>
<td>Chair: Fethi Bin Muhammad Belgacem</td>
<td>Theoretical investigations of Sumudu transform</td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room C24</td>
<td></td>
<td>Fethi Bin Muhammad Belgacem</td>
<td>Applications of the Sumudu Transform to Euler Numbers and Polynomials</td>
</tr>
<tr>
<td>10.55-11.20</td>
<td>Room C24</td>
<td></td>
<td>Bokhari Ahmed</td>
<td>Sumudu Treatment of Kravchuk Polynomials of Order 8</td>
</tr>
<tr>
<td>11.20-11.45</td>
<td>Room C24</td>
<td></td>
<td>Ahmad Alenezi</td>
<td>Applications of the Sumudu Transform to Bernoulli Numbers and Polynomials</td>
</tr>
<tr>
<td>11.45-12.10</td>
<td>Room C24</td>
<td></td>
<td>Bokhari Ahmed</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Location</td>
<td>Session</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.30-10.55</td>
<td>Room C27</td>
<td>S9: New Era in Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.55-11.20</td>
<td></td>
<td>Chair: Svetlin Georgiev</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.20-11.45</td>
<td></td>
<td>Some aspects of iso-differential calculus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.45-12.10</td>
<td></td>
<td>Thomas Vougiouklis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.10-14.00</td>
<td>Room A300</td>
<td>Lunch break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.00-14.50</td>
<td>Room A400</td>
<td>Keynote talks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-15.25</td>
<td></td>
<td>Chair: Prof. Harry H. Hilton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.25-15.50</td>
<td></td>
<td>Dr. Jiro NAKAMICHI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
<td>Some Considerations on Prandtl Lifting-Line Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
<td>Chair: Prof. Vladimir V. Kulish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-16.40</td>
<td>Room A400</td>
<td>Experimental implications of Bochner-Levy-Riesz diffusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-16.15</td>
<td>Room A300</td>
<td>M3: Mathematical modeling, numerical algorithms and aerospace techniques</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-15.25</td>
<td></td>
<td>Chair: Florin Frunzulica</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.25-15.50</td>
<td></td>
<td>Dina Razafindralandy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
<td>Alexandru Dumitrache</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
<td>Adriana Tanasie</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-16.40</td>
<td>Room A400</td>
<td>M6: Studies on Mathematical Methods and Models in Engineering, Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-15.25</td>
<td></td>
<td>Chair: Necdet Bildik</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.25-15.50</td>
<td></td>
<td>Ali Demir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
<td>Sinan Deniz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
<td>Frédéric Muttin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-16.40</td>
<td>Room C21</td>
<td>M1: Functional Analysis and Related Topics with Applications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-15.25</td>
<td></td>
<td>Chair: Natasha Samko and Lars-Erik Persson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.25-15.50</td>
<td></td>
<td>Lars-Erik Persson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
<td>Staffan Lundberg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
<td>Natasha Samko</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-15.25</td>
<td>Room C01</td>
<td>S5: Delay Differential Equations Models in Life Sciences, Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.25-15.50</td>
<td></td>
<td>Chair: Andrei Halanay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
<td>Rodica Radulescu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
<td>Mihaela Neamtu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.00-15.25</td>
<td></td>
<td>Carmen-Anca Safta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
<td>Doina Candea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
<td>Dynamics of complex-valued fractional-order neuronal networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.25-15.50</td>
<td></td>
<td>The stability analysis of a hypothalamic pituitary adrenal axis model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.50-16.15</td>
<td></td>
<td>Stability analysis for a delay differential equations model of a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.15-16.40</td>
<td></td>
<td>Parameter estimation and sensitivity analysis for a mathematical model</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Room C02**  
**S13: Soliton Theory and Integrability in Mathematical Physics**  
Chair: Omer Unsal  

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.00-15.25</td>
<td>Melike Kaplan</td>
<td>The Auto- Bäcklund transformations for the (2 + 1)-dimensional Boiti-Leon-Manna-Pempinelli equation</td>
</tr>
<tr>
<td>15.25-15.50</td>
<td>Burcu Ayhan</td>
<td>Multiple Scales Analysis and Travelling Wave Solutions for KdV Type Nonlinear Evolution Equations</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Ömer Unsal</td>
<td>Singular 1-solution of the nonlinear variable-coefficient diffusion–reaction and mKdV equations</td>
</tr>
</tbody>
</table>

**Room C24**  
**S8: Mathematical Problems in Combustion and Fire Science**  
Chair: Vasily Novozhilov  

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.00-15.25</td>
<td>Jean-Louis Consalvi</td>
<td>Modelling Emission Turbulence-Radiation Interaction by using a Hybrid Flamelet/Stochastic Eulerian Field Method</td>
</tr>
<tr>
<td>15.25-15.50</td>
<td>Vladimir Kulish</td>
<td>Application of fractional calculus to modelling transient combustion of solid propellants</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Vasily Novozhilov</td>
<td>Fire Suppression as a Thermal Implosion</td>
</tr>
</tbody>
</table>

**Room C27**  
**S9: New Era in Mathematics**  
Chair: Andrew Beckwith  

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.00-15.25</td>
<td>Jan Rak</td>
<td>Ultra-relativistic heavy ion collisions at the Large Hadron Collider era</td>
</tr>
<tr>
<td>15.25-15.50</td>
<td>Raul Falcon</td>
<td>The influence of Latin squares autotopisms on the rocket propellant problem and the radar detection experiment</td>
</tr>
<tr>
<td>15.50-16.15</td>
<td>Simone Beghella Bartoli</td>
<td>Apparent need of antimatter galaxies for the stability of the universe</td>
</tr>
<tr>
<td>16.15-16.40</td>
<td>Achilles Dramalidis</td>
<td>On the iso-hyper-representation theory</td>
</tr>
</tbody>
</table>

16.40-17.00  
coffee break

17.00-19.05  
Parallel sessions

**Room A300**  
**M3: Mathematical modeling, numerical algorithms and aerospace techniques**  
Chair: Alexandru Dumitrache  

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.25</td>
<td>Sergey Chernyakin</td>
<td>Modelling of delamination growth in laminated plates using cohesive zone model techniques</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>Andreea Cernat</td>
<td>Numerical Study of Aerodynamic Effects on Road Vehicles Lifting Surfaces</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>Andrei Kolyshkin</td>
<td>Stability of shallow flows: a weakly nonlinear approach</td>
</tr>
</tbody>
</table>

**Room A400**  
**S4: Control of nonlinear systems under deterministic and stochastic loads**  
Chair: Diego Colon  

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.25</td>
<td>William McEneaney</td>
<td>Stationary Action and Hamilton-Jacobi Theory</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>Somasundar Kannan</td>
<td>Nonlinear Model Predictive Control for Cooperative Control of Space Robots</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>Attila Bueno</td>
<td>Mathematical modeling of a Bridge Crane</td>
</tr>
<tr>
<td>18.15-18.40</td>
<td>Clivaldo Oliveira</td>
<td>Damage propagation on a non-ideal vibrating system, with fractional spring and damping</td>
</tr>
<tr>
<td>18.40-19.05</td>
<td>Hassan Elfatih</td>
<td>Computational Analysis of Unmanned Aerial Vehicle (UAV)</td>
</tr>
</tbody>
</table>

**Room C21**  
**M1: Functional Analysis and Related Topics with Applications**  
Chair: Natasha Samko and Maria Alessandra Ragusa  

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.25</td>
<td>Maria Alessandra Ragusa</td>
<td>Perturbation methods for nonlinear elliptic problems</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>Evgeniya Burtsева</td>
<td>Elliptic PDE, and SIO in non-standard spaces</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>Vladimir Rabinovich</td>
<td>On spectral properties and invertibility of some operators of Mathematical Physics</td>
</tr>
<tr>
<td>18.15-18.40</td>
<td>Katsuo Matsuoka</td>
<td>Several estimates for generalized fractional integrals on $\lambda$-$\text{CMO}$ spaces</td>
</tr>
<tr>
<td>18.40-19.05</td>
<td>Andrea Scapellato</td>
<td>Regularity of solutions to linear elliptic equations in Generalized Morrey Spaces</td>
</tr>
</tbody>
</table>

**Room C01**  
**S5: Delay Differential Equations Models in Life Sciences, Engineering and Economics**  
Chair: Mihaela Neamtu  

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.25</td>
<td>Irina Badratrexi</td>
<td>Stability and oscillations in a CML model</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>Oana Brandibur</td>
<td>Nonlinear dynamics in a fractional-order Morris-Lecar neuronal model</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>Aleksandr Shvets</td>
<td>Influence of Delay on Dynamical Behaviour of Nonideal Pendulum Systems</td>
</tr>
<tr>
<td>Time</td>
<td>Speaker</td>
<td>Title</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>18.15-18.40</td>
<td>Rodica Radulescu</td>
<td>A comparison between the stability properties in a DDEs model for leukemia and the modified fractional counterpart</td>
</tr>
<tr>
<td>18.40-19.05</td>
<td>Olufemi Adeyinka Adesina</td>
<td>New results on the stability, boundedness and periodic solutions of some third-order delay nonlinear differential equations with multiple deviating arguments</td>
</tr>
</tbody>
</table>

**Room C02**

**S13: Soliton Theory and Integrability in Mathematical Physics**

*Chair: Omer Unsal*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.25</td>
<td>Omer Unsal</td>
<td>The (G'/G)-expansion method for the nonlinear time fractional differential equations</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>Burcu Ayhan</td>
<td>A Family of Exact Travelling Wave Solutions of ((2+1))-dimensional KdV4 Equation</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>Melike Kaplan</td>
<td>Conservation laws and exact solutions of Boussinesq-Burger equation</td>
</tr>
<tr>
<td>18.15-18.40</td>
<td>Omer Unsal</td>
<td>Soliton solutions and other solutions to a nonlinear fractional differential equations</td>
</tr>
</tbody>
</table>

**Room C24**

**S8: Mathematical Problems in Combustion and Fire Science**

*Chair: Vasily Novozhilov*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.25</td>
<td>Vladimir Kulish</td>
<td>On the possibility to develop an advanced non-equilibrium model of depressurisation in two-phase fluids</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>Dominique Morvan</td>
<td>How simulating wildland fires: the multiphase approach ?</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>Vasily Novozhilov</td>
<td>Effects of Initial and Boundary Conditions on Thermal Explosion Development</td>
</tr>
</tbody>
</table>

**Room C27**

**S9: New Era in Mathematics**

*Chair: Svetlin Georgiev*

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00-17.25</td>
<td>Simone Beghella Bartoli</td>
<td>Trajectories of antimatter asteroids in our Solar system</td>
</tr>
<tr>
<td>17.25-17.50</td>
<td>Achilles Dramalidis</td>
<td>Helix hopes in Lie-Santilli addmissibility</td>
</tr>
<tr>
<td>17.50-18.15</td>
<td>Achilles Dramalidis</td>
<td>Small Hypernumbers</td>
</tr>
</tbody>
</table>
### Keynote talks

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30-10.10</td>
<td>Room A400</td>
<td>Chair: Prof. Yevgeny Somov</td>
</tr>
<tr>
<td>8.30-9.20</td>
<td>Dr. Takeshi TSUCHIYA</td>
<td>Research on Advanced Flight Control System Using UAV</td>
</tr>
<tr>
<td>9.20-10.10</td>
<td>Dr. Toshiya NAKAMURA</td>
<td>Operational Loads Identification for Aerospace Structures</td>
</tr>
<tr>
<td>10.10-10.40</td>
<td>coffee break</td>
<td></td>
</tr>
</tbody>
</table>

### Parallel sessions

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-12.20</td>
<td>Room A300</td>
<td>M3: Mathematical modeling, numerical algorithms and aerospace techniques</td>
</tr>
<tr>
<td>10.40-11.05</td>
<td>Andrey Nasedkin</td>
<td>Modeling of nanostructured porous thermoelastic composites with surface effects</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Sébastien Kolb</td>
<td>Nonlinear analysis and control of a aircraft in the neighbourhood of deep stall</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Sergey Chernyakin</td>
<td>Finite element analysis of panels with surface cracks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-12.20</td>
<td>Room A400</td>
<td>M6: Studies on Mathematical Methods and Models in Engineering, Sciences and Technology</td>
</tr>
<tr>
<td>10.40-11.05</td>
<td>Hasan Bulut</td>
<td>Application of the Modified Exponential Function Method to the Cahn-Allen Equation</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Hassan Khawaja</td>
<td>Analytical Study of Sandwich Structures using Euler-Bernoulli Beam Equation</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Olivier Millet</td>
<td>Solutions of Young-Laplace equation for capillary bridges and stability analysis</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Haci Mehmet Baskonus</td>
<td>New Complex and Hyperbolic Function Solutions to the Generalized Double Combined Sinh-Cosh-Gordon Equation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-12.20</td>
<td>Room C21</td>
<td>S2: Clifford algebras, Clifford analysis and their applications</td>
</tr>
<tr>
<td>10.40-11.05</td>
<td>Isabel Cacao</td>
<td>Recurrence relations for hypercomplex orthogonal polynomials</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Maria Irene Falcão</td>
<td>Computational aspects of quaternionic polynomials</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Helmuth Malonek</td>
<td>Constructing multivariate polynomials in function theories over non-commutative algebras</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Eckhard Hitzer</td>
<td>Double Conformal Space Time Algebra</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-12.20</td>
<td>Room C01</td>
<td>S7: Inverse Problems: Theory and Application to Science and Engineering</td>
</tr>
<tr>
<td>10.40-11.05</td>
<td>Herb Kunze</td>
<td>An inverse problem for a system of steady-state reaction-diffusion equations acting on a perforated domain</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Marius Stoia-Djeska</td>
<td>Surface Pressure Sensitivities for the Measurement of the Mach Number and Angle of Attack of Supersonic Flows</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Mourad Oulghelou</td>
<td>Addaptive model reduction approach in optimal control applied to solve Transfer Equations</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Davide La Torre</td>
<td>IFSM Fractal Image Compression, Sparsity, and Total Variation Minimization: A Multiobjective Approach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Room C02</td>
<td>S17: New Methods and Applications in Aeroelasticity and Structural Mechanics/Dynamics</td>
</tr>
<tr>
<td>10.40-11.05</td>
<td>Hitoshi Arizono</td>
<td>Simulation of Transonic Limit Cycle Oscillations using Nonlinear Aerodynamic Modeling</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Takashi Atobe</td>
<td>Stabilizing effects on 2D channel flow due to longitudinal wall oscillation</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Masato Tamayama</td>
<td>Reduced Order Modeling of Aeroelasticity Analysis for a Wing under Static Deformation Effect</td>
</tr>
<tr>
<td>11.55-12.20</td>
<td>Toshiya Nakamura</td>
<td>Dynamic Load Estimation for a Beam using Central-Difference Scheme and FEM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Room C24</td>
<td>S4: Control of nonlinear systems under deterministic and stochastic loads</td>
</tr>
<tr>
<td>10.40-11.05</td>
<td>Somasundar Kannan</td>
<td>Hierarchical Control of Aerial Manipulation Vehicle</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Umair Najeeb Mughal</td>
<td>State of the Art Review of Semi-Active Control for Magnetorheological Dampers</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Diego Colon</td>
<td>Polynomial Chaos and Lie Groups: Application in a Gyroscopic System with Uncertainties</td>
</tr>
</tbody>
</table>
Room C27  S9: New Era in Mathematics  
Chair: Svetlin Georgiev

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.40-11.05</td>
<td>Erik Trel</td>
<td>The Cube in Art and Mathematics</td>
</tr>
<tr>
<td>11.05-11.30</td>
<td>Andrew Beckwith</td>
<td>How Can One Look at if Gravitational Wave Generation Has Semi Classical Features, and What This Implies About Compression of Vacuum Wave States, and Coherence/de Coherence?</td>
</tr>
<tr>
<td>11.30-11.55</td>
<td>Stein E. Johansen</td>
<td>Mathematics of Space vs. Spaces of Hadronic Mathematics</td>
</tr>
</tbody>
</table>

12.20-14.00 lunch break

14.00-16.05 Parallel sessions

Room A300  M3: Mathematical modeling, numerical algorithms and aerospace techniques  
Chair: Alexandru Dumitrache

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Mohamed Alahyane</td>
<td>Numerical study of a finite volume scheme for incompressible Navier-Stokes equations based on SIMPLE-family algorithms.</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Sergey Chernyakin</td>
<td>Fatigue life prediction for expansion bellows</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Irina Andrei</td>
<td>Analysis of control system responses for aircraft stability and efficient numerical techniques for real-time simulations</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Irina Andrei</td>
<td>Performance analysis and dynamic modeling of a single-spool turbojet engine</td>
</tr>
</tbody>
</table>

Room A400  M6: Studies on Mathematical Methods and Models in Engineering, Sciences and Technology  
Chair: Hasan Bulut

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Hasan Bulut</td>
<td>Dark Soliton Solutions of Klein-Gordon-Zakharov Equation in (1+2) Dimensions</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Muneever Tuz</td>
<td>Extended (G'/G)-Expansion Method for non linear partial equations</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Muhammed Tuncay Gencoglu</td>
<td>Numerical simulations to the nonlinear model of interpersonal Relationships with time fractional derivative</td>
</tr>
</tbody>
</table>

Room C21  S2: Clifford algebras, Clifford analysis and their applications  
Chair: Helmut Malonek

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Fernando Miranda</td>
<td>Quaternionic polynomials with multiple zeros: a numerical point of view</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Caterina Stoppato</td>
<td>Zeros and singularities of slice regular functions over alternative *-algebras</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Joao Morais</td>
<td>Towards a quaternionic function theory linked with the Zernike spherical polynomials</td>
</tr>
</tbody>
</table>

Room C01  S7: Inverse Problems: Theory and Application to Science and Engineering  
Chair: Herb Kunze

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Davide La Torre</td>
<td>Total Variation Minimization for Measure-valued Images</td>
</tr>
<tr>
<td>14.50-15.15</td>
<td>Bryson Boreland</td>
<td>Signal processing with Circle Inversion Map Systems</td>
</tr>
<tr>
<td>15.15-15.40</td>
<td>Michael Yodzis</td>
<td>Collage-based Approaches for Elliptic Partial Differential Equations Inverse Problems</td>
</tr>
</tbody>
</table>

Room C02  S19: Wavelets Analysis, Fractional Advances and Applications  
Chair: Fethi Bin Muhammad Belgacem

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Fethi Bin Muhammad Belgacem</td>
<td>Sumudu transform of Dumont bimodular Jacobi elliptic functions for arbitrary powers</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Nabila Nagid</td>
<td>New approach for accelerating the non linear Schwarz iterations</td>
</tr>
</tbody>
</table>

Room C24  S4: Control of nonlinear systems under deterministic and stochastic loads  
Chair: Atilla Bueno

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00-14.25</td>
<td>Atilla Bueno</td>
<td>Study of effects due to elimination and resources downgrade of sensors in control techniques applied to a two-wheeled inverted pendulum</td>
</tr>
<tr>
<td>14.25-14.50</td>
<td>Diego Colon</td>
<td>Automotive Computational Model under Stochastic Disturbances</td>
</tr>
</tbody>
</table>

16.00- CLOSING CEREMONY

END OF CONFERENCE
The conference proceedings will be published by the American Institute of Physics at the end of 2016. We advise you to carefully read the instructions provided on the conference website, at the link “Proceedings”, to prepare your paper according to the strict AIP guidelines and to submit it by e-mail no later than July 31, 2016.

Please note that in order to have the contribution included in the conference proceedings, the accepted paper must be presented by a registered author during the conference. In case of unavoidable circumstances, the author should get permission from the general organizer to make other arrangements, such as sending a poster presentation.

One regular registration will cover the publication of one accepted paper. Each additional accepted paper associated with the same registration will be subject to a mandatory publication fee of 100 EUR.

AIP Conference Proceedings articles are indexed in Thomson Reuters’ Index to Scientific and Technical Proceedings (ISTP) and can be accessed in their Web of Science database directly with AIP CONF PRO as the publication name. In addition, AIP Conference Proceedings are indexed in: Astrophysics Data System (ADS); Chemical Abstracts Service (CAS); Crossref; EBSCO Publishing; Electronic Library Information Navigator (ELIN), Sweden; Elsevier – SCOPUS; International Atomic Energy Agency (IAEA); Thomson Reuters (ISI); SWETS.

All registered participants will receive free one-year access to the full Online Conference Proceedings through the AIP website.

Mathematics in Engineering, Science and Aerospace - MESA
The transdisciplinary international journal
ISSN 2041 - 3165 (print), 3173 (online),
Website: http://www.journalmesa.com

Conference participants are invited to submit the extended version of their proceedings paper to the journal as an “invited paper”. We encourage you to submit the paper through the journal website; alternatively you can also send the paper by e-mail: seenithi@gmail.com.

All papers will be published free of charge.
World Congress: ICNPAA 2016 has been organized with the support of:

American Institute of Aeronautics and Astronautics

International Federation of Information Processing

American Institute of Physics

International Federation of Nonlinear Analysts

University of La Rochelle

Laboratoire des Sciences de l'Ingénieur pour l'Environnement.

Association Française de Mécanique

Aquitaine-Limousin-Poitou-Charentes region

Charente-Maritime department