

## SWIM 2013 - PROGRAM

**Wednesday June 5**

### Session 1 – CONTROL

**Président :**

horaires	Titre	Intervenants
09 h 00 – 10 h 00	Registration and Coffee	
10 h 00 – 10 h 05	Welcome – Opening SWIM 2013	Luc Jaulin
10 h 05 – 10 h 30	7) Experimental Validation of Interval Sliding Mode Observers for Nonlinear Systems with Bounded Measurement and Parameter Uncertainty	Luise Senkel (speaker), Andreas Rauh, and Harald Aschemann ( Luise.Senkel@uni-rostock.de, Andreas.Rauh@uni-rostock.de, Harald.Aschemann@uni-rostock.de) University of Rostock, Rostock, Germany
10 h 30 – 10 h 55	8) Interval Methods for the Implementation of Real-Time Capable Robust Controllers for Solid Oxide Fuel Cell Systems	Andreas Rauh (speaker), Luise Senkel, Ekaterina Auer, Harald Aschemann ( ndreas.Rauh@uni-rostock.de, Luise.Senkel@uni-rostock.de, Harald.Aschemann@uni-rostock.de, Auer@inf.uni-due.de) University of Rostock, Rostock, Germany
10 h 55 – 11 h 20	9) An Algorithm Approach for Model Order Reduction of Discrete Time Interval Systems	S. K. Bharadwaj (speaker), D. Kranthi Kumar ( skbharadwaj.2010@gmail.com, kranthi.kumar.eee08@itbhu.ac.in) Department of Electrical Engineering, MANIT, India.
11 h 20 – 11 h 45	2) Model Order Reduction of Interval Systems for Mixed Methods	D. Kranthi Kumar (speaker) ( kranthi.kumar.eee08@itbhu.ac.in) S. K. Nagar ( sknagar.eee@itbhu.ac.in). Department of Electrical Engineering, Indian Institute of Technology (BHU), Varanasi.

**Lunch : 12 h 00 – 13 h 30**

### Session 2 ATTRACTORS

**Président :**

horaires	Titre	Intervenants
14 h 00 - 14 h 45	1) The Lorenz attractor exists	Warwick Tucker ( warwick@math.uu.se), Department of Mathematics, Uppsala University, Sweden
14 h 45 – 15 h 10	3) Outer approximation of attractors using an interval quantization	Luc Jaulin ( luc.jaulin@ensta-bretagne.fr) Lab-STICC, IHSEV, OSM, ENSTA-Bretagne, France.
15 h 10 – 15 h 35	18) Feedback-induced attractors in controlled aeroelastic wing and their detection via interval analysis	Max Demenkov, Institute of Control Sciences, Russian Academy of Sciences, Moscow, Russia demenkov@ipu.ru, max.demenkov@gmail.com

Coffee break : 15 h 35 – 16 h 05

### Session 3 – IMPLEMENTATION

Président :

horaires	Titre	Intervenants
16 h 05 – 16 h 30	17) Numerical reproducibility in HPC: issues in interval arithmetic	Nathalie Revol, Philippe Théveny, INRIA, AriC team, LIP, ENS de Lyon, France Nathalie.Revol@ens-lyon.fr, Philippe.Theveny@ens-lyon.fr
16 h 30 – 16 h 55	26) On Implementing the C++ Interval Library libieeep1788	Marco Nehmeier, Institute of Computer Science, University of Wurzburg, Germany nehmeier@informatik.uni-wuerzburg.de
16 h 55 – 17 h 20	25) Current developments in the nonlinear solver SONIC	Elke Just (just@math.uni-wuppertal.de) Applied Computer Science Group, University of Wuppertal, Germany
17 h 20 – 17 h 45	27) IaTestGen, a unit test generator written in Java for implementations of the upcoming IEEE P1788 interval arithmetic standard	M.Jedich, M.Nehmeier, A.Dallmann, J. Wol von Gudenberg Institute of Computer Science, University of Wurzburg, Germany wol@informatik.uni-wuerzburg.de

Thursday June 6

### Session 4 – LINEAR PROBLEMS

Président :

horaires	Titre	Intervenants
09 h 00 – 09 h 25	22) System Inversion and Actuator Fault Detection and Isolation for Linear Systems: Application to a Nuclear Reactor	Fatma Sallem, Boutaib Dahhou, LAAS-CNRS, France. Zetao Li, University of Guizhou, China Anas Kamoun, University of Sfax, Tunisia. fsallem@laas.fr, anas.kamoun@enis.rnu.tn, dahhou@laas.fr, gzgylzt@yahoo.com
09 h 25 – 09 h 50	23) Subsquares Approach - Simple but Efficient Scheme for Solving OILS	Jaroslav Horacek and Milan Hladik (horacek@kam.mff.cuni.cz, hladik@kam.mff.cuni.cz)
09 h 50 – 10 h 15	10) Polyhedral relaxations for constraint satisfaction problems	Milan Hladik ( milan_hladik@centrum.cz)

Coffee break : 10 h 15 – 10 h 45

### Session 5 – QUANTIFIED PROBLEMS

Président :

horaires	Titre	Intervenants
10 h 45 - 11 h 10	14) Efficient Solution of a Class of Universally Quantified Constraints	Stefan Ratschan (stefan.ratschan@cs.cas.cz) Institute of Computer Science · Academy of Sciences of the Czech
11 h 10 – 11 h 35	19) A branch and prune algorithm for the computation of generalized aspects of parallel robots	S. Caro, D. Chablat, A. Goldsztejn, D. Ishii, C. Jermann Université de Nantes, LINA, France

11 h 35 – 12 h 00	4) Improving Newton Existence Test	Clément Aubry ( clement.aubry@ecole-navale.fr) IRENav, Ecole Navale, Brest, France.
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**Lunch : 12 h 15 – 13 h 30**

## Session 6 - OPTIMIZATION

Président :

horaires	Titre	Intervenants
14 h 00 - 14 h 25	15) On Continuation Methods for Non-Linear Multi-Objective Optimization	B. Martin, A. Goldsztejn, L. Granvilliers, C. Jermann Université de Nantes, LINA, France
14 h 25 – 14 h 50	13) Interval based dynamic simulation in chemical process design	Carlos Perez-Galvan and I. D. L. Bogle ( carlos.galvan.12@ucl.ac.uk) Department of Chemical Engineering, University College London.
14 h 50 - 15 h 15	5) Linear Relaxations in Global Optimization: Combine and Compare Reformulation Methods, Gradient- based Method and Affine Arithmetic.	Jordan Ninin ( jordan.ninin@ensta-bretagne.fr) Lab-STICC, IHSEV, OSM, ENSTA-Bretagne, France.

**Coffee break : 15 h 15 – 15 h 45**

## Session 7 - LOCALIZATION

Président :

horaires	Titre	Intervenants
15 h 45 - 16 h 10	12) Localization confidence domains via set-inversion on short-term trajectory	Vincent Drevelle and Philippe Bonnifait. Heudiasyc, Université de Technologie de Compiègne, France
16 h 10 – 16 h 35	29) Cooperative localization of underwater robots with unsynchronized clocks.	Aymeric Bethencourt, ENSTA-Bretagne, LABSTICC. aymeric.bethencourt@gmail.com
16 h 35 – 17 h 00	16) Phase Based Localization Using Interval Analysis	Mohamed Saad Ibn Seddik (ms.ibnseddik@live.fr) CGG Veritas - ENSTA-Bretagne.
17 h 00 – 17 h 25	20) Set-membership simultaneous localization and mapping with the interval contractor library IBEX	G. Chabert. Ecole des mines de Nantes.

**Diner at Cercle Naval : 19 h 30**

**Friday June 7**

## Session 8 - MATHEMATICS

Président :

horaires	Titre	Intervenants
09 h 00 - 09 h 25	6) Presentation of pseudo-intervals arithmetic. Applications to linear algebra, optimization and set inversion problems	Abdel Kenoufi ( kenoufi@s-core.fr) Scientific Consulting for Research and Engineering (SCORE), Strasbourg, France.
09 h 25 - 09 h 50	30) Classification of stable maps from a simply connected subset of $\mathbb{R}^2$ to $\mathbb{R}^2$	Nicolas Delanoue, Sébastien Lagrange, Université d'Angers, France. nicolas.delanoue@univ-angers.fr
09 h 50 - 10 h 15	28) Determination of Inner and Outer Bounds of Reachable Sets	Francisco C. Rego, frego@isr.ist.utl.pt Elwin de Weerd, Eddy van Oort, Erik-Jan van Kampen, Ant_onio M. Pascoal, QiPing Chu Engenharia Aeroespacial, Portugal.

**Coffee break : 10 h 15 - 10 h 45**

## Session 9 - REACHABILITY

Président :

horaires	Titre	Intervenants
10 h 45 - 11 h 10	24) Level Sets and Controls in a Two Pursuers One Evader Differential Game	S. Le Méneç, EADS/MBDA, Paris, France S.A. Ganebny, S.S. Kumkov, , and V.S. Patsko Institute of Mathematics and Mechanics, Ural Branch of Russian Academy of Sciences, Ekaterinburg, stephane.le-menec@mbda-systems.com, patsko@imm.uran.ru
11 h 10 - 11 h 35	21) Improvements on flow/guard intersection for nonlinear hybrid reachability	M. Maiga (1,2), N. Ramdani (1), L. Trave-Massuyes (2) (1) Université Orléans, PRISME, Bourges, France (2) LAAS, Toulouse, France mmaiga@laas.fr, nacim.ramdani@univ-orleans.fr, louise@laas.fr
11 h 35 - 12 h 00	31) Preview on IOLAVABE - the iSAT-ODE layer around VNODE-LP and bracketing enclosures - a nonlinear reachability library	Andreas Eggers, Nacim Ramdani, Nedialko S. Nedialkov & Martin Franzl Carl von Ossietzky Universitat, Oldenburg, Germany, Université d'Orléans, PRISME, 18020 Bourges, France, McMaster University, Hamilton, Ontario, Canada,

**Lunch : 12 h 15 - 13 h 30**

**End of SWIM 2013**

