

SCHEDULE OF TALKS

DYNAMICS, TOPOLOGY AND COMPUTATIONS

JUNE 18 - 23, 2018, BEDLEWO, POLAND

INTERNATIONAL CONFERENCE
ORGANIZED BY

Stefan Banach International Mathematical Center

Faculty of Mathematics and Computer Science
of the
Jagiellonian University in Kraków

The Committee on Mathematics
of the
Polish Academy of Sciences

Warsaw Center of Mathematics and Computer Science



MONDAY, 18 JUNE

8:00–9:00 BREAKFAST

9.00–9.50 R. Meshulam, *Topology and Combinatorics of the Complex of Flags*

10.00–10.50 M. Capinski, *Arnold Diffusion with Quantitative Estimates*

COFFEE BREAK

11.30–12.20 H. Koch, *Validated numerical solutions for some semilinear elliptic equations on the disk* (with Gianni Arioli)

12.30–13.00 G. Arioli, *Spectral stability for the wave equation with periodic forcing*

13:00 LUNCH

15.30–16.00 B. Batko, *Conley index approach to sampled dynamics I*

PARALLEL SESSION I

PARALLEL SESSION II

16:00–16:30 J. Gonzalez, *High-order parameterization of invariant manifolds for parabolic partial differential equations on irregular spatial domains*

M. Przybylski, *Conley Index Approach to Sampled Dynamics II*

16:30–17:00 P. Kalita, *On non-autonomously forced Burgers equation with periodic and Dirichlet boundary conditions*

R. Ghamarshoushatri, *Towards Conley Index for combinatorial vector field on a cubical complex*

COFFEE BREAK

17:30–18:00 S. Kepley, *Automatic computation and continuation of connecting orbits with applications to Hamiltonian systems*

M. Lipinski, *Persistent homology of Morse decomposition in combinatorial dynamics.*

18:00–18:30 H. Kubica, *Persistence of normally hyperbolic invariant manifolds in the absence of rate conditions*

S. Kryzhevich, *Infinite invariant measures and Pugh's Closing Lemma*

18:30–19:00 K. Kropielnicka, *Splitting methods for Schrödinger equations with time dependent potentials; many problems, many approaches*

J. L. Salaiz, *Computational topology in the understanding of atmospheric turbulence*

19:00 DINNER

TUESDAY, 19 JUNE

8:00–9:00 BREAKFAST

9.00–9.50 M. Guardia, *Transverse instability and growth of Sobolev norms near quasiperiodic tori for the 2D cubic NLS equation*

10.00–10.50 P. Robutel, *Co-orbital motions in the planetary three-body problem: from astronomical observation to KAM theory*

COFFEE BREAK

11.30–12.20 L. Vandembroucq, *On the topological complexity of surfaces*

12.30–13.00 G. van den Berg, *Computer-assisted theorems for the Ohta-Kawasaki problem*

13:00 LUNCH

SESSION IN HONOUR OF PROFESSOR MARIAN MROZEK

15:00–15:30 K. Mischaikow, *TBA*

15.30–16.00 R. Szrednicki, *TBA*

16.00–16.30 D. Wilczak, *Attractors @ CAPD*

16.30–17.00 M. Juda, *Persistent homology of Morse decomposition in combinatorial multivector fields*

COFFEE BREAK

19:00 BANQUET

WEDNESDAY, 20 JUNE

8:00–9:00 BREAKFAST

9.00–9.50 A. Paoluzzi, *Geometric Computing with Chain Complexes Design and Features of a Julia Package*

10.00–10.50 K. Nagato-Plum, *Orbital stability investigation for travelling waves in a nonlinearly supported beam*

COFFEE BREAK

11:20–12:10 P. Skraba, *Persistent Structures and Stability*

12:15 LUNCH

13:00 KAYAKING TRIP
(Excursion to Poznań in case of bad weather)

19:00 DINNER

THURSDAY, 21 JUNE

8:00–9:00	BREAKFAST	
9:00–9:50	U. Fahrenberg, <i>Geometry and topology of higher-dimensional automata</i>	
10:00–10:50	K. Ziemianski, <i>Stable components of directed spaces</i>	
	COFFEE BREAK	
11:30–12:20	M. Plum, <i>Computer-assisted proofs for semilinear elliptic boundary value problems</i>	
12:30–13:00	V. Gaiko, <i>Geometric and topological aspects of global bifurcation theory for polynomial dynamical systems</i>	
13:00	LUNCH	
15:30–16:00	Z. Galias, <i>A rigorous enclosure of the cubic Chua's attractor</i>	
	PARALLEL SESSION I	PARALLEL SESSION II
16:00–16:30	C. Caracciolo, <i>Elliptic tori in FPU chains</i>	H. Takeuchi, <i>The Persistent Homology of a Sampled Map: From a Viewpoint of Quiver Representations</i>
16:30–17:00	P. Kamiński, <i>One frequency KAM theorem without the diophantine condition</i>	M. Ethier, <i>A new theoretical approach to the comparison of 2D persistence diagrams in sublevel set persistent homology</i>
	COFFEE BREAK	
17:30–18:00	M. Breden, <i>Computer assisted proof for the Navier-Stokes equations: existence of periodic orbits in a Taylor-Green flow</i>	J. G. Carrasquel Vera, <i>The new rational homotopy theory applied to section*al categories</i>
18:00–18:30	A. Gierzkiewicz, <i>Chaos in Hyperion's rotation: a computer-assisted proof</i>	S. Mawiong, <i>Strong Conley index and the properties it satisfies</i>
18:30–19:00	M. Fenucci, <i>On the stability of periodic N -body motions with the symmetry of Platonic polyhedra</i>	D. Strzelecki, <i>Equivariant Conley index of an orbit</i>
19:00	BONFIRE	

FRIDAY, 22 JUNE

8:00–9:00 BREAKFAST

9:00–9:50 P. Berger, *Emergence of non-ergodic, conservative dynamics*

10:00–10:50 T. Gao, *Synchronization Problems: From Geometry to Learning*

COFFEE BREAK

11:30–12:20 M. Joldes, *Spacecraft collision probabilities: a holonomic approach for moment problems*

13:00 LUNCH

15:30–16:00 J. Jaquette, *A proof of Jones' conjecture*

PARALLEL SESSION I

PARALLEL SESSION II

16:00–16:30 K. Spendlove, *A Computational Framework for Connection Matrices*

W. Hetebrij, *The parameterization method for Center Manifolds*

16:30–17:00 F. Bartha, *Global stability in a system using echo for position control*

F. Brehard, *A computer assisted proof for a new lower bound on $H(4)$ in Hilbert's 16th problem*

COFFEE BREAK

17:30–18:00 R. Szczelina, *Some developments in rigorous forward in time integration of Delay Differential Equations*

B. Bieganowski, *The variational setting on the Nehari manifold for functionals with sign-changing nonlinear part*

18:00–18:30 E. Queirolo, *Detecting and validating bifurcations in ODEs*

I. Walawska, *Continuation and bifurcations of Halo orbits - computer-assisted proof*

19:00 DINNER

SATURDAY, 23 JUNE

8:00–9:00 BREAKFAST

9:00–9:50 U. Locatelli, *On the use of KAM theory for bounding unknown orbital parameters: a first application to extrasolar systems*

10:00–10:50 P. Zgliczyński, *TBA*

12:00 LUNCH