Preface

Sandra Pinelas

Academia Militar

Departamento de Ciências Exactas e Naturais

Amadora, Portugal

sandra.pinelas@gmail.com

Michel Chipot

University of Zürich, Institute for Mathematics

Zürich, Switzerland

m.m.chipot@math.uzh.ch

The Symposium on Differential Equations and Difference Equations 2013 took place 1–5 September, 2013, at the Hotel Post in Bayrischzell, Germany. The conference was intended to bring together experts working in all areas of differential equations, difference equations and special functions and to promote research in these areas. In this conference, 72 scientists participated from 22 countries (Brazil, China, Croatia, Cyprus, Czech Republic, Germany, Hungary, India, Israel, Italy, Latvia, Poland, Portugal, Romania, Russia, Saudi Arabia, Serbia, Slovenia, Spain, Switzerland, Ukraine, USA). The scientific program consisted of 60 research seminars. The contributions covered a wide range of topics from differential equations, difference equations, special functions, orthogonal polynomials and their applications.

This volume contains the papers that were accepted for publication after a standard refereeing process and according to the standards of the journal "Advances in Dynamical Systems and Applications" (ADSA). We would like to thank the referees, who helped us guarantee the quality of the papers. We also deeply thank the Editor-in-Chief, Professor Martin Bohner, of ADSA, which hosts the Proceedings of the SDEDE 2013 without charge, for his collaboration and help.

The Guest Editors
Sandra Pinelas, Portugal (Guest Editor-in-Chief)
Michel Chipot, Switzerland

1 Organizing Committee

- Andreas Ruffing, Technische Universität München, Germany.

- Sandra Pinelas, Academia Militar, Portugal.

2 List of Lectures

The following is a list of the lectures that were presented at SDEDE 2013.

1. Narcisa Apreutesei: Travelling wave solutions of reaction-diffusion equations arising in atherosclerosis models.

2. Luciano Barbanti: Returning solutions in time for a nonlinear equation in Banach spaces on time scales.

3. Michal Beneš: On coupled Navier–Stokes and energy equations with Neumann-type boundary conditions.

4. Leonid Berezansky: Three Mackey–Glass models in population dynamics: review and new results.

5. Martin Bohner: The Beverton–Holt q-difference equation.

6. Nikolai Botkin: Interpolation-based method for solving Hamilton–Jacobi–Bellman–Isaacs equations.

7. Inese Bula: Income model with chaotic behaviour.

8. Tomás Caraballo: Existence of solutions of a lattice dynamical system with delays and their asymptotic behaviour.

9. Xingwu Chen: Isochronicity of centers for planar switching systems.

10. Michel Chipot: Minimization problems for attractive-repulsive interaction energies.

11. Berenice Damasceno: Existence of regulated solutions for nonlinear integral equations in Banach spaces on time scales.

12. Irada Dzhalladova: Estimates of stability ecosystems in simulation models of global processes.

13. Brigita Ferčec: Isochronicity problem and bifurcations of critical periods.

14. Adrián Fernández Tojo: Green's function for a linear equation with reflection and periodic boundary conditions.

15. Daniel Franco: Adaptive limiter methods for controlling chaos in population dynamics.

16. Karol Gajda: Asymptotic behavior and stability of a system of two rational difference equations.

17. Ewa Girejko: Solutions to systems with two-terms fractional difference operators.

18. Alina Gleska: On the estimation of solutions of nonlinear difference equations.

19. Jaqueline Godoy Mesquita: Asymptotically almost automorphic solutions of dynamic equations on time scales.

20. Maoan Han: The stability of some kinds of generalized homoclinic loops in planar piecewise smooth systems.

21. Gabriela Holubová: Fučík spectra of differential and difference operators and their properties.

22. Jana Hrabalová: On the asymptotic stability of some exact and discretized linear delay differential equations.

23. Candace Kent: On the boundedness of positive solutions of the reciprocal Max-type difference equation $x_n = \max\left\{ \dfrac{A_n^1}{x_{n-1}}, \dfrac{A_n^2}{x_{n-2}}, \dots, \dfrac{A_n^t}{x_{n-t}} \right\}$ with periodic parameters.

24. Denys Khusainov: Estimations of solutions of neutral type linear systems using the second Lyapunov method.

25. Tibor Krisztin: Two global stability results.

26. Aleksandra Kukharenko: Control in systems of delay hyperbolic equations.

27. Agnieszka Malinowska: Second Noether's theorem on time scales.

28. Monica Marras: Blow-up phenomena for parabolic systems.

29. Małgorzata Migda: Properties of solutions of linear systems of Volterra difference equations.

30. Dorota Mozyrska: Comparison of h-difference fractional operators.

31. Petr Nečesal: The Fučík spectrum of the Neumann difference operator.

32. Luděk Nechvátal: On a stability of linear fractional order difference system.

33. Zdeněk Opluštil: On oscillations of solutions to second-order linear delay differential equations.

34. Igor Pažanin: Asymptotic analysis of micropolar fluid flow in pipe-like domains.

35. Sandra Pinelas: Optimal oscillation criteria for first order difference equations with several delay arguments.

36. Leonid Prigozhin: Thin film problems in type-II superconductivity.

37. Irena Rachůnková: Boundary value problems for ODEs with state-dependent impulses.

38. Andrejs Reinfelds: Asymptotic equivalence of differential and difference equations in Banach space.

39. Valery Romanovski: Integrability and bifurcations in polynomial systems of ordinary differential equations.

40. Miroslava Růžičková: Solvability conditions for some types of boundary-value problems derived by using pseudo-inverse operator.

41. Felix Sadyrbaev: Samples of bifurcations in nonlinear boundary value problems for ordinary differential equations.

42. Ewa Schmeidel: Asymptotic properties of solutions Volterra difference equations.

43. Hélia Serrano: Γ-convergence of variable exponent power-law energies associated with magnetostatic problems.

44. Stefan Siegmund: Dynamical systems approach to bone remodeling, neural networks and fluid dynamics.

45. Antonín Slavík: Dynamic diffusion equations with discrete-space domains.

46. Jiří Šremr: Myshkis type oscillation criteria for second-order delay differential equations.

47. Petr Stehlík: Time and space integration of dynamic diffusion equations with discrete-space domains.

48. Stevo Stević: On some classes of solvable difference equations and systems of difference equations.

49. Sabrina H. Streipert: Abel dynamic equations.

50. Volodymyr Sushch: A geometric discretization of the Dirac-Kähler equation.

51. Sergei K. Suslov: On the problem of electromagnetic field quantization.

52. Dragutin Svrtan: Some conjectures for exponential matching polynomials.

53. Petr Tomášek: A note on stability criteria for linear difference equations.

54. Delfim Torres: Noether's theorem with momentum and energy terms for Cresson's quantum variational problems.

55. Milan Tvrdý: Positive periodic solutions of a singular problem modeling valveless pumping with friction.

56. Vladimir B. Vasilyev: Boundary value problems in multi-dimensional cone.

57. Stella Vernier Piro: A model of chemotaxis with blow-up solutions.

58. Yosef Yomdin: Poincaré type recurrence relations and fewnomial Taylor domination.

59. Tahia Zerizer: Perturbations for discrete systems.

60. Weinian Zhang: C^1-linearization of planar hyperbolic diffeomorphisms.

3 List of Participants

The following is a list of the participants of SDEDE 2013.

1. Narcisa Apreutesei, Romania, `napreut@gmail.com`

2. Luciano Barbanti, Brazil, `barbanti@mat.feis.unesp.br`

3. Michal Beneš, Czech Republic, `benes@mat.fsv.cvut.cz`

4. Leonid Berezansky, Israel, `brznsky@cs.bgu.ac.il`

5. Anna Biermann, Germany, `biermann@ikom.tum.de`

6. Martin Bohner, USA, `bohner@mst.edu`

7. Nikolai Botkin, Germany, `botkin@ma.tum.de`

8. Inese Bula, Latvia, `ibula@lanet.lv,`

9. Tomás Caraballo, Spain, `caraball@us.es`

10. Xingwu Chen, China, `xingwu.chen@hotmail.com`

11. Michel Chipot, Switzerland, `m.m.chipot@math.uzh.ch`

12. Berenice Damasceno, Brazil, `berenice@mat.feis.unesp.br`

13. Irada Dzhalladova, Ukraine, `irada-05@mail.ru`

14. Brigita Ferčec, Slovenia, `brigita.fercec@gmail.com`

15. Adrián Fernández Tojo, Spain, `fernandoadrian.fernandez@usc.es`

16. Daniel Franco, Spain, `dfranco@induned.es`

17. Karol Gajda, Poland, `karol.gajda@put.poznan.pl`

18. Ewa Girejko, Poland, `e.girejko@pb.edu.pl`

19. Alina Gleska, Poland, `alina.gleska@put.poznan.pl`

20. Jaqueline Godoy Mesquita, Brazil, `jaquebg@gmail.com`

21. Vladimir Gontar, Israel, `galita@bgu.ac.il`

22. Maoan Han, China, `mahan@shnu.edu.cn`

23. Marta Herrera Cobos, Spain, `mhc@us.es`

24. Sebastian Hischke, Germany, `sebastian.hischke@gmail.com`

25. Gabriela Holubová, Czech Republic, `gabriela@kma.zcu.cz`

26. Jana Hrabalová, Czech Republic, `jana.hrabosh@gmail.com`

27. Candace Kent, USA, `cmkent@vcu.edu`

28. Denys Khusainov, Ukraine, `dkh@unicyb.kiev.ua`

29. Stamatis Koumandos, Cyprus, `skoumand@ucy.ac.cy`

30. Tibor Krisztin, Hungary, `krisztin@math.u-szeged.hu`

31. Aleksandra Kukharenko, Ukraine, `akukharenko@ukr.net`

32. Agnieszka Malinowska, Poland, `a.malinowska@pb.edu.pl`

33. Monica Marras, Italy, `mmarras@unica.it`

34. Małgorzata Migda, Poland, `malgorzata.migda@gmail.com`

35. Dorota Mozyrska, Poland, `d.mozyrska@pb.edu.pl`

36. Wei Müller, Switzerland, `wei.mueller@math.uzh.ch`

37. Petr Nečesal, Czech Republic, `pnecesal@kma.zcu.cz`

38. Luděk Nechvátal, Czech Republic, `nechvatal@fme.vutbr.cz`

39. Ralph Oberste-Vorth, USA, `Ralph.Oberste-Vorth@indstate.edu`

40. Zdeněk Opluštil, Czech Republic, `oplustil@fme.vutbr.cz`

41. Pawel Orlow, Germany, `orlow@in.tum.de`

42. Igor Pažanin, Croatia, `pazanin@math.hr`

43. Sandra Pinelas, Portugal, `sandra.pinelas@gmail.com`

44. Leonid Prigozhin, Israel, `leonid@math.bgu.ac.il`

45. Irena Rachůnková, Czech Republic, `irena.rachunkova@upol.cz`

46. Andrejs Reinfelds, Latvia, `reinf@latnet.lv`

47. Valery Romanovski, Slovenia, `valery.romanovsky@uni-mb.si`

48. Andreas Ruffing, Germany, `ruffing@ma.tum.de`

49. Miroslava Růžičková, Slovakia, `miroslava.ruzickova@fhv.uniza.sk`

50. Alexander Saam, Germany, `AlexanderSaam@gmx.de`

51. Felix Sadyrbaev, Latvia, `felix@latnet.lv`

52. Ewa Schmeidel, Poland, `eschmeidel@math.uwb.edu.pl`

53. Hélia Serrano, Spain, `HeliaC.Pereira@uclm.es`

54. Stefan Siegmund, Germany, `stefan.siegmund@tu-dresden.de`

55. Antonín Slavík, Czech Republic, `slavik@karlin.mff.cuni.cz`

56. Jiří Šremr, Czech Republic, `sremr@ipm.cz`

57. Petr Stehlík, Czech Republic, `pstehlik@kma.zcu.cz`

58. Stevo Stević, Serbia, `sstevic@ptt.rs`

59. Sabrina H. Streipert, USA, `shsbrf@mst.edu`

60. Volodymyr Sushch, Poland, `volodymyr.sushch@tu.koszalin.pl`

61. Sergei K. Suslov, USA, `sergei@asu.edu`

62. Dragutin Svrtan, Croatia, `dsvrtan@math.hr`

63. Petr Tomášek, Czech Republic, `tomasek@fme.vutbr.cz`

64. Delfim Torres, Portugal, `delfim@ua.pt`

65. Arun Kumar Tripathy, India, `arun_tripathy70@rediffmail.com`

66. Varvara Turova, Germany, `turova@ma.tum.de`

67. Milan Tvrdý, Czech Republic, `tvrdy@math.cas.cz`

68. Vladimir B. Vasilyev, Russia, `vladimir.b.vasilyev@gmail.com`

69. Stella Vernier Piro, Italy, `svernier@unica.it`

70. Yosef Yomdin, Israel, `Yosef.Yomdin@weizmann.ac.il`

71. Tahia Zerizer, Saudi Arabia, `tzerizer@yahoo.fr`

72. Weinian Zhang, China, `wnzhang@scu.edu.cn`