

## List of publications of Dr. Dmitry Rachinskiy

### BOOK CHAPTERS:

1. M. Brokate, A. V. Pokrovskii, D. Rachinskii, O. Rasskazov, Differential equations with hysteresis via a canonical example, in “The Science of Hysteresis”, Isaak Mayergoyz and Giorgio Bertotti (Eds.), Vol. I, Chapter II, pp. 125-291, Elsevier, Academic Press, 2006.
2. A. Vladimirov, D. Rachinskii, M. Wolfrum, Modeling of passively mode-locked semiconductor lasers, in “Nonlinear Laser Dynamics: From Quantum Dots to Cryptography”, Kathy Luedge (Ed.), Chapter VIII, pp. 189-222, Wiley-VCH, 2011.

### PAPERS:

3. D. I. Rachinskii, Singular points of point mappings, *Automat. Remote Control* **52**, 1992, No. 12, part 2, 1769-1771.
4. A. V. Pokrovskii, D. I. Rachinskii, Nonexistence of weakly improving monotone shifts in semi-ordered sets with nontrivial topological structure, *Automat. Remote Control* **53**, 1992, No. 12, part 2, 1957-1959.
5. A. V. Pokrovskii, D. I. Rachinskii, On the existence of a fixed point of the operator acting in the space of continuous functions, *Nonlinear Anal.* **20**, 1993, No. 10, 1257-1259.
6. M. A. Krasnosel'skii, I. D. Mayergoyz, A. V. Pokrovskii, D. I. Rachinskii, Variable states of continual relay systems, *Russian Acad. Sci. Dokl. Math.* **47**, 1993, No. 3, 513-517.
7. M. A. Krasnosel'skii, D. I. Rachinskii, Normal states of vector relay systems, *Russian Acad. Sci. Dokl. Math.* **47**, 1993, No. 3, 577-580.
8. M. A. Krasnosel'skii, I. D. Mayergoyz, A. V. Pokrovskii, D. I. Rachinskii, Differential equations with hysteresis nonlinearities of vector relay systems type, *Russian Acad. Sci. Dokl. Math.* **48**, 1993, No. 1, 105-109.
9. M. A. Krasnosel'skii, I. D. Mayergoyz, A. V. Pokrovskii, D. I. Rachinskii, Operators of hysteresis nonlinearities generated by continual relay systems, *Automat. Remote Control* **55**, 1994, No. 7, part 1, 964-973.
10. M. A. Krasnosel'skii, D. I. Rachinskii, Invariant convex classes of states of continual relay systems, *Automat. Remote Control* **55**, 1994, No. 10, part 1, 1405-1412.
11. D. I. Rachinskii, Transition to normal states in general continual relay systems, *Russian Acad. Sci. Dokl. Math.* **50**, 1995, No. 2, 287-291.
12. M. A. Krasnosel'skii, I. D. Mayergoyz, D. I. Rachinskii, On canonical states of continual systems of relays, *ZAMM Z. Angew. Math. Mech.* **75**, 1995, No. 7, 515-522.
13. D. I. Rachinskii, Forced oscillations in control systems under near-resonance conditions, *Automat. Remote Control* **56**, 1995, No. 11, part 1, 1575-1584.
14. M. A. Krasnosel'skii, D. I. Rachinskii, M. G. Yumagulov, On the Hopf bifurcation for systems with hysteresis, in: “Modern Problems of Mechanics of Continua”, pp. 130-136, Rostov-na-Donu: Kniga, 1995 (in Russian).
15. D. Rachinskii, Multivalent guiding functions in forced oscillation problems, *Nonlinear Anal.* **26**, 1996, No. 3, 631-639.

16. M. A. Krasnosel'skii, N. A. Kuznetsov, D. I. Rachinskii, Nonlinear potential systems with incomplete corrections, *Automat. Remote Control* **57**, 1996, No. 7, part 1, 918-924.
17. D. I. Rachinskii, On the Cauchy problem for differential equations with Mroz hysteresis nonlinearity, *Differential Equations* **33**, 1997, No. 8, 1047-1054.
18. M. A. Krasnosel'skii, N. A. Kuznetsov, R. März, D. I. Rachinskii, Iterative procedures with incomplete corrections, and the solution of nonlinear equations, *Automat. Remote Control* **58**, 1997, No. 8, part 1, 1285-1293.
19. D. I. Rachinskii, G. Tronel, New theorems on periodic oscillations in systems with delay that are close to resonance systems, *Doklady Math.* **56**, 1997, No. 1, 536-539.
20. V. V. Chernorutskii, D. Rachinskii, On uniqueness of an initial-value problem for ODE with hysteresis, *NoDEA Nonlinear Differential Equations Appl.* **4**, 1997, No. 3, 391-399.
21. M. A. Krasnosel'skii, D. I. Rachinskii, M. G. Yumagulov, Hopf bifurcation for autonomous systems with hysteresis, *Doklady Math.* **56**, 1997, No. 1, 550-553.
22. M. A. Krasnosel'skii, R. Mennicken, D. Rachinskii, Potential bounds in nonpotential two-point boundary-value problems, *Math. Nachr.* **188**, 1997, 203-218.
23. M. A. Krasnosel'skii, D. I. Rachinskii, M. G. Yumagulov, On the influence of hysteresis perturbations on existence of self-oscillations in the Hopf bifurcation problem, *Proc. Russian Acad. of Natural Sci.* **1**, 1997, No. 3, 30-41 (in Russian).
24. D. I. Rachinskii, On the fixed points of weakly concave operators, *Doklady Math.* **57**, 1998, No. 3, 374-376.
25. M. Brokate, P. Krejčí, D. Rachinskii, Some analytical properties of the multi-dimensional continuous Mroz model of plasticity, *Control Cybernet.* **27**, 1998, No. 2, 199-215.
26. M. A. Krasnosel'skii, R. Mennicken, D. I. Rachinskii, Potential estimates in nonpotential boundary-value problems, *Doklady Math.* **58**, 1998, No. 3, 386-387.
27. D. I. Rachinskii, On compensators for the Ishlinskii hysteresis nonlinearities, *Doklady Math.* **58**, 1998, No. 3, 382-385.
28. D. I. Rachinskii, Equivalent combinations of stops, *Automat. Remote Control* **59**, 1998, No. 10, part 1, 1370-1378.
29. D. Rachinskii, Asymptotic stability of large-amplitude oscillations in systems with hysteresis, *NoDEA Nonlinear Differential Equations Appl.* **6**, 1999, No. 3, 267-288.
30. A. M. Krasnosel'skii, D. Rachinskii, Hopf bifurcation at infinity, generated by bounded nonlinear terms, *Funct. Differ. Equ.* **6**, 1999, No. 3-4, 357-374.
31. M. A. Krasnosel'skii, R. Mennicken, D. Rachinskii, Potential bounds in problems on quasilinear elliptic equations, *Math. Nachr.* **207**, 1999, 133-155.
32. P. Diamond, D. Rachinskii, M. G. Yumagulov, Stability of large cycles in a nonsmooth problem with Hopf bifurcation at infinity, *Nonlinear Anal.* **42**, 2000, No. 6, 1017-1031.
33. P.-A. Bliman, A. M. Krasnosel'skii, D. I. Rachinskii, Sector estimates of nonlinearities and the existence of self-oscillations in control systems, *Automat. Remote Control* **61**, 2000, No. 6, part 1, 889-903.
34. D. I. Rachinskii, On a condition for existence of oscillations in systems with hysteresis, *Proc. Russian Acad. of Natural Sci.* **4**, 2000, No. 1-2, 235-248 (in Russian).

35. A. M. Krasnosel'skii, N. A. Kuznetsov, D. I. Rachinskii, Nonlinear Hopf bifurcations, *Doklady Math.* **61**, 2000, No. 3, 389-392.
36. A. M. Krasnosel'skii, D. I. Rachinskii, The Hamiltonian nature of Lurie systems, *Automat. Remote Control* **61**, 2000, No. 8, part 1, 1259-1262.
37. A. M. Krasnosel'skii, N. A. Kuznetsov, D. I. Rachinskii, On resonant equations with unbounded nonlinearities, *Doklady Math.* **62**, 2000, No. 1, 44-48.
38. D. I. Rachinskii, Shuttle iterations in problems with nonmonotone nonlinearities, *Doklady Math.* **62**, 2000, No. 3, 328-331.
39. N. A. Kuznetsov, R. Mennicken, D. Rachinskii, Method of potential bounds in periodic nonpotential problems for control systems, *Math. Nachr.* **225**, 2001, 93-121.
40. A. M. Krasnosel'skii, D. I. Rachinskii, Existence of continua of cycles in Hamiltonian control systems, *Automat. Remote Control* **62**, 2001, No. 2, part 1, 227-235.
41. D. Rachinskii, Iteration procedures of shuttle iteration type in continuous nonmonotone problems, *Z. Anal. Anwendungen* **20**, 2001, No. 4, 1031-1054.
42. R. Mennicken, D. Rachinskii, On existence of positive solutions for nonlinear two-point boundary-value problems, *J. Inequal. Appl.* **6**, 2001, 599-624.
43. A. M. Krasnosel'skii, D. I. Rachinskii, On continua of cycles in systems with hysteresis, *Doklady Math.* **63**, 2001, No. 3, 339-344.
44. A. M. Krasnosel'skii, D. I. Rachinskii, On existence of cycles for quasilinear ODE of higher order, *Proc. Russian Acad of Natural Sci.* **5**, 2001, No. 1-2, 143-151.
45. P.-A. Bliman, A. M. Krasnosel'skii, D. I. Rachinskii, On strong resonances in Hopf bifurcations for control systems, *Automat. Remote Control* **62**, 2001, No. 12, part 1, 1783-1802.
46. P. Diamond, N. A. Kuznetsov, D. Rachinskii, On the Hopf bifurcation in control systems with asymptotically homogeneous at infinity bounded nonlinearities, *J. Differential Equations* **175**, 2001, 1-26.
47. A. M. Krasnosel'skii, R. Mennicken, D. Rachinskii, Cycle stability for Hopf bifurcation, generated by sublinear terms, *Math. Nachr.* **233-234**, 2002, 171-195.
48. A. M. Krasnosel'skii, R. Mennicken, D. Rachinskii, Small periodic solutions generated by sublinear terms, *J. Differential Equations* **179**, 2002, 97-132.
49. A. M. Krasnosel'skii, D. Rachinskii, On a bifurcation governed by hysteresis nonlinearity, *NoDEA Nonlinear Differential Equations Appl.* **9**, 2002, 93-115.
50. A. M. Krasnosel'skii, D. I. Rachinskii, On existence of cycles in autonomous systems, *Doklady Math.* **65**, 2002, No. 3, 344-349.
51. A. M. Krasnosel'skii, N. A. Kuznetsov, D. Rachinskii, On resonant differential equations with unbounded nonlinearities, *Z. Anal. Anwendungen* **21**, 2002, No. 3, 639-668.
52. A. M. Krasnosel'skii, D. Rachinskii, K. Schneider, Hopf bifurcations in resonance 2:1, *Nonlinear Anal.* **52**, 2003, 943-960.
53. A. M. Krasnosel'skii, D. I. Rachinskii, On continuous branches of cycles in systems with non-linearizable nonlinearities, *Doklady Math.* **67**, 2003, No. 2, 153-158.
54. D. Rachinskii, K. Schneider, Delayed loss of stability in systems with degenerate linear parts, *Z. Anal. Anwendungen* **22**, 2003, 433-453.
55. A. M. Krasnosel'skii, D. I. Rachinskii, On a nonlocal condition for existence of cycles of systems with hysteresis, *Automat. Remote Control* **64**, 2003, No. 2, part 1,

231-251.

56. D. I. Rachinskii, On natural continua of periodic solutions of systems with hysteresis, *Automat. Remote Control*. **64**, 2003, No. 3, part 1, 420-438.

57. A. M. Krasnosel'skii, D. I. Rachinskii, On continuous branches of cycles for higher order equations, *Differential Equations* **39**, 2003, No. 12, 1690-1702.

58. A. M. Krasnosel'skii, D. Rachinskii, Branching at infinity of solutions to equations with degeneration of multiplicity two, *Doklady Math.* **69**, 2004, No. 1, 79-83.

59. A. M. Krasnosel'skii, D. Rachinskii, Remark on the Hopf bifurcation theorem, *Math. Nachr.* **272**, 2004, 95-103.

60. A. M. Krasnosel'skii, A. V. Pokrovskii, D. Rachinskii, On guaranteed estimates of convergence rate for one class of iteration procedures, *Automat. Remote Control* **65**, 2004, No. 10, 1635-1640.

61. D. I. Rachinskii, On a bifurcation of stable large-amplitude cycles for equations with hysteresis, *Automat. Remote Control* **65**, 2004, No. 12, 1915-1937.

62. M. Brokate, D. Rachinskii, On global stability of the scalar Chaboche models, *Nonlinear Anal. Real World Appl.* **6**, 2005, 67-82.

63. D. Rachinskii, K. R. Schneider, Dynamic Hopf bifurcations generated by nonlinear terms, *J. Differential Equations* **210**, 2005, No. 1, 65-86.

64. A. M. Krasnosel'skii, D. I. Rachinskii, On a number of unbounded solution branches near the asymptotic bifurcation point, *Funct. Anal. Appl.* **39**, 2005, No. 3, 194-206.

65. D. Rachinskii, A. G. Vladimirov, U. Bandelow, B. Hüttl, R. Kaiser, Q-switching instability in a mode locked semiconductor laser, *J. Opt. Soc. Am.* **23**, 2006, No. 4, 663-670.

66. M. Brokate, D. Rachinskii, Global stability of Armstrong-Frederick models with periodic uniaxial inputs, *NoDEA Nonlinear Differential Equations Appl.* **13**, 2006, No. 4, 385-411.

67. A. M. Krasnosel'skii, D. Rachinskii, Subharmonic bifurcation from infinity, *J. Differential Equations* **226**, 2006, No. 1, 30-53.

68. V. S. Kozyakin, A. M. Krasnosel'skii, D. I. Rachinskii, Arnold tongues in the problem of large-amplitude periodic trajectories, *Doklady Math.* **74**, 2006, No. 3, 821-827.

69. M. Nizette, D. Rachinskii, A. G. Vladimirov, M. Wolfrum, Pulse interaction via gain and loss dynamics in passive mode-locking, *Physica D* **218**, 2006, No. 1, 95-104.

70. M. Brokate, A. V. Pokrovskii, D. Rachinskii, Asymptotic stability of continual sets of periodic solutions to systems with hysteresis, *J. Math. Anal. Appl.* **319**, 2006, 94-109.

71. D. Goulding, S. P. Hegarty, O. Rasskazov, S. Melnik, M. Hartnett, G. Greene, J. G. McInerney, D. Rachinskii, G. Huyet, Excitability in a quantum dot semiconductor laser with optical injection, *Phys. Rev. Lett.* **98**, 153903, 2007.

72. E. Bouse, A. M. Krasnosel'skii, A. V. Pokrovskii, D. Rachinskii, Non-local branches of cycles, bi-stability, and topologically persistent mixed mode oscillations, *Chaos* **18**, No. 1, 015109, 2008.

73. V. S. Kozyakin, A. M. Krasnosel'skii, D. Rachinskii, Arnold tongues for bifurcation from infinity, *Discrete and Continuous Dynamical Systems S* **1**, 2008, 107-116.

74. V. S. Kozyakin, A. M. Krasnosel'skii, D. Rachinskii, Asymptotics of Arnold tongues in problems at infinity, *Discrete and Continuous Dynamical Systems A* **20**, 4, 2008, 989-1011.
75. A. M. Krasnosel'skii, D. I. Rachinskii, Criteria for existence of nonlinear resonance in a single-circuit control system with saturation, *Automat. Remote Control* **69**, 2008, No. 8, 1297-1310.
76. N. A. Kuznetsov, D. I. Rachinskii, A. Zhezherun, Hopf bifurcation in systems with Preisach operator, *Doklady Math.* **78**, 2008, No. 2, 705-709.
77. A. M. Krasnosel'skii, D. Rachinskii, On disconnected unbounded sets of forced oscillations. *Doklady Math.* **78**, 2008, No. 2, 660-664.
78. A. Amann, P. M. Mortell, E. P. O'Reilly, M. Quinlan, D. Rachinskii, Mechanism of synchronization in frequency dividers, *IEEE Transactions on Circuits and Systems I* **56**, 2009, No. 1, 190-199.
79. B. Applebe, D. Flynn, H. McNamara, J. P. O'Kane, A. Pimenov, A. V. Pokrovskii, D. Rachinskii, A. Zhezherun, Rate-independent hysteresis in terrestrial hydrology, *IEEE Control Systems Magazine* **29**, 2009, No. 1, 44-69.
80. A. Pimenov, D. Rachinskii, Linear stability analysis of systems with Preisach memory, *Discrete and Continuous Dynamical Systems B* **11**, 2009, No. 4, 997-1018.
81. A. Vladimirov, A. Pimenov, D. Rachinskii, Numerical study of dynamical regimes in a monolithic passively mode-locked semiconductor laser, *IEEE Journal of Quantum Electronics* **45**, 2009, No. 5, 462-468.
82. T. Habruseva, S. O'Donoghue, N. Rebrova, D. A. Reid, L. P. Barry, S. P. Hegarty, D. Rachinskii, G. Huyet, Quantum-dot mode-locked lasers with dual mode optical injection, *IEEE Photonics Technology Letters* **22**, No. 6, 2010, 359-361.
83. A. Vladimirov, U. Bandelow, G. Fiol, D. Arsenijevic, M. Kleinert, D. Bimberg, A. Pimenov, D. Rachinskii, Bifurcations in a model of monolithic passively mode-locked semiconductor laser, *JOSA B* **27**, Issue 10, 2010, 2102-2109.
84. A. G. Vladimirov, N. Grechishkina, V. S. Kozyakin, N. A. Kuznetsov, A. V. Pokrovskii, D. I. Rachinskii, Asynchronous systems: theory and practice, *Information processes* **11**, 1, 2011, 1-45.
85. A. Vladimirov, D. Rachinskii, N. Rebrova, G. Huyet, An optically injected mode locked laser, *Phys. Rev. E* **88**, 2011, 066202.
86. A. Pokrovskii, D. Rachinskii, V. Sobolev, A. Zhezherun, Topological degree in analysis of canard-type trajectories in 3-D systems, *Applicable Analysis: Int. J.* **90**, 2011, No. 7, 1123-1139.
87. M. Brokate, S. McCarthy, A. Pimenov, A. Pokrovskii, D. Rachinskii, Energy dissipation in hydrological systems due to hysteresis, *Environmental Modeling & Assessment* **16**, 4, 2011, 313-333.
88. A. Pimenov, T. C. Kelly, A. Korobeinikov, M. J. A. O'Callaghan, A. Pokrovskii, D. Rachinskii, Memory effects in population dynamics: spread of infectious disease as a case study, *Mathematical Modelling of Natural Phenomena* **7**, No. 1, 2012, 1-30.
89. S. M. O'Regan, D. Flynn, T. C. Kelly, M. J. A. O'Callaghan, A. V. Pokrovskii, D. Rachinskii, The response of woodpigeon (*Columba palumbus*) to relaxation of intraspecific competition: A hybrid modelling approach, *Ecological Modelling* **224**, 2012, 54-64.
90. P. Krejci, P. O'Kane, A. Pokrovskii, D. Rachinskii, Properties of solutions to a

class of differential models incorporating Preisach hysteresis operator, *Physica D* **241**, 2012, 2010-2028.

91. Z. Balanov, W. A. Krawcewicz, D. Rachinskii, A. Zhezherun, Hopf bifurcation in symmetric networks of coupled oscillators with hysteresis, *J. Dynamics & Differential Equations* **24**, No. 4, 2012, 713-759.

92. T. Habruseva, S. P. Hegarty, A. Vladimirov, A. Pimenov, D. Rachinskii, N. Rebrova, E. Viktorov, G. Huyet, Bistable regimes in an optically injected mode-locked laser, *Optics Express* **20**, No. 23, 2012, 25572-25583.

93. E. O'Grady, A. Krasnosel'skii, A. Pokrovskii, D. Rachinskii, Periodic canard trajectories with multiple segments following the unstable part of critical manifold, *Discrete and Continuous Dynamical Systems B* **18**, No. 2, 2013, 467-482.

94. A. Pokrovskii, D. Rachinskii, Effect of positive feedback on Devil's staircase input-output relationship, *Discrete and Continuous Dynamical Systems S* **6**, No. 4, 2013, 1095-1112.

95. R. Arkhipov, A. Pimenov, M. Radziunas, D. Rachinskii, A. G. Vladimirov, D. Arsenjević, H. Schmeckeber, D. Bimberg, Hybrid mode-locking in semiconductor lasers: simulations, analysis and experiments, *IEEE J. Selected Topics in Quantum Electronics* **19**, No. 4, 2013, 1100208.

96. S. M. O'Regan, T. C. Kelly, A. Korobeinikov, M. J. A. O'Callaghan, A. V. Pokrovskii, D. Rachinskii, Chaos in a seasonally perturbed SIR model: avian influenza in a seabird colony as a paradigm, *J. of Mathematical Biology* **67**, 2, 2013, 293-327.

97. P. Gurevich, D. Rachinskii, Well-posedness of parabolic equations containing hysteresis with diffusive thresholds, *Proceedings of Steklov Institute of Mathematics* **283**, 2013, 92-114.

98. S. McCarthy, D. Rachinskii, Dynamics of systems with Preisach memory near equilibria, *Mathematica Bohemica* **139**, 1, 2014, 39-73.

99. G. Friedman, S. McCarthy, D. Rachinskii, Hysteresis can grant fitness in stochastically varying environment, *PLoS ONE* **9**, 7, 2014, e103241.

100. A. Pimenov, E. A. Viktorov, S. P. Hegarty, T. Habruseva, G. Huyet, D. Rachinskii, A. Vladimirov, Bistability and hysteresis in an optically injected two-section semiconductor laser, *Phys. Rev. E* **89**, 2014, 052903.

101. P. Krejci, H. Lamba, S. Melnik, D. Rachinskii, Analytical solutions for a class of network dynamics with mechanical and financial applications, *Phys. Rev. E* **90**, 2014, 032822.

102. A. Pimenov, T. Habruseva, D. Rachinskii, S. P. Hegarty, G. Huyet, A. G. Vladimirov, Effect of dynamical instability on timing jitter in passively mode-locked quantum-dot lasers, *Optics Letters* **39**, 24, 2014, 6815-6818.

103. P. Gurevich, D. Rachinskii, Pattern formation in parabolic equations containing hysteresis with diffusive thresholds, *JMAA* **424**, 2, 2015, 1103-1124.

104. A. Pimenov, T. C. Kelly, A. Korobeinikov, M. J. A. O'Callaghan, D. Rachinskii, Adaptive behaviour and multiple equilibrium states in a predator-prey model, *Theoretical Population Biology* **101**, 2015, 24-30.

105. P. Krejci, H. Lamba, S. Melnik, D. Rachinskii, Kurzweil integral representation of interacting Prandtl-Ishlinskii operators, *Discrete and Continuous Dynamical Systems B* **20**, 9, 2015, 2949-2965.

106. L. Jaurigue, A. Pimenov, D. Rachinskii, E. Schöll, K. Lüdge, A. G. Vladimirov, Timing jitter of passively mode-locked semiconductor lasers subject to optical feedback; a semi-analytic approach, *Phys. Rev. A* **92**, 2015, 053807.
107. D. Rachinskii, Realization of arbitrary hysteresis by a low-dimensional gradient flow, *Discrete and Continuous Dynamical Systems B* **21**, 1, 2016, 227-243.
108. P. Gurevich, D. Rachinskii, Asymptotics of sign-changing patterns in hysteretic systems with diffusive thresholds, *Asymptotic Analysis* **96**, 2016, 1-22.
109. D. Davino, P. Krejci, A. Pimenov, D. Rachinskii, C. Visone, Analysis of an operator-differential model for magnetostrictive energy harvesting, *Communications in Nonlinear Science and Numerical Simulation* **39**, 2016, 504-519.
110. P. Krejci, H. Lamba, G. Antunes, D. Rachinskii, Kurzweil integral in financial market modeling, *Mathematica Bohemica* **141**, 2, 2016, 261-286.
111. D. Rachinskii, M. Ruderman, Convergence of direct recursive algorithm for identification of Preisach hysteresis model with stochastic input, *SIAM J. Applied Mathematics* **76**, 4, 2016, 1270-1295.
112. M. Arnold, N. Begun, P. Gurevich, E. Kwame, H. Lamba, D. Rachinskii, Dynamics of discrete time system with stop operator, *SIAM J. Applied Dynamical Systems* **16**, 1, 2017, 91-119.
113. A. Pimenov, T. C. Kelly, A. Korobeinikov, M. J. A. O'Callaghan, D. Rachinskii, Memory and adaptive behaviour in population dynamics: Anti-predator behaviour as a case study, *J. Mathematical Biology* **74**, 2017, 1533-1559.
114. E. Hooton, Z. Balanov, W. Krawcewicz, D. Rachinskii, Sliding Hopf bifurcation in interval systems, *Discrete and Continuous Dynamical Systems A* **37**, 7, 2017, 3545-3566.
115. Z. Balanov, E. Hooton, W. Krawcewicz, D. Rachinskii, Non-invasive stabilization of periodic orbits in  $O_4$ -symmetrically coupled Van der Pol oscillators, *Int. Journal on Bifurcation and Chaos* **27**, 6, 2017, 1750087.
116. E. Hooton, P. Kravets, D. Rachinskii, Restrictions to the use of time-delayed feedback control in symmetric settings, *Discrete and Continuous Dynamical Systems B* **23**, 2, 2018, 543-556.
117. D. E. Andreev, M. Arnold, S. J. Kiniry, G. Loughran, A. M. Michel, D. Rachinskii, P. Baranov, TASEP modelling provides a parsimonious explanation for the ability of a single uORF to derepress translation during the Integrated Stress Response, *eLife* 2018; 7:e32563.
118. 161. Z. Balanov, P. Kravets, W. Krawcewicz, D. Rachinskii, H.-P. Wu, Hopf bifurcation of relative periodic solutions in a system of five passively mode-locked lasers, *J. Nonlinear Var. Anal.* **2**, 2, 2018, 233-262.

#### PAPERS IN REFEREED CONFERENCE PROCEEDINGS:

119. M. A. Krasnosel'skii, I. D. Mayergoyz, D. Rachinskii, Yumagulov, M.G. New problems in systems with hysteresis, *ZAMM Z. Angew. Math. Mech.* **76**, 1996, No. 2, 317-320.
120. A. Krasnosel'skii, R. Mennicken, D. Rachinskii, Potential bounds and existence of solutions for boundary-value problems, *ZAMM Z. Angew. Math. Mech.* **78**, Suppl. 1,

1998, S197-S198.

121. A. Krasnosel'skii, R. Mennicken, D. Rachinskii, Hopf bifurcation generated by small nonlinear terms, *ZAMM Z. Angew. Math. Mech.* **80**, Suppl. 2, 2000, S289-S290.

122. A. Krasnosel'skii, D. Rachinskii, On continuous branches of twice periodic solutions of some PDE, *Funct. Differ. Equ.* **10**, 2003, No. 1-2, 291-301.

123. A. Krasnosel'skii, D. Rachinskii, On a number of branches of periodic solutions, in: *EQUADIFF 2003*, pp. 246-248, World Sci. Publ., Hackensack, NJ, 2005.

124. A. Krasnosel'skii, D. Rachinskii, Bifurcation of forced periodic oscillations for equation with Preisach hysteresis, *Journal of Physics: Conference Series* **22**, 2005, 93-102.

125. A. Pokrovskii, T. Power, D. Rachinskii, A. Zhezherun, Stability by linear approximation of ODEs with Preisach operator, *Journal of Physics: Conference Series* **55**, 2006, 171-190.

126. R. Cross, H. McNamara, A. Pokrovskii, D. Rachinskii, A new paradigm for modelling hysteresis in macroeconomic flows, *Physica B* **403**, 2-3, 2008, 231-236.

127. B. Appelbe, D. Rachinskii, A. Zhezherun, Hopf bifurcation in a van der Pol type oscillator with magnetic hysteresis, *Physica B* **403**, 2-3, 2008, 301-304.

128. S. O'Ceallaigh, A. Pimenov, A. Pokrovskii, D. Rachinskii, A. Zhezherun, Algorithm for linear stability analysis in systems with Preisach hysteresis, *Physica B* **403**, 2-3, 2008, 305-307.

129. A. G. Vladimirov, M. Wolfrum, G. Fiol, D. Arsenijevic, D. Bimberg, E. Viktorov, P. Mandel, D. Rachinskii, Locking characteristics of a 40GHz hybrid mode-locked monolithic quantum dot laser, *Proc. of SPIE* **7720**, 2010, 77200Y-1-8.

130. S. O'Ceallaigh, A. Krasnosel'skii, A. Pimenov, D. Rachinskii, Fold bifurcations and linear stability analysis in systems with Preisach hysteresis, in "Rate-Independent Evolutions and Material Modeling" (Special Section of *EQUADIFF 2007*), T. Roubiček and U. Stefanelli (Eds.), Pubblicazione IMATI-CNR, 29PV10/27/0, Pavia, ISSN 1772-8964, 2010, 39-44.

131. Z. Balanov, W. Krawcewicz, D. Rachinskii, On the equivariant Hopf bifurcation in hysteretic networks of van der Pol oscillators, *Journal of Physics: Conference Series* **268**, 1, 2011, 012002.

132. A. Amann, M. Brokate, D. Rachinskii, G. Temnov, Distribution of return point memory states for systems with stochastic inputs, *Journal of Physics: Conference Series* **268**, 1, 2011, 012001.

133. P. Krejci, P. O'Kane, A. Pokrovskii, D. Rachinskii, Stability results for a soil model with singular hysteretic hydrology, *Journal of Physics: Conference Series* **268**, 1, 2011, 012016.

134. S. McCarthy, D. Rachinskii, Attempts at a numerical realisation of stochastic differential equations containing Preisach operator, *Journal of Physics: Conference Series* **268**, 1, 2011, 012019.

135. A. Amann, M. Brokate, S. McCarthy, D. Rachinskii, G. Temnov, Characterization of memory states of Preisach operator with stochastic inputs, *Physica B* **407**, 2012, 1404-1411.

136. D. Rachinskii, A. Amann, M. Brokate, S. McCarthy, Cascading effects in the moving Preisach model, *American Control Conference (ACC)*, Washington, DC, USA,



June 17-19, 2013, 3591-3598.

137. A. Pimenov, D. Rachinskii, Homoclinic orbits in a two-patch predator-prey model with Preisach hysteresis operator, *Mathematica Bohemica* **139**, 2, 2014, 285-298 (Proceedings of EQUADIFF'13).

138. G. Friedman, P. Gurevich, S. McCarthy, D. Rachinskii, Switching behaviour of two-phenotype bacteria in varying environment, *Journal of Physics: Conference Series* **585**, 2015, 012012.

139. E. A. O'Grady, S. C. Culloty, T. C. Kelly, M. J. A. O'Callaghan, D. Rachinskii, A preliminary threshold model of parasitism in the Cockle *Cerastoderma edule* using delayed exchange of stability, *Journal of Physics: Conference Series* **585**, 2015, 012013.

140. M. Ruderman, D. Rachinskii, Online identification of piezoelectric hysteresis by direct recursive algorithm of Preisach model, *Proceedings of IEEE International Conference on Mechatronics (ICM2015)*, Nagoya, Japan, 2015, pp. 292-295.

141. A. Pimenov, D. Rachinskii, Robust homoclinic orbits in planar systems with Preisach hysteresis operator, *Journal of Physics: Conference Series* **727**, 2016, 012012.

142. K. Fathian, D. Rachinskii, M. W. Spong, N. R. Gans, Globally asymptotically stable distributed control for distance and bearing based multi-agent formations, *Proceedings of American Control Conference (ACC) 2016*, pp. 4642-4648.

143. K. Fathian, D. Rachinskii, T. H. Summers, N. R. Gans, Distributed control of cyclic formations with local relative position measurements, *Proceedings of IEEE 55th Conference on Decision and Control (CDC) 2016*, pp. 49-56.

144. L. Rios, D. Rachinskii, R. Cross, A model of hysteresis arising from social interaction within a firm, *Journal of Physics: Conference Series* **811**, 2017, 012011.

145. L. Rios, D. Rachinskii, R. Cross, On the rationale for hysteresis in economic decisions, *Journal of Physics: Conference Series* **811**, 2017, 012012.

146. M. Ruderman, D. Rachinskii, Use of Prandtl-Ishlinskii hysteresis operators for Coulomb friction modeling with presliding, *Journal of Physics: Conference Series* **811**, 2017, 012013.

147. K. Fathian, D. Rachinskii, T. H. Summers, M. W. Spong, N. R. Gans, Distributed formation control under arbitrarily changing topology, *Proceedings of American Control Conference (ACC) 2017*, ACC (2017), pp. 271-278.

148. S. Yudaev, D. Rachinskii, V. Sobolev, An asymptotic solution to a passive biped walker model, *Journal of Physics: Conference Series* **811**, 2017, 012018.

#### PAPERS ACCEPTED AND SUBMITTED:

149. P. Kravets, D. Rachinskii, A. Vladimirov, Pulsating dynamics of slow-fast population models with delay, arXiv:1601.06452; *European J. Applied Mathematics*, accepted.

150. M. Ruderman, D. Rachinskii, Discrete-time adaptive hysteresis filter for parallel computing and recursive identification of Preisach model, *Proceedings of 2018 IEEE Conference on Control Technology and Applications*, accepted.

151. D. Rachinskii, On geometric conditions for reduction of the Moreau sweeping process to the Prandtl-Ishlinskii operator, arXiv:1611.07099; *Discrete & Continuous Dynamical Systems B*, accepted.

152. Z. Balanov, P. Kravets, W. Krawcewicz, D. Rachinskii, Hopf bifurcation from

relative equilibria: Case study of a ring of passively mode-locked lasers, arXiv:1703.09154; J. Differential Equations, accepted.

153. S. Yudaev, D. Rachinskii, V. Sobolev, Asymptotic solution for a biped walker model, Research Perspectives CRM Barcelona, Summer 2016, vol. 10, in “Trends in Mathematics”, Springer-Birkhäuser, Basel, submitted.

154. L. Rios, R. Cross, D. Rachinskii, A model of probabilistic hysteretic switching in organizations, Research Perspectives CRM Barcelona, Summer 2016, vol. 10, in “Trends in Mathematics”, Springer-Birkhäuser, Basel, submitted.

155. E. Hooton, P. Kravets, D. Rachinskii, Odd Number Theorem for equivariant systems, Research Perspectives CRM Barcelona, Summer 2016, vol. 10, in “Trends in Mathematics”, Springer-Birkhäuser, Basel, submitted.

156. N. Begun, P. Kravets, D. Rachinskii, Chaos in the saw map, arXiv:1709.01962; Int. J. Bifurcation & Chaos, submitted.

157. P. Krejčí, E. Kwame, H. Lamba, D. Rachinskii, Stickiness and inaction in a macroeconomic model — A dynamical systems approach, arXiv:1711.08038; Journal of Economic Dynamics and Control, submitted.

158. T. Kalmár-Nagy, A. Amann, D. Kim, D. Rachinskii, The devil is in the details: Spectrum and eigenvalue distribution of the discrete Preisach memory model, arXiv:1709.06960; Communications in Nonlinear Science and Numerical Simulation, submitted.

159. P. Krejčí, H. Lamba, D. Rachinskii, The global stability of a class of history-dependent macroeconomic models, arXiv:1711.07563; J. Mathematical Economics, submitted.

160. E. Hooton, P. Kravets, D. Rachinskii, Selective Pyragas control of Hamiltonian systems, Discrete and Continuous Dynamical Systems S, accepted.

161. Z. Balanov, A. Bolshakov, D. Rachinskii, Topological properties of strongly monotone planar vector fields, Mathematische Nachrichten, submitted.

162. K. Fathian, D. Rachinskii, W. Krawcewicz, N. R. Gans, Regular polygon formations with fixed size and cyclic sensing constraint, IEEE Transactions on Automatic Control, submitted.

#### PREPRINTS:

163. F. Macleod, A. Pokrovskii, D. Rachinskii, Universal relationships in measures of unpredictability, arXiv:0904.2014.

164. E. Bouse, D. Rachinskii, Blow up of a cycle in Lotka-Volterra type equations with competition-cooperation terms and quasi-linear systems, arXiv:1007.4424.

#### EDUCATIONAL PAPERS:

165. E. A. Asarin *et al.*, Mark Alexandrovich Krasnosel’skii, obituary, Journal of Applied Mathematics and Stochastic Analysis **10**, No. 2, 1997, 119-126.

166. E. A. Asarin, *et al.*, In memory of Mark Alexandrovich Krasnosel’skii, Automat. Remote Control, 1997, <http://www.aha.ru/amkr/obituaryait.html>

167. D. Rachinskii, My teacher M. A. Krasnosel’skii, in “Mark Alexandrovich Krasnosel’skii, dedicated to his 80-th anniversary”, A. M. Krasnosel’skii (Ed.), Moscow, URSS,

2000, 130-140 (in Russian).

168. D. Rachinskii, E. Shchepakina, V. A. Sobolev, In memory of Alexei Pokrovskii: Systems with Hysteresis & Murphys, 10 years later, J. Phys.: Conf. Ser. **268**, 2011, 011002.

169. D. Rachinskii, Alexei Vadimovich Pokrovskii, obituary, Irish Math. Soc. Bulletin **67**, 2011, 5-25.

170. P. E. Kloeden, A. M. Krasnosel'skii, P. Krejci, D. I. Rachinskii, Alexei Vadimovich Pokrovskii, obituary, Discrete and Continuous Dynamical Systems B, Discrete and Continuous Dynamical Systems B **18**, 2, 2013, i-iii.

171. D. Rachinskii, Book Review: "Singular Perturbations. Introduction to System Order Reduction Methods with Applications" by Elena Shchepakina, Vladimir Sobolev and Michael P. Mortell, Irish Math. Soc. Bulletin **79**, 2017, 92-93.

#### CONTRIBUTIONS TO CONFERENCES:

C1. Rachinskii, D.I. Rotating guiding functions for periodic systems with delay. Proceedings of the International Conference on Functional Differential Equations and Appl., Moscow, Russia, August 1994, p. 68.

C2. Rachinskii, D.I. Guiding functions of new type in problem on periodic oscillations for automation control systems. Proceedings of the Conference on Modern Methods of Nonlinear Analysis, Voronezh, Russia, April 1995, pp. 76-77 (in Russian).

C3. a. Rachinskii, D.I. Forced periodic oscillations in systems with the Mroz hysteresis nonlinearity;

b. Krasnosel'skii, M.A., Kuznetsov, N.A., Rachinskii, D.I. On stability of a class of systems with incomplete corrections.

Proceedings of the 4th International Seminar on Stability and Oscillations in Nonlinear Control Systems, Moscow, Russia, June 1996, p. 82; p. 5 (in Russian).

C4. Krasnosel'skii, M.A., Mennicken, R., Rachinskii, D.I. Potential bounds and existence of solutions for boundary-value problems. GAMM 97, the Annual Meeting of the Gesellschaft für Angewandte Math. und Mech., Regensburg, Germany, March 1997.

C5. Krasnosel'skii, A.M., Mennicken, R., Rachinskii, D.I. Hopf bifurcation generated by small nonlinear terms. GAMM 99, the Annual Meeting of the Gesellschaft für Angewandte Math. und Mech., Metz, France, April 1999.

C6. Rachinskii, D.I. Existence of forced periodic oscillations in systems with hysteresis and impulse perturbations. Abstracts of the Workshop on Systems with Hysteresis, Berlin, Germany, September 1999, p. 12.

C7. a. Rachinskii, D.I. On periodic problems with hysteresis;

b. Krasnosel'skii, A.M., Rachinskii, D.I. On auto-oscillations in control systems. Proceedings of the Conference on Modern Methods in the Theory of Boundary Value Problems, Voronezh, Russia, May 2001, pp. 130-131; p. 95 (in Russian).

C8. Krasnosel'skii, A.M., Rachinskii, D.I. On cycle existence for higher order ordinary differential equations. Workshop on Geometrical Methods of Nonlinear Analysis and Semiconductor Laser Dynamics, Cork, Ireland, April 2001.

C9. Krasnosel'skii, A.M., Rachinskii, D.I. Hopf bifurcations in systems with Preisach hysteresis. Abstracts of the 1st SIAM-EMS conference on Applied Mathematics in our

Changing World, Berlin, Germany, September 2001. Report 01-19 of the Konrad-Zuse-Zentrum für Informationstechnik Berlin, p. 29.

C10. Rachinskii, D.I. On periodic solutions of equations with hysteresis. Abstracts of the 2nd International Conference on Functional Differential Equations and Appl., Beer-Sheba, Israel, June 2002, pp. 56-57.

C11. Krasnosel'skii, A.M., Rachinskii, D.I. Continuous branches of cycles and Hopf bifurcations for equations non-linearizable at equilibria. Abstracts of the ICM satellite International Conference on Differential and Functional Differential Equations, Moscow, Russia, August 2002, pp. 60-61.

C12. Rachinskii, D.I. Nonlocal Hopf bifurcations. Workshop on Dynamical Systems, Synchronization, Lasers, Berlin, Germany, February 2003.

C13. Krasnosel'skii, A.M., Rachinskii, D.I. Nonlocal theorems on Hopf bifurcations. Proceedings of the International Conference 'Kolmogorov and Contemporary Mathematics', Moscow, Russia, June 2003, pp. 67-68.

C14. Krasnosel'skii, A.M., Rachinskii, D.I. On global branches of cycles in Hopf bifurcations. Proceedings of the International Conference on Modern Problems of Functional Analysis and Differential Equations, Voronezh, Russia, July 2003, pp. 159-161.

C15. Krasnosel'skii, A.M., Rachinskii, D.I. On a number of branches of periodic solutions. International Conference on Differential Equations (EQUADIFF 2003), Hasselt, Belgium, 22 - 26 July 2003.

C16. Rachinskii, D.I. Minicourse of lectures on topological and variational methods in bifurcation problems, International School and Miniworkshop on Topological Methods in the Calculus of Variations and Dynamical Systems, Brescia, Italy, September 2003.

C17. Rachinskii, D.I. Bifurcations in systems with hysteresis. Proceedings of EGU General Assembly, Nice, France, April 2004. Geophysical Research Abstracts, Vol. 6, 07312, 2004.

C18. Vladimirov, A.G., Turaev, D., Rachinskii, D. Delay differential models of mode-locking in semiconductor lasers. Proceedings of ICONO 2005, International Conference on Coherent and Nonlinear Optics, St. Petersburg, Russia, May 2005.

C19. Nizette, M., Vladimirov, A.G., Rachinskii, D., Wolfrum M. Delay differential equations for passive mode locking. Proceedings of CLEO Europe 2005, European Conference on Lasers and Electro-Optics, Munich, Germany, June 2005.

C20. a. O'Kane, P., Krejci, P., Pokrovskii, A., Rachinskii, D. Hydrological models with hysteresis: some dynamical aspects;

b. Appelbe, B., Rachinskii, D., Zhezherun, A. Model of Van der Pol oscillator with hysteresis in inductance; Experimental investigation of multiple cycles in Van der Pol oscillator system with hysteresis in inductance.

International Workshop on Multi-rate Processes & Hysteresis, Cork, Ireland, April 3-8, 2006.

C21. a. Rachinskii, D. Equations with time derivatives of the Preisach operator;

b. Krasnosel'skii, A., Rachinskii, D. Subharmonic bifurcations from infinity.

AIMS' Sixth International Conference on Dynamical Systems, Differential Equations and Applications, Poitiers, France, June 23-28, 2006.

C22. Brokate, M., Rachinskii, D. Stability of periodically forced Armstrong - Fredrick model. Broberg Symposium on Mechanics of Materials: Perspectives and Recent

Advances, Dublin, Ireland, May 2007.

C23. a. Cross, R., McNamara, H., Pokrovskii, A., Rachinskii, D. A new paradigm for modelling hysteresis in macroeconomic flows;

b. Appelbe, B., Rachinskii, D., Zhezherun, A. Hopf bifurcation in a van der Pol type oscillator with magnetic hysteresis;

c. O’Ceallaigh, S., Pimenov, A., Pokrovskii, A., Rachinskii, D., Zhezherun, A. Algorithm for linear stability analysis in systems with Preisach hysteresis. International Symposium on Hysteresis Modelling and Micromagnetics (HMM 2007), Naples, Italy, June 2007.

C24. Huyet, G., Goulding, D., Melnik, S., Rasskazov, O., Hegarty, S.P., Rachinskii, D. Instabilities in quantum dot semiconductor lasers at 1.3 micron. Conference on Lasers and Electro-Optics CLEO EUROPE IQEC 2007, Munich, Germany, June 2007.

C25. a. Kozyakin, V., Krasnosel’skii, A., Rachinskii, D. Bifurcations of periodic orbits at infinity;

b. O’Ceallaigh, S., Pimenov, A., Pokrovskii, A., Rachinskii, D., Zhezherun, A. Stability analysis in systems with Preisach hysteresis.

International Conference on Differential Equations (EQUADIFF 2007), Vienna, Austria, August 2007.

C26. a. Huyet, G., Mel’nik, S., Rachinskii, D. et al. Excitability of an injected quantum dot laser;

b. Vladimirov, A., Pimenov, A., Rachinskii, D. Numerical bifurcation analysis of a mode locked semiconductor laser.

Workshop on Nonlinear Dynamics in Semiconductor Lasers, Berlin, Germany, November 2007.

C27. Pimenov, A., Pokrovskii, A., Rachinskii, D. Zhezherun, A. Bifurcations in Systems with Hysteresis. SFI Science Summit, Dublin, Ireland, November 2007.

C28. Vladimirov, A., Rachinskii, D. Bifurcation analysis of a model of passively mode-locked quantum dot laser. SPIE Europe - Photonics Europe 2008 International Symposium, Strasbourg, France, April 2008.

C29. Krasnosel’skii, A., Pokrovskii, A., Rachinskii, D. On one mechanism leading to mixed mode oscillations. International Workshop on Multi-Rate Processes & Hysteresis, Cork, Ireland, March 31 – April 5, 2008.

C30. Krasnosel’skii, A., Rachinskii, D. Nontrivial bifurcations at infinity. International Conference on Differential Equations and Topology, Moscow, Russia, June 2008.

C31. Pimenov, A., Rachinskii, D. Linear stability analysis of a soil-water hysteresis model. World Congress on Engineering WCE-2008, The 2008 International Conference of Applied and Engineering Mathematics, London, U.K., 2-4 July, 2008.

C32. Krasnosel’skii, A., Rachinskii, D. Bifurcation to unbounded sequence of cyclic branches of solutions. The Fifth International Conference on Differential and Functional Differential Equations, Moscow, Russia, 17-24 August 2008.

C33. Pokrovskii, A., Rachinskii, D. Mathematical theory of hysteresis. International Workshop "Phase Transitions and Optimal Control", Berlin, Germany, October 2008.

C34. Pimenov, A., Rachinskii, D., Vladimirov, A. Modelling bifurcations in mode-locked monolithic semiconductor lasers. SFI Science Summit, Kilkenny, Ireland, 17-18 November 2008.

C35. T. Habruseva, S. O'Donoghue, D. Rachinskii, S. Rebrova, S. P. Hegarty and G. Huyet, Single and dual-mode injection locked quantum-dot mode-locked lasers, CLEO/IQEC 2009 – Conference on Lasers and Electro-Optics (CLEO) and The International Quantum Electronics Conference (IQEC), Baltimore, Maryland, USA, May 31 - June 5, 2009.

C36. Rachinskii, D., Pokrovskii, A. Hysteresis loops generated by perturbation of systems with Devil's staircase nonlinearity. International Workshop on Resonance Oscillations and Stability of Nonsmooth Systems, Imperial College London, UK, 16 - 25 June, 2009.

C38. Participation in the 70th European Study Group with Industry ESGI'70, Limerick, Ireland, June 28 - July 3, 2009.

C39. Pokrovskii, A., Rachinskii, Emergent hysteresis behaviour in systems with Devil's Staircase input-output relationship, Fifth International PhD & DLA Symposium, University of Pécs, Hungary, October 2009.

C40. D. Rachinskii, A mathematical model for mechanism of synchronization in frequency dividers, Workshop on Injection-Locking, Cork, November 2009.

C41. O'Regan, S. M., Flynn, D., Kelly, T. C., O'Callaghan, M. J. A., Pokrovskii, A. V., Rachinskii, D. A hybrid model of the population dynamics of woodpigeon (*Columba palumbus*), Conference on Computational and Mathematical Population Dynamics, Bordeaux, May 31-June 4, 2010.

C42. a. Amann, A., Rachinskii, D., Temnov, G. Distribution of return point memory states for systems with stochastic inputs;

b. Balanov, Z., Krawcewicz, W., Rachinskii, D. Hopf bifurcation in hysteresis models for symmetric networks of coupled identical Van der Pol oscillators with ferromagnetic core: twisted equivariant degree approach;

c. Curran, D., Flynn, D., Kelly, T. C., Nelson, J., O'Callaghan, M. J. A., Pokrovskii, A. V., Rachinskii, D. Towards a model of long distance dispersal of ticks (*Acarina:Ixodoidea*) by seabirds - with particular reference to the Lyme Disease vector *Ixodes (Ceratiixodes) uriae*.

International Workshop on Multi-Rate Processes & Hysteresis, Pecs, Hungary, May 31 – June 3, 2010.

C43. a. Rachinskii, D. Memories of Alexei Pokrovskii: biography, hysteresis and mathematical work;

b. Amann, A., Brokate, M., McCarthy, S., Rachinskii, D., Temnov, G. Characterization of the memory states of the Preisach operator with stochastic inputs;

c. Deasy, F., Rachinskii, D. A spin interaction model with return point memory. International Symposium on Hysteresis Modelling and Micromagnetics (HMM 2011), Levico, Italy, May 2011.

C44. a. O'Regan, S. M., Kelly, T. C., Korobeinikov, A., O'Callaghan, M. J. A., Pokrovskii, A. V., Rachinskii, D., Chaos in a seasonally perturbed SIR model: modelling avian influenza in a seabird colony;

b. McCarthy, S., Rachinskii, D., Examination of bacteria growth in varying environment;

c. O'Grady, E., Culloty, S., Kelly, T., O'Callaghan, M. J. A., Rachinskii, D. Modelling of threshold behaviour in a fluke-hyperparasite system in a shell fish;

d. Kelly, T. C., Nelson, J., O'Callaghan, M. J. A., Pokrovskii, A. V., Rachinskii, D. Modelling of long distance dispersal of ticks by seabirds. Nonlinear Dynamics Conference in Memory of Alexei Pokrovskii, Cork, September 5-9, 2011.

C45. Rachinskii, D. An attempt at modelling memory effects in dynamics of spread of infectious disease, International Workshop on Hysteresis and Slow-Fast Systems, Lutherstadt Wittenberg, December 12-14, 2011.

C46. a. Rachinskii, D. Transition from equilibrium to pulsating dynamics in slow-fast delayed systems;

b. O'Grady, E., Culloty, S., Kelly, T., Rachinskii, D. Modelling threshold effect in a parasite-hyperparasite system in the cockle;

c. McCarthy, S., Rachinskii, D. Examination of switching behavior of a two-phenotype bacterium in a varying environment.

International Workshop on Multi-Rate Processes & Hysteresis, Suceava, Romania, May 21-24, 2012.

C47. Culloty, S. C., OGrady, E., Fermer, J., Morgan, E., Smith, C., Rachinskii, D., Ironside, J., Kelly, T., *Unikaryon legeri* has a significant impact on the ecology of the cockle *Cerastoderma edule*, The 87-th Annual Meeting of the American Society of Parasitologists, Richmond, Virginia, USA, 13-16 July 2012.

C48. Culloty, S. C., OGrady, E., Morgan, E., Lynch, S. A., Rachinskii, D., Ironside, J., Kelly, T., A parasite can have a significant impact on the ecology of the cockle *Cerastoderma edule*, SUSFISH 4Sea Conference, Llandudno Junction, Wales, 12-13 March 2013.

C49. Pimenov, A., Rebrova, N., Rachinskii, D., Vladimirov, A., Theoretical analysis of timing jitter in two-section passively mode-locked semiconductor lasers, CLEO/Europe - IQEC 2013, Conference on Lasers and Electro-Optics (CLEO) and International Quantum Electronics Conference (IQEC), 12-16 May 2013, Munich, Germany.

C50. Gurevich, P., Rachinskii, D., Reaction-diffusion equations containing hysteresis with diffusive thresholds, 9th International Symposium on Hysteresis Modelling and Micromagnetics (HMM 2013), May 2013, Taormina, Italy.

C51. Rachinskii, D., Amann, A., Brokate, M., McCarthy, S., Cascading effects in moving Preisach model, American Control Conference 2013, 17-19 June 2013, Washinton DC.

C52. a. Rachinskii, D., Friedman, G., Gurevich, P., Memory in switching two-phenotype population;

b. Pimenov, A., Korobeinikov, A., Rachinskii, D., Modelling permanent effects of a temporary stimulus (PETS) in predator-prey and SIR systems;

c. Pimenov, A., Rebrova, N., Rachinskii, D., Vladimirov, A., Effects of noise on a periodic solution of a system of nonlinear delay differential equations: an application to semiconductor lasers.

International Conference on Differential Equations (EQUADIFF 2013), Prague, Czech Republic, August 2013.

C53. a. Rachinskii, D., Krejci, P., Lamba, H., Melnik, S. Networks of Prandtl-Ishlinskii operators;

- b. Pimenov, A., Rachinskii, D. Robust homocline in a predator-prey system with hysteresis;
  - c. Friedman, G., McCarthy, S., Rachinskii, D. Hysteresis and bet-hedging in stochastic environments;
- International Workshop on Multi-Rate Processes & Hysteresis MURPHYS-HSFS'14, Berlin, Germany, April 7-11, 2014.
- C54. Hooton, E., Balanov, Z., Rachinskii, D. Towards understanding global behaviour of branches of periodic solutions in systems of symmetrically coupled Van der Pol equations. American Mathematical Society 2014 Spring Central Sectional Meeting, April 11-13, 2014, Lubbock, US.
- C55. Rachinskii, D. Discontinuous Prandtl-Ishlinskii operators and their network connections. Workshop on Rate independent processes and evolution, June 24-26, 2014, Prague, Czech Republic.
- C56. Ruderman, M., Rachinskii, D., Identification of piezoelectric hysteresis by direct recursive algorithm of Preisach model. ICM 2015, March 6-8, 2015, Nagoya, Japan.
- C57. Rachinskii, D. Population dynamics with the Preisach operator, SIAM Conference on Applications of Dynamical Systems, May 17-21, 2015, Snowbird, UT, US.
- C58. Hooton, E., Balanov, Z., Krawcewicz, W., Rachinskii, D. Sliding Hopf bifurcation and interval polynomials, VII-th Symposium on Nonlinear Analysis, September 14-18, 2015, Toruń, Poland.
- C59. Rachinskii, D. Minicourse of lectures “Some ideas about modeling hysteresis in biology and economics”, International Summer School on Multi-Rate Processes, Slow-Fast Systems and Hysteresis, June 29 - July 3, 2015, Levico Terme, Italy.
- C60. Rachinskii, D. Minicourse of lectures on Modeling and Analysis of Hysteresis Phenomena, Summer School on Nonsmooth Dynamical Systems, August 4-6, 2015, Dallas, US.
- C61. Pimenov, A., Vladimirov, A., Rachinskii, D. Dynamics of mode-locked semiconductor lasers under the influence of small noise, International Symposium on Physics and Applications of Laser Dynamics IS-PALD 2015, November 4-6, 2015, Metz, France.
- C62. a. Hooton, E., Balanov, Z., Krawcewicz, W., Rachinskii, D. Sliding Hopf bifurcation in interval systems;
- b. Kravets, P., Rachinskii, D., Vladimirov, A. Formation of pulses through a cascade of Hopf bifurcations in population models with delay;
- Texas Analysis and Mathematical Physics Symposium, November 6-8, 2015, Dallas, US.
- C63. K. Fathian, D. Rachinskii, M. W. Spong, N. R. Gans, Globally asymptotically stable distributed control for multi-agent formations, 3rd Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, July 27-31, 2015.
- C64. K. Fathian, D. Rachinskii, T. H. Summers, M. Spong, N. R. Gans, Distributed formation control using local position measurements, Texas Systems Day 2016, April 8, 2016, Austin, TX, USA.
- C65. a. D. Rachinskii, On a relationship between the Moreau sweeping process and the Prandtl-Ishlinskii operator;
- b. P. Kravets, D. Rachinskii, Traveling waves in a chain of excitable switches;
- School/Workshop on Applicable Theory of Switched Systems, June 6-10, 2016, Dallas, USA.



- C66. a. D. Rachinskii, On geometric conditions for reduction of the Moreau sweeping process to the Prandtl-Ishlinskii operator;
- b. R. Cross, D. Rachinskii, L. Rios, An experimental test of hysteresis arising from social interactions within a firm;
- International Workshop on Multi-Rate Processes & Hysteresis MURPHYS-HSFS'16, Barcelona, Spain, June 13-17, 2016.
- C67. K. Fathian, D. Rachinskii, M. W. Spong, N. R. Gans, Globally asymptotically stable distributed control for distance and bearing based multi-agent formations, American Control Conference, 6-8 July 2016, Boston.
- C68. K. Fathian, D. Rachinskii, T. Summers, N. R. Gans, Distributed control of cyclic formations with local relative position measurements, The 55th IEEE Conference on Decision and Control, 12-14 December 2016, Las Vegas.
- C69. S. A. Yudaev, D. I. Rachinskii, Asymptotic solution for simple biped walker model, International Conference on Information Technology and Nanotechnology (ITNT 2016), Samara, Russia, May 17-19, 2016.
- C70. K. Fathian, S. Safaoui, D. Rachinskii, T. Summers, M. W. Spong, N. Gans, Distributed formation control using vision feedback, Texas Systems Day 2017, March 31, 2017, Texas A&M University, USA.
- C71. D. Rachinskii, Estimation of timing jitter in a delayed differential model of semiconductor laser, SIAM Conference on Applied Dynamical Systems, May 21-25, 2017, Snowbird, UT, USA.
- C72. a. D. Rachinskii, Global branches of periodic solutions for equations with sector estimates of nonlinearities;
- b. Z. Balanov, E. Hooton, W. Krawcewicz, D. Rachinskii, Hopf bifurcation of relative equilibria and relative periodic solutions in FDEs: equivariant degree approach;
- c. Z. Balanov, E. Hooton, W. Krawcewicz, D. Rachinskii, Stabilization of periodic solutions in equivariant settings via time-delayed feedback;
- d. Z. Balanov, P. Kravets, W. Krawcewicz, D. Rachinskii; Relative periodic solutions in systems of coupled lasers;
- International Conference on Topological Nonlinear Analysis, June 12-15, 2017, Guangzhou, China.
- C73. D. Kim, A. Amann, T. Kalmar-Nagy, D. Rachinskii, Spectrum and eigenvectors of the discrete Preisach memory model, MAA Mathfest, July 26-29, 2017, Chicago, USA.
- C74. E. Kadaub, M. Arnold, D. Rachinskii, Competing species with different patterns of time dependent reproduction rate, Society for Mathematical Biology Annual Meeting, July 17-20, 2017, UT, USA.
- C75. K. Fathian, D. I. Rachinskii, T. H. Summers, M. W. Spong, N. R. Gans, Distributed formation control under arbitrarily changing topology, 2017 IEEE American Control Conference, May 24-26, 2017, Seattle, WA, USA.
- C76. T. C. Kelly, M. J. A O'Callaghan, R. Whelan, D. Rachinskii, A. Korobeinikov, N. Coughlan, A. Pimenov, Patterns of avoidance shown by birds to moving aircraft, International Eurasian Ornithology Congress 2018, April 23-27, 2018, Heidelberg, Germany.