

Recent Developments in Dynamic Equations on Time Scales

Rocky Mountain Mathematics Consortium
University of Wyoming, Laramie, Wyoming

Martin Bohner and Allan Peterson

June 8 – 19, 2009

Funding Sources

Institute for Applied Mathematics

Rocky Mountain Mathematics Consortium

University of Wyoming, College of Arts and Sciences

University of Wyoming, Mathematics Department

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Monday, June 8, 2009

8:00 – 8:20	Welcome and Opening Remarks, Classroom Bldg 214	<i>Duane Porter</i>
8:20 – 9:25	Introduction, differentiation, examples, applications	<i>Allan Peterson</i>
9:25 – 9:55	Break and time to get your parking permits if you have a car	
9:55 – 11:00	Integration, chain rules, Taylor's theorem	<i>Martin Bohner</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:00	Organization Meeting for the afternoon sessions	
2:00 – 5:15	Free time to see Laramie and meet other participants	
5:15 – 7:15	Picnic at Washington Park and social time	

Tuesday, June 9, 2009

8:00 – 9:15	Exponential function: Definition and examples	<i>Martin Bohner</i>
9:15 – 9:45	Break	
9:45 – 11:00	First order linear dynamic equations	<i>Allan Peterson</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:15	The Marshall differential analyzer project: A visual interpretation of dynamic equations	<i>Bonita Lawrence</i> <i>Clayton Brooks</i>
2:15 – 2:45	Break	
2:45 – 3:15	Oscillation and nonoscillation criteria for two-dimensional time-scale systems of first-order nonlinear dynamic equations	<i>Douglas Anderson</i>
3:15 – 4:00	The motion of whips and chains	<i>Stephen Preston</i>

Wednesday, June 10, 2009

8:00 – 9:15	The regressive vector space	<i>Allan Peterson</i>
9:15 – 9:45	Break	
9:45 – 11:00	Logistic equations, Bernoulli equations	<i>Martin Bohner</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:15	Stochastic Dynamic Equations and its Applications	<i>Suman Sanyal</i>
2:15 – 2:45	Break	
2:45 – 3:15	Recessive solutions for nonoscillatory half-linear dynamic equations	<i>Elvan Akin-Bohner</i>
3:15 – 4:00	Young's inequality on time scales revisited	<i>Douglas Anderson</i>

Thursday, June 11, 2009

8:00 – 9:15	Riccati equations, the Beverton–Holt equation	<i>Martin Bohner</i>
9:15 – 9:45	Break	
9:45 – 11:00	The transport equation	<i>Allan Peterson</i> <i>Chris Ahrendt</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:15	Laplace transform I	<i>Chris Ahrendt</i>
2:15 – 2:45	Break	
2:45 – 3:15	Existence of periodic solutions of first order dynamic equations	<i>Seshadev Padhi</i>
3:15 – 4:00	Linear feedback control on time scales	<i>John Davis</i>

Friday, June 12, 2009

8:00 – 9:15	Laplace transform II	<i>Chris Ahrendt</i>
9:15 – 9:45	Break	
9:45 – 11:00	Climb every mountain: An introduction to the mountain pass theorem and its applications to time scales I	<i>Heidi Berger</i>
11:00	Lunch and Free Time	

Monday, June 15, 2009

8:00 – 9:15	Climb every mountain: An introduction to the mountain pass theorem and its applications to time scales II	<i>Heidi Berger</i>
9:15 – 9:45	Break	
9:45 – 11:00	The linear quadratic regulator on time scales	<i>Nick Wintz</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:15	Error estimates for asymptotic solutions of nonautonomous dynamic systems on a time scale	<i>Gro Hovhannisyan</i>
2:15 – 2:45	Break	
2:45 – 3:15	A new method for asymptotic integration of linear dynamic systems on time scales	<i>Fei Xue</i>
3:15 – 4:00	A spectral characterization of exponential stability for linear systems	<i>John Davis</i>

Tuesday, June 16, 2009

8:00 – 9:15	Euler–Cauchy equations	<i>Martin Bohner</i>
9:15 – 9:45	Break	
9:45 – 11:00	Algebraic Lyapunov equations	<i>John Davis</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:15	The Kalman filter on time scales	<i>Nick Wintz</i>
2:15 – 2:45	Existence of an attracting solution to a periodic Riccati equation	<i>Douglas Anderson</i>
2:45 – 3:15	The analogue of the iterated logarithm in q -difference equations	<i>Karl Ulrich</i>
3:15 – 4:00	Stability inequalities for second order dynamic equations on a time scale	<i>Gro Hovhannisyan</i>

Wednesday, June 17, 2009

8:00 – 9:15	Dynamic Lyapunov equations	<i>John Davis</i>
9:15 – 9:45	Break	
9:45 – 11:00	Gronwall's inequality, stability theory	<i>Allan Peterson</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:15	Oscillation of delay dynamic equations	<i>Raegan Higgins</i>
2:15 – 2:45	Break	
2:45 – 3:15	The linear quadratic tracker on time scales	<i>Nick Wintz</i>
3:15 – 4:00	Coupled conditions for asymptotic equivalence on time scales	<i>Dylan Poulsen</i>

Thursday, June 18, 2009

8:00 – 9:15	Oscillation of factored dynamic equations	<i>Allan Peterson</i>
9:15 – 9:45	Break	
9:45 – 11:00	Kneser's theorem in quantum calculus	<i>Martin Bohner</i>
11:00 – 1:00	Lunch and Free Time	
1:00 – 2:15	Oscillatory properties for three-dimensional dynamic systems	<i>Elvan Akin-Bohner</i>
2:15 – 2:45	Break	
2:45 – 3:15	Neural networks on time scales	<i>Suman Sanyal</i>
3:15 – 4:00	Laplace transform III	<i>Chris Ahrendt</i>

Friday, June 19, 2009

8:00 – 9:15	Cushing–Henson conjectures, dynamic risk aversion and risk vulnerability	<i>Martin Bohner</i>
9:15 – 9:45	Break	
9:45 – 11:00	Linear systems	<i>Allan Peterson</i>
11:00	Closing Remarks, followed by Lunch	<i>Duane Porter</i>