George Avalos
October 21, 2021

Education:

- Ph.D. (Applied Mathematics) 1995 University of Virginia
- M.S. (Mathematics) 1991 University of Houston
- B.S. (Mathematics) 1990 University of Houston

Professional Experience:

- Milton Mohr Professor (2020-present)
- Professor (2006-present), University of Nebraska-Lincoln
- Associate Professor (2000-2006), University of Nebraska-Lincoln
- Assistant Professor (1995-2000), Texas Tech University
- Postdoctoral Fellow (1995-1996), Institute for Mathematics and its Applications (University of Minnesota)
- Summer Visitor (1997-1998), University of Exeter (England)
- Summer Visitor at the Institute for Mathematics and its Applications (University of Minnesota), for the Program on Geometric Methods in Inverse Problems and PDE Control, July 2001.
- Long-term visitor, at The Department of Mathematics, University of Virginia (February 3-April 4, 2008).
- Long-term visitor, at Il Dipartimento di Matematica e Informatica Universita' degli Studi di Firenze (Italy) (May 15 - May 30, 2014).
- Long-term visitor, at The Department of Mathematics, Hacettepe University, (Ankara, Turkey) (May 18-June 12, 2015).
- Long-term visitor, at The Department of Mathematics, Hacettepe University, (Ankara, Turkey) (February 7 - May 6, 2016).

Research Interests: Applied Functional Analysis, Control Theory for Partial Differential Equations

Grants:

1. North Atlantic Treaty Organization Collaborative Research Grant 970247, "Abstract linear systems theory for the resolution of pde models seen in smart materials" (with Dr. George Weiss, University of Exeter, and Imperial College [England]), April 1997.
2. NSF Grant DMS–9710981, "Controllability of a fluid-structure interaction arising in chemical vapor deposition", July 15, 1997–December 31, 1998.
3. NSF Grant DMS–9972349, "A mathematical control theory for the partial differential equations of thermal/structure and structural acoustic interactions", July 15, 1999–July 31, 2001.

4. NSF Grant DMS–0196359, "A mathematical control theory for the partial differential equations of thermal/structure and structural acoustic interactions", March 14, 2001-June 30, 2002.

5. NSF Grant DMS–0208121, "Exact controllability and observation of structural acoustics and thermoelastic systems", July 1, 2002-June 30, 2006.

6. NSF Grant DMS-0606776, "Mathematical analysis and control of interactive partial differential equations", July 1, 2006-June 30, 2010.

7. NSF Grant DMS-0908476, "Analysis, Computation and Control of Coupled Partial Differential Equation Systems", August 1, 2009- July 31, 2013.

8. NSF Grant DMS-1211232, "Analysis and Control of Evolutionary Plates and Elastic Structures", 08/01/2012 - 07/31/2016 (PI, and with Daniel Toundykov, University of Nebraska-Lincoln).

9. NSF Grant DMS-1616425, "Analysis and Control Theory for Moving Boundary and Nonlinear Phenomena in Interactive Partial Differential Equations", 7/01/2016 - 6/30/2020 (PI), and with Pelin Güven Geredeli, Iowa State University).

10. TÜBİTAK (of Turkey) Fellowship Grant 2221 for Visiting Scientist and Scientists on Sabbatical Leave, Spring 2016.

11. NSF Grant DMS-1658793, "KUMUNU PDE 2017", 03/15/2017 - 03/14/2018, (PI, and with Daniel Toundykov, University of Nebraska-Lincoln). The total amount is $19,350.

12. NSF Grant DMS-1907823, "Mathematical control theory and analysis of partial differential equations coupled across a boundary interface" (PI), and with Pelin Güven Geredeli, Iowa State University).

13. NSF Grant DMS-1948942,"The KUMUNU-ISU Conference in PDE, Dynamical Systems and Applications", The total amount is $20,000

Honors:

- Society of Industrial and Applied Mathematics Student Paper Prize, October 1995.
- Mary Dean Scott Fellowship in Applied Mathematics, May 1995.
- Virginia Engineering Foundation Fellowship, 1993–1995.
- Virginia Space Grant Consortium Graduate Research Fellowship, 1994–1995.

Talks Presented at Professional Meetings

1. Dynamical Systems Arising from the Modelling of Smart Structures", Atlantic Conference on Differential Equations. Knoxville, Tennessee. October 1994.

2. "Stabilizability and Controllability of Coupled Nonlinear Hyperbolic/Parabolic Systems", American Mathematical Society Conference. San Francisco, California. January 1995.

3. "A Feedback Control Theory and Riccati Equation for Coupled Hyperbolic/Parabolic Systems", Third SIAM Conference on Control and its Applications. St. Louis, Missouri. April 1995.

4. Presentation of SIAM Student Paper Prize entry, SIAM Annual Meeting, Charlotte, North Carolina, October 1995.

5. "The Infinite Horizon Problem for a Coupled Hyperbolic/Parabolic System", SIAM Annual Meeting, Charlotte, North Carolina, October 1995.

6. "Concerning the Exponential Stability of Thermoelastic Models with No Added Dissipation", Texas PDE Conference, Southwest Texas State University, San Marcos, Texas, March 1996.

7. "The Uniform Decay of a Thermoelastic model with Simply Supported Boundary Conditions", International Conference on Nonlinear Problems in Aviation & Aerospace, Daytona Beach, Florida, May 1996.

8. "Well-Posedness of a Nonlinearly Coupled Semilinear Wave and Beam-like Equation Arising in Structural Acoustic Problems", AMS-IMS-SIAM Joint Summer Research Conferences: Optimization Methods in Partial Differential Equations, June 1996.

9. "Controllability of a Coupled Hyperbolic/Parabolic System", SIAM Annual Meeting, Kansas City, Missouri, July 1996.

10. "The Uniform Decay of a Thermoelastic model with Simply Supported Boundary Conditions and no Mechanical Dissipation", American Mathematical Society Meeting, Chattanooga, Tennessee, October 1996.

11. "Strong Stability of a Coupled Hyperbolic/Parabolic System seen in Structural Acoustics", Texas Systems Day, Dallas, October 1996.

12. "Uniform Decay Rates for a Nonlinear Thermoelastic System", IFIP WG 7.2 Conference on ""Optimal Control: Theory, Algorithms, and Applications", Gainesville, Florida, February 1997.

13. "Uniform Decay of a Structural Acoustics with Nonlinear Dissipation", Barrett Lectures– "Control Theory and Applications", Knoxville, Tennessee, March, 1997.

14. "Exponential Stability of a Nonlinear Thermoelastic System", European Control Conference, Brussells, Belgium, July 1997.

15. "A Result of Exact Controllability for a Structural Acoustics Model", Midwest and Atlantic Differential Equations Conference, Nashville, Tennessee, October 1997.

16. "Partial Exact Controllability of a Thermoelastic Model with Thermal Control Only", Centro de Investigacion en Matematica International Conference on Dynamics and Control of Partial Differential Equations, Guanajuato, Mexico, November 1997.

17. "Boundary Controllability of Thermoelastic Plates Under Free Boundary Conditions", Fourth SIAM Conference on Control and its Applications. Jacksonville, Florida, May 1998.

18. "Regularity of a Controlled Structural Acoustics Model", Fourth SIAM Conference on Control and its Applications. Jacksonville, Florida, May 1998.

19. "Results on Exact Controllability for a Linear System in Thermoelasticity", International Symposium on the Mathematical Theory of Networks and Systems", Padova, Italy, July 1998.

20. "A Compendium of Controllability Results for a System of Thermoelasticity Under Free Boundary Conditions", First International Conference on Semigroups of Operators: Theory and Applications, Newport Beach, California, December 1998.

21. "Active Suppression of Noise in a 3–D Structural Acoustic Chamber with Curved Walls", 37th IEEE Conference on Decision and Control, Tampa, Florida, December 1998.

22. "Well–posedness of the Structural Acoustics Model under Unbounded Control and Observation", SIAM Annual Meeting, Atlanta, Georgia, May 1999.

23. "Point Observations of a Structural Acoustics Model", AMS Summer Research Conference on Differential–Geometric Methods in the Control of Partial Differential Equations, Boulder, Colorado, June 1999.

24. "Point Control and Observation of a Structural Acoustics Model", The NSF–CBMS Regional Research Conference "Mathematical Control Theory of Coupled Systems of Partial Differential Equations", Lincoln, Nebraska, August 1999.

25. "Exact–Approximate Controllability Properties of Thermoelastic Systems Under Variable Thermal Coupling", NSF Workshop on Control Theory, Lincoln, Nebraska, August 1999.

26. "Controlling the Thermoelastic Plate Equation Under Variable Thermal Coupling", NSF Conference on Advances in the Control of Nonlinear Distributed Parameter Systems, College Station, Texas, October 1999.

27. "Concerning the Wellposedness of a Structural Acoustics Interaction Under the Influence of Point Control and Observation", Conference on Decision and Control, Phoenix, Arizona, December 1999.

28. "Some Recent Results Concerning the Stability and Controllability of Structural Acoustic Systems", American Mathematical Society Annual Meeting, Washington D.C., January 2000.

29. "Exact Controllability Properties of Nonlinear Thermoelastic Systems", "The Uniform Decay of a Thermoelastic model with Simply SupportedBoundary Conditions", International Conference on Nonlinear Problems in Aviation & Aerospace, Daytona Beach, Florida, May 2000.

30. "Concerning the Wellposedness of a Point Controlled and Point Observed Structural Acoustics Model", American Mathematical Society Sectional Meeting, Lawrence, Kansas, March 2001.

31. "On Controlling the Dynamics of Structural Acoustic Interactions", Workshop on the Control of Partial Differential Equations, University of Nebraska-Lincoln, April 2001.

32. "Exact Controllability Properties of a Hybrid Acoustic Flow Model", Fifth SIAM Conference on Control and its Applications. San Diego, California, July 2001.

33. "Exact Controllability of Structural Acoustic Interactions", Summer Program on Geometric Methods in Inverse Problems and PDE Control, Institute for Mathematics and its Applications, University of Minnesota (Twin Cities), July 2001.

34. "Control Theoretic Properties of a Thermoelastic Semigroup" (Plenary Lecture), Second Conference on Semigroups of Operators: Theory and Applications, Rio de Janeiro, September 2001.

35. "The Reachability Properties of PDE Models seen in Fluid Structure Interactions", American Mathematical Society Sectional Meeting, Chattanooga, Tennessee, October, 2001.

36. "Control Theoretic Properties of Nonlinear Thermoelastic Plates", SIAM Annual Meeting, Philadelphia, PA, July 2002.

37. "Concerning the Reachability Properties of Nonlinear Thermoelastic Plates", Workshop on Nonlinear Wave Equations, University of Virginia, December 2002.

38. "Sharp Rates of Blowup for the Minimal Energy Function Relative to the Null Controllability of Thermoelastic Plates", Conference on Control of Partial Differential Equations in Honor of Jack Lagnese, Georgetown University, Washington, D.C., June 2003.

39. "Optimal Blowup Rates for the Minimal Energy Null Control for the Strongly Damped Abstract Wave Equation", Workshop on Control of Infinite Dimensional Systems, University of Exeter, Exeter (England), July 2003.

40. "Mechanical and Thermal Null Controllability of Thermoelastic Plates and Singularity of the Associated Mimimal Energy Function", IFIP 2003, Sophia-Antipolis, France, July 2003.

41. "Exact Controllability of Nonlinear Thermoelastic Systems", American Institute of Mathematical Sciences 5th International Conference on Dynamical Systems, Pomona, California June 2004.

42. "Global Exact Controllability of an Analytic and Nonlinear Thermoelastic System", The Fourth World Congress of Nonlinear Analysts, Orlando, Florida, July 2004.

43. "Controllability Properties of Nonlinear Thermoelastic Plates", IFIP 7.2 Working Conferences on Free and Moving Boundaries: Analysis, Simulation and Control, Houston, Texas, December 2004.

44. "Global Null Controllability of Analytic Nonlinear Systems", AMS Sectional Meeting, Bowling Green, Kentucky, March 2005.

45. "Exact Controllability of an Acoustic Wave/Plate Interaction under the Influence of Boundary and Localized Controls", AMS-IMS-SIAM Research Conference in Control Methods in PDE Dynamical Systems, Snowbird, Utah, July 2005.

46. "Reachability Properties of an Acoustic Wave/Kirchoff Plate Interaction under the Influence of Boundary Control, SIAM Conference on Control and its Applications, New Orleans, Louisiana, July 2005.

47. "Numerical Analysis of the Associated Minimal Energy Function Relative to the Null Controllability of Structurally Damped Waves and Analytic Thermoelastic Plates, SIAM Conference on Control and its Applications, New Orleans, Louisiana, July 2005.

48. "Null Controllability of von Kármán Thermoelastic Plates Under the Clamped or Free Mechanical Boundary Conditions", 5th ISAAC Congress, University of Catania (Italy), July 2005.

49. "Concerning the Strong Decay of a Fluid-Structure Interactive PDE", 22nd IFIP TC 7 Conference on System Modelling and Optimization, Turin, Italy, July 2005.

50. "Strong Stability of PDE Semigroups via a Resolvent Criterion of Y. Tomilov", AMS 2005 Fall Southeast Section Meeting, Johnson City, Tennessee, October 15-16, 2005.

51. "Concerning The Strong Decay of a Fluid-Structure Interactive PDE", Differential Equations Weekend at the University of Memphis, April 2006.

52. "Controllability Properties of Nonlinear Rotation-Free Thermoelastic Systems, 6th International AIMS Conference on Dynamical Systems, Partial Differential Equations and Applications, Poitiers, France, June 25-28, 2006.

53. "Analysis and Stability of a Fluid-Structure PDE Model", Special Session on Partial Differential Equations and Applications, 31st SIAM Southeastern-Atlantic Section Conference, University of Memphis, May 4-5, 2007.

54. "Global Exact Controllability of Thermoelastic Systems", Special Session on Control and Optimization of Nonlinear Evolutionary PDE, 23rd IFIP TC 7 Conference on System Modelling and Optimization, Cracow (Poland), July 23-27, 2007.

55. "Wellposedness and Stability Analysis of a Coupled Stokes-Lamé System, as a PDE Model of Certain Fluid-Structure Interactions", Special Session on Control and Optimization of Nonlinear PDE Systems, First Joint International Meeting Between the AMS and Polish Mathematical Society, Warsaw, July 31-August 3, 2007.

56. "Qualitative and Control Theoretic Properties of a Certain Fluid-Structure Interactive PDE Model", II Symposium on Partial Differential Equations", Maringá (Brazil), September 3-6, 2007.

57. "Wellposedness and stability theory for a PDE which governs fluid-structure interactions", Special Session on Harmonic Analysis Methods in Mathematical Fluid Dynamics, AMS Sectional Meeting, Bloomington, Indiana, April 5-6, 2008.

58. "Analysis of a Fluid-Structure Interactive PDE Model", The 7th AIMS Conference on Dynamical Systems and Differential Equations, Arlington, Texas, May 18-21, 2008.

59. "Numerical Approximations of Null Controllability for Non-standard Parabolic PDE Models", World Congress of Nonlinear Analysts (WCNA 2008), Orlando, Florida, July 2-9, 2008.

60. "Numerical Analysis of a Coupled Hyperbolic-Parabolic Fluid-Structure Interactive System", World Congress of Nonlinear Analysts (WCNA 2008), Orlando, Florida, July 2-9, 2008.

61. "Numerical Approximations to Null Controllers for Nonstandard Parabolic Equations", at the Banach Center Conference on 50 years of Optimal Control, Będlewo, Poland, September 15-20, 2008.

62. "Beyond Lack of Compactness and Lack of Stability of a Coupled Parabolic-Hyperbolic Fluid-Structure system", NSF workshop at UCLA honoring professor A. V. Balakrishnan, January 30-31, 2009.

63. "Higher Regularity Properties of a Coupled Parabolic-Hyperbolic Fluid-Structure System, The Sixth IMACS Internatioanl Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, March 23-26.

64. "Analysis of Fluid-Structure PDE Dynamics",24th IFIP TC7 Conference, Buenos Aires, Argentina, July 27-31, 2009.

65. "Analysis of Fluid-Structure Interactive PDE Models, First Meeting on Asymptotics of Operator Semigroups", St. John's College, Oxford, September 3-5, 2009.

66. "Smoothing Properties and Lack of Compactness for a Coupled Fluid-Structure Semigroup", SIAM Conference on Analysis of Partial Differential Equations, Miami, Florida, March 7-10, 2009.

67. "Concerning the Qualitative Features of a Fluid-Structure Interactive PDE Model", AMS National Meeting, San Francisco, January 13-16, 2010.

68. "Rational Decay Rates for a Partial Differential Equation Model of Fluid-Structure Interaction", The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden , Germany, May 25 - 28, 2010

69. "On Stability and Trace Regularity of Solutions to Reissner-Mindlin-Timoshenko Equations", The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden , Germany, May 25 - 28, 2010.

70. "Qualitative Properties of Fluid-Structure Interactive PDE Models", 7th International Conference on Differential Equations and Dynamical Systems (University of South Florida in Tampa), December 16, 2010.

71. "Concerning the Uniform Stabilization of Fluid-Structure Interaction PDE Models", AMS National Meeting New Orleans, January 7, 2011.

72. "Computation of Minimal Norm Control Asymptotics Relative to the Null Controllability of Non-Standard Parabolic-Like Dynamics", AMS National Meeting, January 9, 2011.

73. "Numerical Analysis for the Null Controllability of Non-Standard Parabolic-Like PDE Dynamics", NSF VIGRE workshop on Numerical Analysis and Scientific Computing, University of Iowa, March 17, 2011.

74. "A Divergence-Free Finite Element Method for a Fluid-Structure PDE Interaction", AMS Sectional Meeting, University of Iowa, March 18, 2011.

75. "A Frequency Domain Approach to Rational Decay for a Fluid-Structure PDE Model", at the Conference, "Evolution Equations: Randomness and Asymptotics", Bad Herrenalb (Germany), October 10-14, 2011.

76. "Concerning Uniform Decays for Coupled Hyperbolic-Parabolic PDE Models", Minisymposium at SIAM Conference on Partial Differential Equations, San Diego, Ca., October 15-17, 2011.

77. "A Resolvent Criterion Approach to Uniform Stability of Coupled PDE Processes", International Conference on numerical analysis & optimization: theory and applications, at King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, December 18-19, 2011.

78. "Concerning the Uniform Stability of a Structural Acoustic PDE Model", AMS Sectional Meeting, Lawrence, Kansas, March 30-April 1, 2012.

79. "Rational Decay of Structural Acoustic Dynamics", 9th AIMS International Conference, Orlando, Florida, July 4, 2012.

80. "Minimal Norm Control Asymptotics and Numerical Approximations for the Null Controllability of Non-Standard Parabolic-Like PDE Dynamics", 9th AIMS International Conference, Orlando, Florida, July 1, 2012.

81. "Rational Decay of Some Coupled PDE Systems", The Eighth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, University of Georgia, March 25-28, 2013.

82. "A Double Compactness-Uniqueness Argument to obtain Rational Decays of Fluid-Structure Interactive PDE Models", AMS Spring Sectional Meeting, Iowa State University, April 27, 2013.

83. "A Continuous and Numerical Analysis for a Certain Fluid-Structure Interactive PDE Model", Issac Ninth Congress, Krakow, Poland, August 8, 2013.

84. "Rational Decay Estimates for Fluid-Structure PDE Models", IFIP TC 7 Conference on System Modelling and Optimization, Klagenfurt, Austria, September 8-13, 2013.

85. "Concerning Semigroup Wellposedness and Decay for a PDE of Fluid-Structure Interaction", Semigroups of Operators: Theory and Applications, Bedlewo, Poland, October 9, 2013.

86. "Concerning the Rational Decay of Certain Fluid-Structure PDE Models", 2013 SIAM Conference on Analysis of Partial Differential Equations, Lake Buena Vista, Florida, December 7-10, 2013.

87. "Higher Regularity for a Fluid-Structure Interactive Semigroup", The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, July 8, 2014.

88. "Concerning a Nonlinear Fluid-Structure Interaction", The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, July 10, 2014.

89. "Concerning the Nonlinear Analysis of a Fluid-Structure Interactive PDE Model", Spring Eastern Sectional Meeting, Georgetown University, Washington, DC, March 7-8, 2015.

90. "Uniform Stability for Solutions of a Structural Acoustics PDE model with no Added Feedback", Joint University of Kansas and University of Missouri Conference on Partial Differential Equations, Lawrence, Kansas, April 18, 2015.

91. "Rational Decay Rates for Solutions of a Structural Acoustics PDE model", 27th IFIP TC7 Conference 2015 on System Modelling and Optimization, Sophia-Antipolis, France, June 29 - July 3, 2015.

92. "Rational Decay Rates for Solutions of a Structural Acoustics PDE model with no Additional "Hard Wall" Dissipation", Fall Southeastern Sectional Meeting, University of Memphis, Memphis, TN, October 17-18, 2015.

93. "Concerning an Applied Analysis of Fluid-Structure Interactive PDE Models", Fall Southeastern Sectional Meeting, University of Memphis, Memphis, TN, October 17-18, 2015.

94. "Concerning a Nonlinear Semigroup Approach to Wellposedness of a Structural Plate-Navier Stokes Interaction", 11th AIMS International Conference, Orlando, Florida, July 3, 2016.

95. "Interaction of a Viscous Fluid with a Reissner-Mindlin-Timoshenko Plate", 11th AIMS International Conference, Orlando, Florida, July 1, 2016.

96. "A Frequency Domain Approach for Uniform Stability of Solutions to a Structural Acoustics Interactive PDE", Fall Southeastern Sectional Meeting North Carolina State University, Raleigh, N.C., November 13, 2016.

97. "Semigroup Wellposedness of a Compressible Fluid-Structure PDE Interactive Model", AMS National and Joint Mathematical Meetings, Atlanta, Georgia, January 4, 2017.

98. "Analysis of a Compressible Fluid - Structure PDE Interaction", AMS Spring Southeastern Sectional Meeting, March 12, 2017, Charleston, South Carolina.

99. "Exponential Stability a Compressible Fluid-Structure PDE Interactive Model", International Conference on Applied Mathematics, Florida International University (Miami), January 6, 2018.

100. "Rational Decay of a Canonical Structural Acoustic PDE Dynamics", IFIP TC 7 Conference on System Modelling and Optimization, July 24, 2018, Essen, Germany.

101. "Stability Properties of a Multilayered Structure-Fluid PDE", Mathematics in the City Beautiful (A Conference in Honor of Jiongmin Yong's 60th Birthday), December 14, 2018, Orlando, Florida.

102. "Qualitative Properties of a Multilayered Structure-Fluid PDE", SIAM Minisymposium on Flow-induced (In)stability of Elastic Structures, Joint Mathematics Meetings, Baltimore, January 19, 2019.

103. "A Qualitative and Stability Analysis of Fluid-Multilayer Structure Dynamics, The 5th Annual Meeting of SIAM Central States Section, October 19-20, 2019, Iowa State University.

104. "Uniform Decay Properties of Structural Acoustic PDE Models", 2019 SIAM Conference on Analysis of Partial Differential Equations, December 10-14, 2019, La Quinta, California.

Other Talks Presented

1. "Concerning the Optimal Control of a Problem in Structural Acoustics", Colloquium of Department of Mathematics, Texas A&M University, College Station, Texas, February 1995.

2. "A Riccati Equation for a Controlled Structural Acoustics Model", Colloquium of Department of Mathematics, Texas Tech University, Lubock, Texas, February 1995.

3. "Well–Posedness and Control of Systems Arising from the Modelling of Smart Structures", Institute for Mathematics and its Applications Postdoctoral Seminar, University of Minnesota (Minneapolis), November 1995.

4. "Stability of Solutions for Coupled Hyperbolic/Parabolic Systems", Colloquium of Department of Mathematics, University of Nebraska-Lincoln, December 1995.

5. "A Compendium of Control Theoretic Results for a Model in Structural Acoustics", Colloquium of Department of Mathematics, Vanderbilt University, December 1995.

6. "Stability results for Structural Acoustic and Fluid/Structure Interactions", Colloquium of Department of Mathematics, University of Houston, March 1996.

7. "A Compendium of Results Concerning a Model in Structural Acoustics", Colloquium of Department of Mathematics, Virginia Polytechnic Institute & State University, Blacksburg, Virginia, February 1997.

8. "Exact Controllability of Thermoelastic Systems", Colloquium of Department of Mathematics and Statistics, University of Nebraska–Lincoln, February 1999.

9. "Decay Properties of Interactive Partial Differential Equations", Colloquium of Department of Mathematics and Statistics, University of Nebraska–Lincoln, January 2000.

10. "Controllability Properties of PDE Models Seen in Structural Acoustics", Colloquium of Department of Mathematics, Iowa State University, April 2002.

11. "Concerning the Asymptotic Stability of a Fluid-Structure PDE", Colloquium of Department of Mathematics, Oakland University (Michigan), April 2006.

12. "Qualitative and Control Theoretic Properties of a Certain Fluid-Structure Interactive PDE Model", Ellis B. Stouffer Colloquium, University of Kansas, November 8, 2007.

13. "A Survey of Methodologies for Strong Stability of Dissipative PDE", Differential Equations and Dynamical Systems Seminar, University of Virginia, February 12, 2008.

14. "Rational Decay Rates for a Fluid-Structure Interaction", PDE Seminar at Department of Mathematics, University of Virginia, March 22, 2011.

15. "Decay properties of Partial Differential Equation models of fluid-structure interaction", Colloquium, University of Houston, October 24, 2012.

16. "A Continuous and Numerical Analysis for a Certain Fluid-Structure Interactive PDE Model", Partial Differential Equations Seminar, Dipartimento di Matematica e Informatica Universita' degli Studi di Firenze (Italy), May 23, 2014.

17. "Sharp Rational Decay Rates for a Fluid-Structure Interaction", Applied Math Seminar, Department of Mathematics, Iowa State University, November 17, 2014.

18. "A Continuous and Numerical Analysis for a Fluid-Structure Interactive Semigroup", Colloquium, Department of Mathematics, Iowa State University, November 18, 2014.

19. "An Applied Functional and Numerical Analysis of a Certain Fluid-Structure Interactive PDE", Colloquium, Department of Mathematics, University of Tennessee-Chattanooga, April 9, 2015.

20. "My Prospective on a Career in Mathematics", Mathematics Undergraduate Seminar, Department of Mathematics, University of Tennessee-Chattanooga, April 10, 2015.

21. "Qualitative and Quantitative Analysis of a Fluid-Structure PDE Interaction", PDE Seminar, Department of Mathematics, Hacettepe University, Ankara, Turkey, May 27, 2015.

22. "Rational Decay of Solutions of a Structural Acoustics PDE model with no Additional Dissipative Feedback", PDE Seminar, Department of Mathematics, Hacettepe University, Ankara, Turkey, March 2, 2016.

23. "Optional rational decay of a heat-wave interaction", PDE Seminar, Department of Mathematics, Hacettepe University, Ankara, Turkey, April 22, 2016.

24. "Wellposedness and Numerical Analysis of a Certain Fluid-Structure Interactive PDE", Seminar of Institute of Applied Mathematics, Middle East Technical University, Ankara, Turkey, April 26, 2016.

25. "Uniform Decay Properties of Coupled Structural Acoustics PDE Models", PDE Seminar of University of Zagreb (Croatia), July 1, 2019.

26. "Concerning a PDE Interaction of Structure-Fluid Type", Applied Mathematics Seminar of Iowa State University, November 18, 2019.

27. "Qualitative Properties of a Multi-layered Structural Flow PDE", Special Session on Modern Analysis, at the Fall Southeastern Sectional Meeting, October 10-11, 2020.

Publications:

1. George Avalos and Irena Lasiecka, "A Differential Riccati Equation for the Active Control of a Problem in Structural Acoustics", *Journal of Optimization Theory and Applications*, Vol. 91, No. 3, December 1996, pp. 695–728.

2. George Avalos, "Sharp Regularity Estimates for the Wave Equation with Prescribed Boundary Data ", *Applied Mathematics and Optimization* , Vol. 35, 1997, 203–219.

3. George Avalos and Irena Lasiecka, "The Strong Stability of a Semigroup Arising from a Coupled Hyperbolic/Parabolic System", *Semigroup Forum*, Vol. 57 (1998), pp. 278–292.

4. George Avalos, "The Exponential Stability of a Coupled Hyperbolic/Parabolic System Arising in Structural Acoustics", *Abstract and Applied Analysis*, Vol. 1, no. 2 (1996), pp. 203–217.

5. George Avalos, "Concerning the Well–Posedness of a Nonlinearly Coupled Wave and Beam–like Equation", *Discrete and Continuous Dynamical Systems*, Vol. 3, No. 2, April 1997.

6. George Avalos and Irena Lasiecka, "Exponential Stability of Thermoelastic Systems without Mechanical Dissipation", *Rendiconti dell'Istituto Di Matematica Dell'Università Di Trieste*, Vol. XXVIII, Supplemento (1997) (in honor of Pierre Grisvard), pp. 1–28.

7. George Avalos and Irena Lasiecka, "Exponential Stability of a Thermoelastic System with Free Boundary Conditions without Mechanical Dissipation" (with Irena Lasiecka), *SIAM Journal on Mathematical Analysis*, Volume 29, No. 1 (January 1998), pp. 155–182.

8. George Avalos and Irena Lasiecka, "Exponential stability of an uncontrolled thermoelastic system with varying boundary conditions", *Applicable Analysis*, Vol. 68 (1998), pp. 31–49.

9. George Avalos and Irena Lasiecka, "Stability of Dynamics Arising in Structural Acoustics Problems", Proceedings of the Third International Symposium on Methods and Models in Automation and Robotics, Międzyzdroje, Poland, September 1996, pp. 203–217.

10. George Avalos, "Exponential Stability of a Nonlinear Thermoelastic System", The Proceedings of the European Control Conference, Bruxelles, Belgium, July 1997.

11. George Avalos, "The Optimal Control of a Problem in Structural Acoustics", *Smart Structures and Materials 1995: Mathematics and Control in Smart Structures*, Editor: Vasundara V. Varadan, SPIE Proc. Vol. 2442 (May1995), 208–217.

12. George Avalos and Irena Lasiecka, "Uniform Decay Rates for Solutions to a Structural Acoustics Model with Nonlinear Dissipation", *Applied Mathematics and Computer Science*, Vol. 8, No. 2 (1998), pp. 287–312.

13. George Avalos, Irena Lasiecka, and Roberto Triggiani, "Uniform Stability of Nonlinear Thermoelastic Plates with Free Boundary Conditions" (with Irena Lasiecka and Roberto Triggiani), *International Series of Numerical Mathematics*,Vol. 133 (1999), pp. 1–32.

14. George Avalos and Irena Lasiecka, "Exact–Approximate Boundary Controllability of Thermoelastic Systems Under Free Boundary Conditions", *Control of Distributed Parameter and Stochastic Systems*, S. Chen, X. Li, J. Yong and X. Y. Zhou, Editors, Kluwer Academic Publishers, Boston (1999), pp. 3–13.

15. George Avalos and Irena Lasiecka, "Uniform Decays in Nonlinear Thermoelastic Systems", *Optimal Control: Theory, Algorithms, and Applications*, W. W. Hager and P. M. Pardalos, Editors, Kluwer Academic Publishers, Boston (1998), pp. 1–23.

16. George Avalos, "Exact Controllability of a Thermoelastic System with Control in the Thermal Component Only", *Differential and Integral Equations*, Volume 13(4-6) April-June (2000), pp. 613-630.

17. "Lack of Time–Delay Robustness for Dynamic Stabilization of a Structural Acoustics Model" (with Richard Rebarber and Irena Lasiecka), *SIAM Journal on Control and Optimization*, Vol. 36, No. 5 (1999), pp. 1394–1418.

18. George Avalos, "Active Suppression of Noise in a 3–D Structural Acoustic Chamber with Curved Walls", *The Proceedings of the 37th IEEE Conference on Decision and Control*, Tampa, December, 1998 (on CD-ROM).

19. George Avalos and Irena Lasiecka, "Boundary Controllability of Thermoelastic Plates via the Free Boundary Conditions", *SIAM Journal on Control and Optimization*, Vol. 38, No. 2 (2000), pp. 337–383.

20. George Avalos, "Pointwise Pressure Observations of a Canonical Structural Acoustics Model", *Journal on Computational and Applied Mathematics*, Vol. 114, No. 1 (2000), pp. 121–135.

21. George Avalos and Irena Lasiecka, "Exact Approximate Controllability of Thermoelastic Systems Under Variable Coupling", *Inverse Problems* **16** (2000), pp. 979-996.

22. George Avalos, Irena Lasiecka and Richard Rebarber, "Uniform Decay Properties of a Model in Structural Acoustics", *Journal de Mathématiques Pures et Appliquées*, 79, 10 (2000), pp. 1057-1072.

23. George Avalos, "Wellposedness of a Canonical Structural Acoustics Model Under Point Boundary Control", *Contemporary Mathematics*, **268** (2000), pp. 1-22.

24. George Avalos, Irena Lasiecka and Richard Rebarber, "Well–Posedness of a Structural Acoustics Control Model with Point Observation of the Pressure", *Journal of Differential Equations*, **173** (2001), pp. 40-78.

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Editorial Responsibilities

1. Associate Editor, *Applicable Analysis* (August 2012 - present)
2. Editorial Board of *Communications in Mathematical Analysis* (April 2012 - present)
3. Editorial Board of *Evolution Equations and Control Theory* (September 2016 - present)
4. Editorial Board of *Mathematische Nachrichten* (April 2017 - present)

Current and Recent Ph. D. Students

1. Paul Cokeley; graduated in May 2007. (Thesis Title: *Null Controllability of Parabolic-like PDE dynamics via locally distributed control.*) Paul was working in Bejing, China.
2. Matthew Dvorak, graduated in May 2008 (Thesis Title: *Quantitative and Qualitaive Analysis of Fluid-Structure Partial Differential Equation Models.*) Matt is currently at the National Security Agency.
3. Thomas Clark, graduated in May 2014. (Thesis Title: *An Applied Functional and Numerical Analysis of a 3-D Fluid-Structure Interactive PDE.*) Thomas is currently an Assistant Professor at Doordt College.
4. Paula Egging (current, since August 2017).
5. Dylan McKnight (current, since November 2018).
6. Sara Myers (current, since November 2019).

Undergraduate Students

1. Scott Hottovy, graduated in May 2008 (undergraduate thesis: *Numerical approximations on null controllability of structurally damped equations*). He is currently an Assistant Professor in Mathematics at the United States Naval Academy.

2. Michael Trogdon, Mathematics and Mechanical Engineering major; graduated in May 2012 (He had been partially supported since Spring 2010 via NSF Grant DMS-0908476, as well as by the UNL UCARE program). (His undergraduate thesis concerned the numerical analysis of nonlinear thermoelastic PDE systems.) He subsequently obtained his Ph.D.in Mechanical Engineering from the University of California Santa Barbara.