Curriculum Vitae

Adrian Vajiac
Associate Professor of Mathematics
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EMPLOYMENT

- **Chapman University**, Associate Professor of Mathematics, 2010-present.
- **Chapman University**, Assistant Professor of Mathematics, 2003-2010.
- **Chapman University**, Visiting Assistant Professor of Mathematics, 2002-2003.
- **University of Texas at Austin**, Instructor of Mathematics, 1999-2002.

EDUCATION

- **Boston University**, Boston, Massachusetts.
  - Ph.D. in Mathematics, May 1999.
    Dissertation title: *Localization Techniques in Topological Quantum Field Theories*, Advisor: *Prof. Steven Rosenberg*
- **University of Bucharest**, Romania.
  - "Diploma de Licenta" in Mathematics, May 1994.
    Dissertation title: *Geometry and Topology of 4–dimensional manifolds*, Advisor: *Prof. Kostake Teleman*

RECENT WORKSHOPS AND SEMINARS

- Invited speaker at Seminario: Analisis complejo e hipercomplejo, y sus aplicaciones, ESFM-IPN, Mexico City, November 2011.
- Invited speaker to the Eigth International ISAAC Congress, Moscow, August 2011.
- Invited speaker to Conferece on Hypercomplex Analysis, IPN, Mexico City, October 2010.
- Invited speaker at the 21st International Workshop on Operator Theory and its Applications (IWOTA 2010), Berlin, July 2010.
- Invited Speaker at the AMS Special Session on Hypercomplex Analysis, Boca Raton, Florida, October 2009.
- Invited speaker at the Seventh International ISAAC Congress, Imperial College, London, July 2009.
- Invited speaker at "Recent Developments in Quantum Field Theory" Conference, July 2007, Max Plank Institute, Leipzig, Germany.
- Organizer and Instructor, AIME (American Invitational Mathematics Contest) Seminar Series, 2003-present, joint program Chapman University and California State University at Fullerton.
- Organizer and Instructor, the (weekly) Chapman University Math Club, including preparation seminars for the W. L. Putnam National Contest in Mathematics, 2002-present.
- Ninth Annual Legacy of R. L. Moore Conference, Austin, Texas, 11-13 May 2006.
- MAA "Mathematical Circles and Olympiads" workshop, MSRI, Berkeley, CA, December 2004.
- MAA "Geometric Combinatorics" workshop, MSRI, Berkeley, CA, May 2004.
- Teaching Program, IAS/PCMI, Park City, Utah, Summer Session 2003.
- Research Program (Quantum Field Theory, Supergravity, and Enumerative Geometry), IAS/PCMI, Park City, Utah, Summer Session 2001.

INVITED RESEARCH TALKS and SEMINARS

- "Bicomplex functions and their derivatives", Seminario: Analisis complejo e hipercomplejo, y sus aplicaciones, ESFM-IPN, Mexico City, November 2011.
- "Multicomplex hyperfunctions", 8th ISAAC Congress, Moscow, Russia, August 2011.
- "Algebraic Analysis of Abelian Instantons and Singularities of Yang-Mills Equations", Mexico City, October 2010.
- "Dolbeault complexes and hyperfunction theory in the bicomplex setting", IWOTA, Berlin, July 2010.
- "Singularities of functions of one and several bicomplex variables", AMS Special Session, Boca Raton, Florida, October 2009.
- "Singularities of functions of one and several bicomplex variables", 7th ISAAC Congress, Imperial College, London, July 2009.
- "Equivariant Localization of TQFTs", at the "Recent Developments in Quantum Field Theory", July 2007, Max Plank Institute, Leipzig, Germany.
- Numerous talks at Chapman University, Department of Mathematics and Computer Science Seminar Series, 2002-present.
- A series of talks at Department of Mathematics, CSU Fulletron, 2003-present.
- Lecture Series in Mathematical Sciences - Wichita State University, KS, November 2001.
- GAD Seminar - University of Texas at Austin, TX, April 2001.
- Topology Seminar - University of Texas at Austin, TX, October 2000.
- GAD Seminar - University of Texas at Austin, TX, October 2000.
- Geometry-Analysis-Topology Seminar - Texas A&M University, College Station, TX, October 2000.
- Topology Seminar - Oklahoma State University, Stillwater, OK, September 2000.

- Topology Seminar - University of Notre Dame, IN, September 2000.
- Geometry Seminar - University of Wisconsin, Madison, WI, June 2000.
- Topology Seminar - Ohio State University, Columbus, OH, May 2000.
- Topology Seminar - Brandeis University, Waltham, MA, May 2000.
- Geometry Seminar - University of Texas at Austin, TX, October 1999.
- Geometry Seminar - Boston University, Boston, MA, May 1999.
- Topology Seminar - University of Notre Dame, IN, March 1996.

RECENT AWARDS AND GRANTS

- 2010-2012, Grant, California Mathematics and Science Partnership in cooperation with the Centralia School District.
- 2009-2010, Chapman University Faculty Scholarly/Creative Activity Grant.
- 2005-2006, "Online personalized education in GE Calculus I and II", one year grant from Chapman University.
- Spring 2005, "Online personalized education in GE Calculus I", one semester grant from Chapman University.
- 2005, Keck Center for Science Education, Service Award.
- 2005-2006 "Excelence in Teaching" Award, Chapman University.
- 2003-2004 "Excelence in Teaching" Award, Chapman University.
- 2000-2002, NSF group grant in Differential Geometry, University of Texas at Austin.

RECENT PAPERS AND PUBLICATIONS

- "Holomorphy in Multicomplex Spaces", in collaboration with D.C. Struppa, and M. Vajiac, to appear in IWOTA 2010 Proceedings Volume, Birkhäuser OT Series, (2012).

- "Bicomplex Numbers and their Elementary Functions", in collaboration with M.E. Luna-Elizarraras, M. Shapiro, and D.C Stuppa, to appear in CUBO, A Mathematical Journal (2012).
- "Hyperbolic Numbers and their Functions", in collaboration with M. Shapiro, D.C Stuppa, and M. Vajiac, to appear in Analele Universitatii Oradea (2012).
- "The Cauchy-Kowalewski product for bicomplex holomorphic functions", in collaboration with H. De Bie, D.C. Struppa, M.B. Vajiac, Mathematische Nachrichten, (2011).
- "Discovering Geometry: An Axiomatic Approach", in collaboration with W.G. Boskoff, Matrix Rom, Bucharest (2011), 134 pp., ISBN: 978-973-755-668-4
- "Multicomplex Hyperfunctions", in collaboration with M. Vajiac, Complex Variables and Elliptic Equations, DOI:10.1080/17476933.2011.603419 (2011).
- "Singularities of functions of one and several bicomplex functions", in collaboration with D.C. Struppa, I. Sabadini, F. Colombo, M. Vajiac, Arkiv for Matematik', Volume 49, Issue 2 (2011), pg. 277–294.
- "Bicomplex Hyperfunction Theory", in collaboration with D.C. Struppa, I. Sabadini, F. Colombo, and M. Vajiac, Ann. Mat. Pura Appl. (4) 190 (2011), no.2, pg. 247–261.
- "Remarks on Holomorphicity in three settings: Complex, Quaternionic, and Bicomplex", in collaboration with D.C. Struppa and M. Vajiac, Hypercomplex Analysis and Applications, Trends in Mathematics, pg. 261–274, Birkauser Verlag Basel/Switzerland, 2010.
- "Equivariant Localization Techniques in Topological Quantum Field Theories", International Journal of Geometric Methods in Modern Physics (IJGMMP), Volume: 7, Issue: 2 (2010).
- "Hartogs Phenomena and Antisyzygies for Systems of Differential Equationsd"", in collaboration with D.C. Struppa, A. Damiano, and M. Vajiac, "Journal of Geometric Analysis", Volume 19, Issue 2, 2009.
- "Computational Algebra Techniques in Electromagnetism", in collaboration with D.C. Struppa, I. Sabadini, F. Colombo, and M. Va-

jiac, "Journal of Mathematical Sciences: Advances and Applications", February 2009.

- "Areas and the Fundamental Theorem of Calculus", in collaboration with B. Vajiac, International Journal of Mathematical Education in Science and Technology, Spring 2009.
- "The power of a point for some real algebraic curves", in collaboration with M. Vajiac, B. Suceava, The Mathematical Gazette, London, vol. 92 (2008), issue 523, March 2008.
- "An Exploration of Hilbert's Neutral Geometry", in collaboration with W.G. Boskoff, B. Suceava, Gazeta Matematica Seria A, No. 1, 2008.
- "A survey of the history of the ideas which lead to the Kaluza-Klein theory", in collaboration with B. Suceava, "Curierul de Fizica", no. 58, April 2007, pg. 12-14.

TEACHING EXPERIENCE

- Spring 2012, *Foundations of Geometry*, Chapman University.
- Spring 2012, *Single Variable Calculus I* (two sections), Chapman University.
- Spring 2012, *Applied Partial Differential Equations* (graduate course), Chapman University.
- Spring 2011, *Universal Geometry*, Honors, Chapman University.
- Spring 2011, *Numerical Analysis*, Chapman University.
- Fall 2010, *Pre-Calculus*, two sections, Chapman University.
- Fall 2010, *Real Analysis*, Chapman University.
- Spring 2010, *Single Variable Calculus*, Chapman University.
- Spring 2010, *Differential Geometry of Curves and Surfaces*, Chapman University.
- Fall 2009, *Single Variable Calculus*, Chapman University.
- Fall 2009, *Multi Variable Calculus*, Chapman University.

- Fall 2009, *Foundations of Geometry*, Chapman University.
- Spring 2009, *(Honors) In Search of Universal Geometry*, Chapman University.
- Spring 2009, *Numerical Analysis*, Chapman University.
- Spring 2009, *General Physics II*, Chapman University.
- Fall 2008, *General Physics I*, Chapman University.
- Fall 2008, *Real Analysis*, Chapman University.
- Spring 2006 and 2007, *Foundations of Geometry*, Chapman University.
- Fall 2002-present, numerous *Calculus I and II* courses and labs, Chapman University.
- Fall 2006, *Real Analysis*, Chapman University.
- Summer 2005, *Algebra II*, Upward Bound, Volunteers of America of Los Angeles.
- Fall 2004 and 2005, *Differential Equations*, Chapman University.
- Fall 2003 and 2004, *Foundations of Science*, Chapman University.
- Spring 2004, *Precalculus*, Chapman University.
- Spring 2003, two sections of *Mathematical Modeling*, Chapman University.
- Spring 2002, *Single Variable Calculus*, University of Texas at Austin
- Spring 2002, *Discrete mathematics*, University of Texas at Austin
- Fall 2001, *Sequences, Series and Multivariable Calculus*, University of Texas at Austin
- Fall 2001, *Discrete mathematics*, University of Texas at Austin
- Spring 2001, *Introduction to Algebraic Structures*, University of Texas at Austin
- Spring 2001, *Geometry of Complex Manifolds*, University of Texas at Austin

- Fall 2000, *Sequences, Series and Multivariable Calculus*, University of Texas at Austin
- Fall 2000, *Discrete mathematics*, University of Texas at Austin
- Summer 2000, two sections of *College Algebra*, University of Texas at Austin
- Spring 2000, two sections of *Discrete mathematics*, University of Texas at Austin
- 2000-2001, *Special topics; Reading/writing course*, University of Texas at Austin
- Fall 1999, *Elementary Functions and Coordinate Geometry*, University of Texas at Austin
- Fall 1999, *Sequences, Series and Multivariable Calculus*, University of Texas at Austin
- Summer 1998, Lecturer, *Differential Equations*, Boston University
- Summer 1998, Lecturer, *Elementary Statistics*, Boston University
- Summer 1996, Lecturer, *College Algebra and Trigonometry*, Boston University

COMPUTER PROFICIENCY

- WeBWorK and Moodle administrator, Chapman University, 2002-present.
- Linux system administrator of the mathcs server, Chapman University, 2003-present.
- System administrator, Department of Mathematics and Statistics, Boston University, 1998-1999 (SUN Solaris 2.6 environment, MacOS, WinNT, Linux).
- Webmaster, Department of Mathematics and Statistics, Boston University, 1994-1998.

- Java programmer, Department of Mathematics and Statistics, Boston University, 1996, 1997. I wrote numerous applets for the *Dynamical Systems and Technology Project*, which are used by numerous high schools and colleges.
- LaTeX Assistant and Mathematica programmer, *Calculus Project*, Harvard University, 1996, 1997. I actively participated in writing Precalculus and Calculus course texts.

SYNERGISTIC ACTIVITIES:

- *Dynamical Systems and Technology Project*, Boston University (1994-1998): creation of web interactive mathematics educational programs for High Schools and Colleges in United States.
- *Calculus Project*, Harvard University (1996-1997): creating and writing text books for Precalculus and Calculus courses taught in numerous colleges and universities in United States.
- *Differential Equations Project University* (1995): writing Mathematica code and solutions for Differential Equation textbooks.

UNIVERSITY SERVICE

- Faculty Senate member, Chapman University, 2010-2011.
- Governance Council member, Chapman University, 2010-2011.
- Math Zoom Instructor, Harvey Mudd College, Summer 2010.
- General Education Committee member, Chapman University, 2006-2008.
- Organizer and Administrator of the Chapman University Mathematics Placement Tests, 2004-present.
- WeBWorK and Moodle administrator, Chapman University, 2002-present.
- Linux system administrator of the mathcs server, Chapman University, 2003-present.

- Member of the Chapman University Departmental Committee of revising our Mathematics majors curricullum, 2004-2005.
- Member of the Chapman University Departmental Committee of revising the Calculus sequence, 2003-present.
- Advisor and Instructor for an Internship involving Troy High-School students, during the Summer of 2004.