

Ovidiu Munteanu

Curriculum Vitae

University of Connecticut, Department of Mathematics

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Education

2004-2008. Ph.D. Mathematics, University of California at Irvine.

- Thesis: *The structure of complete manifolds with positive spectrum.*
- Advisor: Peter Li

2002-2004. M.S. Mathematics, Transilvania University, Romania.

1998-2002. B.S. Mathematics, Transilvania University, Romania

Employment

Professor, University of Connecticut, 2023-present.

Associate Professor, University of Connecticut, 2017-2023.

Assistant Professor, University of Connecticut, 2012-2017.

Ritt Assistant Professor, Columbia University, 2008-2012.

Awards and Grants

Simons Travel Support

The structure of complete manifolds, 2023-2028

Makuch Faculty Award at the University of Connecticut, 2021

Leverhulme Visiting Professorship, 2019

NSF Grant DMS 1811845

Analysis of Singularities of the Ricci Flow, 2018-2023

NSF Grant DMS 1506220

The geometry of Ricci solitons, 2015-2018

NSF Grant DMS 1005484

Ricci curvature and the structure of manifolds, 2010-2014

Visiting Positions

Visiting Professor, University College London, Aug. 2019 - Dec. 2019.

Research Interest

Differential Geometry and Partial Differential Equations

Publications

Books

1. Bennett Chow, Ovidiu Munteanu, and Brett Kotschwar, *Ricci Solitons in Dimension Four*, under review.

Articles

1. Ovidiu Munteanu and Jiaping Wang, *A Minkowski type inequality for manifolds with positive spectrum*, preprint.
2. Ovidiu Munteanu and Jiaping Wang, *Geometry of three-dimensional manifolds with positive scalar curvature*, to appear in Amer. J. Math.
3. Ovidiu Munteanu and Jiaping Wang, *Bottom spectrum of three-dimensional manifolds with scalar curvature lower bound*. J. Funct. Anal. 287 (2024), no. 2, Paper No. 110457, 41 pp.
4. Ovidiu Munteanu and Jiaping Wang, *Comparison theorems for 3D manifolds with scalar curvature bound*, Int. Math. Res. Not. 3 (2023), 2215-2242.
5. Ovidiu Munteanu, Chiung-Jue Sung, and Jiaping Wang, *Area and spectrum estimates for stable minimal surfaces*, in Analysis and Geometry of Complete Manifolds: A Special Issue in Honor of Peter Li, J. Geom. Anal. 33 (2023).
6. Ovidiu Munteanu and Jiaping Wang, *Ends of gradient Ricci solitons*, in Analysis and Geometry of Complete Manifolds: A Special Issue in Honor of Peter Li, J. Geom. Anal. 32 (2022).
7. Ovidiu Munteanu, Felix Schulze, and Jiaping Wang, *Positive solutions to Schrödinger equations and geometric applications*, J. Reine Angew. Math. 774 (2021) 185-217.
8. Fabrice Baudoin and Ovidiu Munteanu, *Improved Beckner-Sobolev inequalities on Kähler manifolds*, J. Geom. Anal. 31 (2021) 100-125.
9. Ovidiu Munteanu, Chiung-Jue Sung, and Jiaping Wang, *Weighted Poincaré inequality and the Poisson equation*, Trans. Amer. Math. Soc. 374 (2021), 2167-2199.
10. Ovidiu Munteanu and Lihan Wang, *Gradient estimate for harmonic functions on Kähler manifolds*, Trans. Amer. Math. Soc. 372 (2019), 8759-8791.
11. Ovidiu Munteanu, Chiung-Jue Sung, and Jiaping Wang, *Poisson equation on com-*

- plete manifolds*, Adv. Math. 348 (2019), 81-145.
12. Ovidiu Munteanu and Jiaping Wang, *Structure at infinity for shrinking Ricci solitons*, Ann. Sci. Éc. Norm. Supér. 52 (2019), 891-925.
 13. Ovidiu Munteanu and Jiaping Wang, *Positively curved shrinking Ricci solitons are compact*, J. Differential Geom. 106 (2017), 499-505.
 14. Ovidiu Munteanu and Jiaping Wang, *Conical structure for shrinking Ricci solitons*, J. Eur. Math. Soc. 19 (2017), 3377-3390.
 15. Brett Kotschwar, Ovidiu Munteanu, and Jiaping Wang, *A local curvature estimate for the Ricci flow*, J. Funct. Anal. 271 (2016), no. 9, 2604-2630.
 16. Ovidiu Munteanu and Jiaping Wang, *Geometry of shrinking Ricci solitons*, Compos. Math. 151 (2015), 2273-2300.
 17. Ovidiu Munteanu and Jiaping Wang, *Kähler manifolds with real holomorphic vector fields*, Math. Ann. 363 (2015), no.3, 893-911.
 18. Ovidiu Munteanu and Jiaping Wang, *Topology of Kähler Ricci solitons*, J. Differential Geom. 100 (2015), 109-128.
 19. Ovidiu Munteanu and Jiaping Wang, *Holomorphic functions on Kähler Ricci solitons*, J. London Math. Soc. 89 (2014), no. 3, 817-831.
 20. Ovidiu Munteanu and Jiaping Wang, *Geometry of manifolds with densities*, Adv. Math. 259 (2014), 269-305.
 21. Ovidiu Munteanu and Natasa Sesum, *On gradient Ricci solitons*, J. Geom. Anal. 23 (2013), no. 2, 539-561
 22. Ovidiu Munteanu and Jiaping Wang, *Analysis of the weighted Laplacian and applications to Ricci solitons*, Comm. Anal. Geom. 20 (2012), no. 1, 55-94.
 23. Ovidiu Munteanu, *On the gradient estimate of Cheng and Yau*, Proc. Amer. Math. Soc. 140 (2012), 1437-1443.
 24. Ovidiu Munteanu and Jiaping Wang, *Smooth metric measure spaces with non-negative curvature*, Comm. Anal. Geom, 19 (2011), no. 3, 451-486.
 25. Ovidiu Munteanu and Mu-Tao Wang, *The curvature of gradient Ricci solitons*, Math. Res. Lett. 18 (2011), no. 6, 1051-1069.
 26. Ovidiu Munteanu and Gabor Székelyhidi, *On convergence of the Kähler-Ricci flow*, Comm. Anal. Geom. 19 (2011), no. 5, 887-903.
 27. Ovidiu Munteanu and Natasa Sesum, *The Poisson equation on complete manifolds*

with positive spectrum and applications, Adv. Math. 223 (2010), no. 1, 198-219.

28. Ovidiu Munteanu, *On a characterization of the complex hyperbolic space*, J. Differential Geom 84 (2010), no. 3, 611-621.
29. Ovidiu Munteanu, *A sharp estimate for the bottom of the spectrum of the Laplacian on Kähler manifolds*, J. Differential Geom. 83 (2009), no. 1, 163-187.
30. Ovidiu Munteanu, *Two results on the weighted Poincaré inequality on complete Kähler manifolds*, Math. Res. Lett. 14 (2007), no.6, 995-1008.

Invited Research Talks

1. Differential Geometry and Geometric Analysis Seminar at Princeton University, December 2024.
2. Workshop "Current trends in geometric flows", CRM Montreal, June 2024.
3. Workshop "Recent advances in comparison geometry", Hangzhou China, March 2024 (zoom).
4. Workshop "Geometric flows on complex manifolds", Cortona Italy, September 2023.
5. Workshop on "Ricci flow" at UC San Diego, May 2023.
6. Workshop on "A Unified view of Quasi Einstein metrics", BIRS Canada, April 2023.
7. Workshop on "Ricci flow and related topics", Warwick UK, March 2023.
8. AMS Joint Meeting in Boston, Special Session on Geometric PDEs, January 2023.
9. PDE seminar at University of Indiana, November 2022.
10. Joint Princeton-Rutgers Geometric PDE's Seminar, April 2022 (zoom).
11. Geometry Seminar at U.C. San Diego, March 2022 (zoom).
12. Geometry Seminar at U.C. Irvine, March 2022.
13. Analysis Seminar at University of Warwick, March 2022 (zoom).
14. Geometry Seminar at University of Chicago, March 2022 (zoom).
15. Geometry Seminar at Stanford University, February 2022 (zoom).
16. Geometry Seminar at Rice University, October 2021 (zoom).
17. AMS Western Sectional Meeting, October 2021 (zoom).
18. Geometry Seminar at Clark University, October 2021 (zoom).
19. GAP Seminar at USTC China, June 2021 (zoom).
20. Colloquium at California State Long Beach, April 2021 (zoom).
21. Analysis and Geometry Seminar of Jussieu, February 2021 (zoom).
22. U.C. San Diego Reading Seminar on Cheeger-Colding theory, Ricci flow, Einstein metrics, and Related Topics, October 2020 (zoom).
23. Web-Seminar on Geometric Analysis, Brazil, August 2020 (zoom).
24. Geometry Seminar at U.C. San Diego, May 2020 (zoom).
25. Geometry Seminar at University of Insubria, December 2019.
26. Hannover-Magdeburg Seminar on Differential Geometry and Analysis, November 2019.
27. UCL-King's College Differential Geometry Seminar, November 2019.
28. Geometry Seminar at Cambridge University, November 2019.
29. Geometry Seminar at Oxford University, November 2019.
30. Geometry Seminar at University of Warwick, October 2019.

31. Workshop on Analytic and Geometric Aspects of PDE's, Milano, May 2019.
32. Symposium in Geometry and Differential Equations, Hefei, May 2019.
33. Mini-Course on Geometric Analysis at Bucharest University, Romania, November 2018
34. Colloquium at U.C. Santa Cruz, October 2018
35. Workshop on Ricci flow, Mean curvature flow and related singular flows at University of Hamburg, Germany, September 2018
36. Conference on Geometric Analysis, Tsinghua University Beijing, May 2018
37. Geometry seminar at University of Maryland, March 2018
38. Pacific Northwest Geometry Seminar, Vancouver, March 2018
39. AMS Special Session at UC San Diego, January 2018
40. Geometry seminar at University of Wisconsin, November 2017
41. Geometry Seminar at University of Rochester, September 2017
42. Minicourse and workshop on Ricci flow, National Taiwan University, Taiwan, June 2017
43. Joint Southern California Differential Geometry Seminar, San Diego, January 2017
44. Young Geometric Analysts Forum, Sanya, China, January 2017
45. Minicourse at University of Iasi, Romania, November 2016
46. Geometric analysis on Riemannian and metric spaces, Japan, September 2016
47. Geometry Seminar at University of Minnesota, May 2016
48. Seminar at Arizona State University, April 2016
49. Seminar at Notre Dame University, March 2016
50. AMS Eastern Sectional Meeting, Stony Brook University, March 2016
51. Young Geometric Analysts Forum, Sanya, China, January 2016
52. CMS Winter meeting, Montreal, December 2015
53. AMS Eastern Sectional Meeting, Rutgers University, November 2015
54. Geometry Seminar at Princeton University, October 2015
55. AMS Central Sectional Meeting, Loyola University, October 2015
56. American Institute of Mathematics, September 2015
57. The Eight Congress of Romanian Mathematicians, Iasi, June 2015
58. Minicourse at National Taiwan University, Taiwan, May 2015
59. Fields Institute Geometric Analysis Colloquium, May 2015
60. Midwest Geometry conference, January 2015
61. Geometry Seminar at UC San Diego, January 2015
62. Geometry Seminar at Université du Québec a Montréal, November 2014
63. Geometry Seminar at Columbia University, November 2014
64. Conference on Real and Complex Differential Geometry, Bucharest, September 2014
65. FERT 2014, Brasov, August 2014
66. Geometry Seminar at University of Connecticut, March 2014
67. Geometry Seminar at UC Berkeley, February 2014
68. Minicourse at National Tsing Hua University, Taiwan, December 2013
69. AMS Western Sectional Meeting, Riverside November 2013
70. Geometry Seminar at University of Minnesota, October 2013
71. AMS Eastern Sectional Meeting, Philadelphia October 2013
72. 29th Coloquio Brasileiro de Matematica, Rio de Janeiro, Brazil, July 2013
73. Workshop on geometric analysis and nonlinear PDE's, Rutgers University, May 2013
74. AMS Central Sectional Meeting, Iowa April 2013

75. Geometry Seminar at UC Irvine, February 2013
76. Geometry Seminar at UC San Diego, February 2013
77. Analysis Seminar at University of Connecticut, November 2012
78. AMS Eastern Sectional Meeting, Rochester September 2012
79. Seminar at Capital Normal University Beijing, June 2012
80. Workshop at Hong-Kong University of Science and Technology, June 2012
81. Lehigh University Geometry and Topology Conference, May 2012
82. PDE Seminar at University of Chicago, April 2012
83. Colloquium at Michigan State University, February 2012
84. Colloquium at University of Iowa, February 2012
85. Colloquium at Tulane University, February 2012
86. Colloquium at University of Colorado at Boulder, January 2012
87. Colloquium at Brandeis University, January 2012
88. Colloquium at University of Connecticut, January 2012
89. Conference in honor of Peter Li's 60th birthday, Irvine, January 2012
90. Colloquium at George Washington University, January 2012
91. Analysis Seminar at Cornell University, November 2011
92. Geometry Seminar at Lehigh University, November 2011
93. AMS Western Section Meeting, Salt Lake City, October 2011
94. Colloquium at University of Minnesota, September 2011
95. AMS Eastern Section Meeting, Cornell, September 2011
96. Workshop: Ricci Soliton days in Pisa, April 2011
97. FRG Workshop on Low Dimensional Topology and Geometry, Princeton, March 2011
98. Geometry Seminar at Ohio State University, November 2010
99. Geometry Seminar at University of Minnesota, October 2010
100. AMS Western Section Meeting, Los Angeles, October 2010
101. AMS Eastern Section Meeting, Syracuse, October 2010
102. Geometry Seminar at Princeton University, September 2010
103. Joint AMS-Mexico Meeting (Special Session), Berkeley, June 2010
104. Geometry Seminar at Stony Brook University, April 2010
105. FRG Workshop on Mean Curvature Flows and Related Topics, Johns Hopkins University, March 2010
106. Geometry Seminar at University of Pennsylvania, November 2009
107. Geometry Seminar at Michigan State University, October 2009
108. Lehigh University Geometry and Topology Conference, June 2009
109. AMS Western Section Meeting, San Francisco, April 2009
110. Geometry Seminar at CUNY, April 2009
111. Geometry Seminar at UC Irvine, February 2009
112. Geometry Seminar at Lehigh University, February 2009
113. Geometry Seminar at Columbia University, September 2008
114. AMS Western Section Meeting, Claremont McKenna College, May 2008
115. Geometry Seminar at Princeton University, February 2008
116. Math Graduate Student Colloquium at UC Irvine, October 2007
117. Geometry Seminar at Chapman University, April 2007
118. Geometry Seminar at California State, Fullerton, March 2007
119. Geometry Seminar at UC Irvine, March 2007
120. Geometry Seminar at UC San Diego, February 2007

Teaching at University of Connecticut

Spring 2025: Analysis I (Math 3150)
Fall 2024: Topics in Geometry and Topology (Math 5030); Analysis I (Math 3150)
Spring 2024: Elements of Topology (Math 3330)
Fall 2023: Introduction to Geometry and Topology (Math 5310); Analysis I (Math 3150)
Spring 2023: Analysis I (Math 3150)
Fall 2022: Introduction to Geometry and Topology (Math 5310)
Spring 2022: Introduction to Geometry and Topology II (Math 5311)
Fall 2021: Analysis I (Math 3150)
Spring 2021: Topics in Geometry and Topology (Math 5030)
Fall 2020: Analysis I (Math 3150); Problem Seminar (Math 3794)
Spring 2020: Differential Geometry (Math 5360); Topology (Math 3330)
Spring 2019: Advanced Calculus IV (Math 2144); Problem Seminar (Math 3794)
Fall 2018: Advanced calculus III (Math 2143); Problem Seminar (Math 3794)
Spring 2018: Elements of topology (Math 3330)
Fall 2017: Advanced Calculus I (Math 2141); Topics in Geometry and Topology (Math 5030); Problem Seminar (Math 3794)
Spring 2017: Advanced Calculus II (Math 2142); Problem Seminar (Math 3794)
Fall 2016: Advanced Calculus I (Math 2141); Intro to Geometry and Topology (Math 5310); Problem Seminar (Math 3794)
Fall 2015: Differential Equations for Applications (Math 3410); Topics in Geometry and Topology (Math 5030)
Spring 2015: Advanced Calculus II (Math 2142); Introduction to Geometry and Topology II (Math 5311)
Fall 2014: Advanced Calculus I (Math 2141) Multivariable Calculus (Math 2110)
Spring 2014: Complex Function Theory (Math 5120)
Fall 2013: Topics in complex function theory: Riemann surfaces (Math 5121) Honors Calculus II (Math 1152)
Spring 2013: Elements of Topology (Math 3330)
Fall 2012: Differential Geometry (Math 3370) Introduction to Geometry and Topology (Math 5310)

PhD Students

- Cole Durham (current)

Postdoctoral Mentoring

Lihan Wang, University of Connecticut, 2017-2020.

Honors senior thesis supervised

- Keegan Yao, 2021
- John Reeve, 2021
- Justin Perkins-Ollila, 2019
- Mark Mancuso, 2014

Thesis Committee Member

- Jianxiong Wang, advised by Prof. G. Lu
- Marco Carfagnini, advised by Prof. M. Gordina
- Gianmarco Vega-Molino, advised by Prof. F. Baudoin
- Hyun Chul Yang, advised by Prof. L.-H. Huang
- Daniel Martin, advised by Prof. L.-H. Huang
- Malva Asaad, advised by Prof. M. Gordina

Conferences Organized

1. (with Damin Wu and Ling Xiao) Special Session at the AMS Spring Eastern Sectional Meeting, April 2025.
2. (with Lan-Hsuan Huang, Damin Wu, and Ling Xiao) Northeast Workshop in Geometric Analysis, November 2022.
3. (with D. Bao) Special Session at the AMS Spring Western Sectional Meeting, May 2021.
4. (with L. Wang and L. Xiao) Special session on Geometric Analysis at the AMS meeting at Hartford, March 2019.
5. (with D. Bao) Special session on Geometric Analysis at the AMS meeting at San Francisco State University, October 2018.
6. (with T. Napier and M. Ramachandran) Special session on Geometric Analysis at the AMS meeting at SUNY Buffalo, September 2017.
7. (with D. Bao) Special session on Geometric Analysis at the AMS meeting at San Francisco State University, October 2014.

Service at the University of Connecticut

- Colloquium chair: 2023-present
- Promotion, Tenure, and Reappointment Dossier Committee: 2024-2025
- Director of Graduate Studies: 2020-2023
- Jorgensen Fellowship panel: 2021, 2023
- Faculty Activity Review Committee: 2020, 2021, 2022
- Pi Mu Epsilon Advisor: 2018, 2019
- Advisory Committee: 2018-2019, 2023-2024
- Bernard Sippin Scholarship Award: 2014, 2015, 2016
- Postdoc Hiring Committee: 2014, 2015, 2016, 2021

Other professional activities

- Editorial Board for Bulletin of the Transilvania University of Brasov
- Served on an NSF panel (2016, 2022, 2024).
- Wrote online notes with problems for math competitions, available at <http://www.math.uconn.edu/munteanu/MathProblems.pdf>
- Volunteered to co-teach Problem Seminar (Math 3794), which trains students for Math competitions.
- Reviewer for Mathematical Reviews

- Referee for:

Annals of Mathematics, American Journal of Mathematics, Advances in Mathematics, Annals of Global Analysis and Geometry, Archiv der Mathematik, Asian Journal of Mathematics, Calculus of Variations and PDE's, Crelle's Journal, Communications in Analysis and Geometry, Compositio Mathematica, Comptes Rendus Mathematique, Differential Geometry and its Applications, Duke Mathematical Journal, Houston Journal of Mathematics, Indiana University Mathematics Journal, International Mathematics Research Notices, Journal of Differential Equations, Journal of Differential Geometry, Journal of Functional Analysis, Journal of Geometric Analysis, Journal of Geometry and Physics, Journal of the London Mathematical Society, Journal of Mathematical Analysis and Applications, Journal of Topology and Analysis, Mathematical Research Letters, Mathematische Annalen, Mathematische Nachrichten, Pacific Journal of Mathematics, Proceedings of the AMS, Publicationes Mathematicae Debrecen, Studia Mathematica, Revista Matematica Iberoamericana, Transactions of the AMS, The Quarterly Journal of Mathematics.