

# Curriculum Vitae

## ASUMAN GÜVEN AKSOY

CROWN PROFESSOR OF MATHEMATICS AND ROBERTS FELLOW

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		Website:	<a href="http://asumanaksoy.com">http://asumanaksoy.com</a>
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		Citizenship:	United States

### Research Interests

Banach space theory, operator theory, approximation theory, interpolation spaces, fixed point theory, modular spaces, nuclear spaces, minimal projections, symmetric spaces, functional equations, hyperconvex spaces, metric geometry.

### Education

- 1978 – 1984 **Ph.D. in Mathematics**, University of Michigan.  
Advisor: M.S. Ramanujan  
Dissertation: “Approximation Schemes, Related  $s$ -Numbers and Applications”
- 1976 – 1978 **M.S. in Mathematics**, Middle East Technical University  
Supervisor: Tosun Terzioğlu  
Masters Thesis: “Subspaces of Nuclear Fréchet Spaces”
- 1972 – 1976 **B.S. in Mathematics and Physics**, University of Ankara  
Academic Distinction: Ranked 1st in graduating class

### Positions

- REGULAR

- 2009–Now *Crown Professor of Mathematics and Robert’s Fellow*, Claremont McKenna College
- 1996–2009 *Professor*, Department of Mathematics, Claremont McKenna College
- 2007–2009 *Chair*, Department of Mathematics, Claremont McKenna College
- 1997–2000 *Chair*, Department of Mathematics, Claremont McKenna College
- 1990–1996 *Associate Professor*, Department of Mathematics, Claremont McKenna College
- 1984–1987 *Assistant Professor*, Department of Mathematics, Oakland University, Rochester, Michigan
- 1980–1984 *Teaching Assistant*, Department of Mathematics, University of Michigan
- 1976–1978 *Teaching Assistant*, Department of Mathematics, Middle East Technical University

- VISITING

- 2008 Spr. *Visiting Professor*, University of Leeds, Leeds, United Kingdom
- 2005 Fall *Visiting Professor*, Banach Center, Warsaw, Poland
- 2002 Sum. *Visiting Professor*, Jagiellonian University, Krakow, Poland
- 2001 Spr. *Visiting Professor*, Department of Mathematics, Boğaziçi University, Istanbul, Turkey
- 2000 Spr. *Visiting Professor*, Department of Mathematics, University of California-Riverside, CA
- 1994 Sum. *Visiting Associate Professor*, Department of Mathematics, Middle East Technical University
- 1993 Fall *Visiting Associate Professor*, Department of Mathematics, California Institute of Technology
- 1984 Fall *Visiting Research Assistant*, Department of Mathematics, University of Kaiserslautern

## Books

- A. G. Aksoy and M. A. Khamsi, “Nonstandard Methods in Fixed Point Theory”, Springer-Verlag, Universitext Series, 1990, ISBN: 978-0-387-97364-7.
- A. G. Aksoy and M. A. Khamsi, “A Problem Book in Real Analysis”, Springer-Verlag, Problem Books in Mathematics, 2009, ISBN: 978-1-4419-1295-4.
- A. G. Aksoy, R. Ashrov, Shavkat Ayupov and Bernard Russo (Editors), “Topics in Functional Analysis and Algebra”, AMS Contemporary Mathematics (Proceedings of the USA-Uzbekistan Conference on Analysis and Mathematical Physics), **672**, 2016, ISBN: 978-1-4704-1928-8
- A. G. Aksoy and Sam Nelson, “Capstone: An Introduction to Advanced Mathematics”, in progress.

## Publications

\* denotes undergraduate author

- 2018
1. A. G. Aksoy, Q. Peng, *Constructing an element of a Banach space with given deviation from its nested subspaces*, Khayyam J. Math. **4**(1) (2018) 59–76.
  2. A.G. Aksoy, Z. Ibragimov and W. Whiting\* *Averaging one-point hyperbolic-type metrics*, Proc. of AMS. **146**, No 12, pp. 5205-5218, 2018, DOI: [10.1090/proc/14173](https://doi.org/10.1090/proc/14173). Article electronically published on September 4, 2018
  3. A.G. Aksoy, Q. Peng, *Bernstein Lethargy Theorem and Reflexivity*, submitted.
  4. A. G. Aksoy, M. Al-Ansari, Q. Peng, *Representation theorems for R-trees*, accepted for publication will appear in Asian-European Journal of Mathematics (AEJM), [arXiv:1601.03108](https://arxiv.org/abs/1601.03108).
  5. A.G. Aksoy, *Extensions of Bernstein’s Lethargy Theorem*, Springer Proceedings in Math. and Stat., **264**, Algebra, Complex Analysis and Pluripotential Theory, pp. 13-31. DOI: [0.1007/978-3-030-01144-4](https://doi.org/10.1007/978-3-030-01144-4).
- 2017
6. A. G. Aksoy, Q. Peng, *Arbitrarily slow convergence: A sufficient subspace condition*, submitted.
  7. A. G. Aksoy, *On a theorem of Terzioğlu*, submitted, [arXiv:1704.06722](https://arxiv.org/abs/1704.06722).
  8. A. G. Aksoy, Q. Peng, *On a theorem of S. N. Bernstein for Banach spaces*, submitted, [arXiv:1605.04592](https://arxiv.org/abs/1605.04592).
  9. A. G. Aksoy, E. Cumberbatch, *Uncovering GEMS of Mathematics*, Journal of Humanistic Mathematics, **7**(2), pp. 384-393, 2017.
  10. A. G. Aksoy, M. Al-Ansari, C. Case\*, Q. Peng, *Subspace condition for Bernstein’s lethargy theorem*, Turk J. Math, **41** , 1101-1107, 2017, [arXiv:1606.07977](https://arxiv.org/abs/1606.07977).
- 2016
11. A. G. Aksoy, *Al-Khwarizmi and the Hermeneutic Circle: Reflections on a Trip to Samarkand*, Journal of Humanistic Mathematics, **6**(2), pp. 114–127, 2016, DOI: [10.5642/jhummath.201602.09](https://doi.org/10.5642/jhummath.201602.09).
  12. A. G. Aksoy, G. Lewicki, *Bernstein lethargy theorem for Fréchet spaces*, Journal of Approximation Theory, **209**, pp. 58–77, 2016, DOI: [10.1016/j.jat.2016.05.003](https://doi.org/10.1016/j.jat.2016.05.003).
  13. A. G. Aksoy, G. Lewicki, *Characterization conditions and the numerical index*, Contemporary Mathematics, **672**, pp. 17–31, 2016, DOI: [10.1090/conm/672/13475](https://doi.org/10.1090/conm/672/13475).
  14. A. G. Aksoy, Z. Ibragimov, *Convexity of the Urysohn Universal Space*, Journal of Nonlinear and Convex Analysis, **17**(6), pp. 1239–1247, 2016, [arXiv:1309.7381](https://arxiv.org/abs/1309.7381).
  15. A. G. Aksoy, G. Lewicki, *Minimal projections with respect to numerical radius*, Ordered Structures and Applications: Positivity VII, Trends in Mathematics, pp. 1–11, 2016, DOI: [10.1007/978-3-319-27842-1](https://doi.org/10.1007/978-3-319-27842-1).
- 2015
16. A. G. Aksoy, J. Almira, *On Montel and Montel–Popoviciu theorems in several variables*, Aequationes mathematicae, **89**(5), pp. 1335–1357, 2015, DOI: [10.1007/s00010-014-0329-8](https://doi.org/10.1007/s00010-014-0329-8).

- 2014 17. A. G. Aksoy, J. Almira, *On approximation schemes and compactness*, Proceedings of the first conference on classical and functional analysis, Azuga-Romania, pp. 5–24, 2014, [arXiv:1311.2385](#).
18. A. G. Aksoy, Sixian Jin\*, *The apple doesn't fall far from the metric tree: equivalence of definitions*, Proceedings of the first conference on classical and functional analysis, Azuga-Romania, pp. 25–36, 2014, [arXiv:1306.6092](#).
19. A. G. Aksoy, J. Almira, *On Shapiro's lethargy theorem and some applications*, Jaen J. Approx., **6**(1), pp. 87–116, 2014, [arXiv:1211.3356](#).
- 2013 20. A. G. Aksoy, Z. Glassman\*, O. Kosheleva and V. Kreinovich, *From Uryshons universal space to a universal space-time*, Mathematical Structures and Modeling, **28**(2), pp. 28–34, 2013.
21. A. G. Aksoy, G. Lewicki, *Limit Theorems for Numerical Index*, Journal of Mathematical Analysis and Applications, **398**(1), pp. 296–302, 2013, DOI: [10.1016/j.jmaa.2012.08.055](#).
- 2012 22. A. G. Aksoy, G. Lewicki, *Minimal projections with respect to various norms*, Studia Mathematica, **210**(1), 2012, DOI: [10.4064/sm210-1-1](#).
- 2011 23. A. G. Aksoy, K. Kinneberg\*, *Compact  $n$ -widths in metric trees*, Function spaces IX, the Banach Center Publications, **92**, pp. 15–25, 2011, DOI: [10.4064/bc92-0-1](#).
24. A. G. Aksoy, G. Lewicki, *Best approximation in numerical radius*, Numerical Functional Analysis and Optimization, **32**(6), pp. 593–609, 2011, DOI: [10.1080/01630563.2011.571886](#).
25. A. G. Aksoy, T. Oikhberg, *Some results in metric trees*, Banach Center Publications, **91**, pp. 9–34, 2011, DOI: [10.4064/bc91-0-1](#).
- 2008 26. A. G. Aksoy, B. Maurizi\*, *Metric trees, hyperconvex hulls and extensions*, Turkish J. Math., **32**(2), pp. 219–234, 2008, [arXiv:math/0702125](#).
- 2007 27. A. G. Aksoy, M. S. Borman\* and A. L. Westfahl\*, *Compactness and measures of non-compactness in metric trees*, Proc. of the International Conference on Banach and Function Spaces II, Kitakyushu, Japan, pp.277–292, 2007, [arXiv:math/0702124](#).
28. A. G. Aksoy, M. Ed-Dari, M. A. Khamsi, *On numerical index of vector-valued function spaces*, Linear and Multilinear Algebra. **55**(6) pp. 507–513, 2007, DOI: [10.1080/03081080601030594](#).
29. A. G. Aksoy, B. L. Chalmers, *Minimal numerical-radius extensions of operators*, Proc. of Amer. Math. Soc., **135**(4), pp. 1039–1050, 2007, DOI: [10.1090/S0002-9939-06-08609-6](#).
30. A. G. Aksoy, M. A. Khamsi, *Fixed points of uniformly Lipschitzian mappings in metric trees*, Sci. Math. Jpn. **65**(1), pp. 31–41, 2007.
- 2006 31. A. G. Aksoy, M. A. Khamsi, *A selection theorem in metric trees*, Proc. of Amer. Math. Soc. **134**(4), pp. 2957–2966, 2006, DOI: [10.1090/S0002-9939-06-08555-8](#).
- 2005 32. A. G. Aksoy, H. O. Tylli, *Interpolation of the essential spectrum and the essential norm*, Orlicz Centenary Volume II, Banach Center Publ, Polish Acad. Sci., Warsaw, **68**, pp. 9–18, 2005, DOI: [10.4064/bc68-0-1](#).
- 2004 33. A. G. Aksoy, M. Martelli, *Wave equation, mixed partial derivatives and Fubini's theorem*, The American Mathematical Monthly, **111**(4), 2004, DOI: [10.2307/4145243](#).
- 2002 34. A. G. Aksoy, M. Martelli, *Mixed partial derivatives and Fubini's theorem*, College Mathematics Journal of MAA, **33**(2), pp. 126–130, 2002, DOI: [10.2307/1558995](#).
- 2001 35. A. G. Aksoy, M. Martelli, *Global convergence for discrete dynamical systems and forward neural networks*, Turkish Journal of Mathematics, **25**, pp. 345–354, 2001.
- 1997 36. A. G. Aksoy, G. Lewicki, *Diagonal operators,  $s$ -numbers, and Bernstein pairs*, Note di Matematica, **17**, pp. 1–10, 1997.

37. A. G. Aksoy, *s-numbers, measure and weak measure of non-compactness and real interpolation*, Bulletin of Allahabad Math. Soc., **8-9**, pp. 15–35, 1997.
- 1996 38. A. G. Aksoy, G. Lewicki, *Modular spaces and  $K$ -widths*, Functional Analysis, Walter de Gruyter Publishing, Berlin, pp. 1–10, 1996.
39. A. G. Aksoy, L. Maligranda, *Lipschitz-Orlicz spaces and the Laplace equation*, Mathematische Nachrichten, **178**(1), pp. 81–101, 1996, DOI: [10.1002/mana.19961780104](https://doi.org/10.1002/mana.19961780104).
- 1995 40. A. G. Aksoy, L. Maligranda, *Real interpolation and measures of weak-noncompactness*, Mathematische Nachrichten, **175**(1), pp. 5–12, 1995, DOI: [10.1002/mana.19951750102](https://doi.org/10.1002/mana.19951750102).
41. A. G. Aksoy, *Fibonacci Sequences* (in Turkish), World of Mathematics, **6**(6), 1995.
42. A. G. Aksoy, *Logical Marriages, or Dihedral Group of Order 8* (in Turkish), World of Mathematics, **5**(4), 1995.
- 1994 43. A. G. Aksoy, *Mathematics as a Creative Art* (in Turkish), World of Mathematics, **4**(2), 1994.
- 1993 44. A. G. Aksoy, J. B. Baillon, *Measures of noncompactness in Orlicz modular spaces*, Collect. Math., **44**(1-3), pp. 1–11, 1993.
- 1992 45. A. G. Aksoy, *A generalization of  $n$ -widths*, Approximation Theory, Spline Functions and Applications, NATO-ASI Series, **356**, pp. 269–278, 1992, DOI: [10.1007/978-94-011-2634-2](https://doi.org/10.1007/978-94-011-2634-2).
- 1991 46. A. G. Aksoy,  *$Q$ -compact sets and  $Q$ -compact maps*, Mathematica Japonica, **36**(1), pp. 1–7, 1991.
- 1989 47. A. G. Aksoy, *Intermediate spaces*, Turkish Journal of Mathematics, **13**(3), pp. 79–90, 1989.
- 1987 48. A. G. Aksoy, *The radius of the essential spectrum*, Journal of Mathematical Analysis and Applications, **128**(1), pp. 101–107, 1987, DOI: [10.1016/0022-247X\(87\)90217-4](https://doi.org/10.1016/0022-247X(87)90217-4).
- 1986 49. A. G. Aksoy and M. Nakamura, *The approximation numbers  $a_n(T)$  and  $Q$ -precompactness*, Mathematica Japonica, **31**(6), pp. 827–840, 1986.

### Selected Talks

- AMS & MAA MEETINGS

- 2018 Jan. **JMM of AMS at San Diego** (Advances in Operator Theory, Operator Algebras and Operator Semigroups)  
Title: Deviation of elements of a Fréchet space from a system of subspaces.
- Oct **AMS Western Sectional Meeting at San Francisco**, (Advances in Operator Theory, Operator Algebras and Operator Semigroups)  
Title: *Bernstein's Lethargy Theorem and Reflexivity*.
- 2015 Oct. **AMS Western Sectional Meeting at CSUF** (Operator Theory and Operator Algebras)  
Title: *Bernstein's Lethargy Theorem in Fréchet Spaces*.
- Oct. **AMS Western Sectional Meeting at CSUF** (Session on Humanistic Mathematics)  
Title: *Al-Khwarizmi and the Hermeneutic circle*.
- 2014 Aug **USA-Uzbekistan Conference** (Session on Algebra and Functional Analysis)  
Title: *Minimal projections with respect to numerical radius*.
- 2013 Nov. **AMS Western Sectional, UCR** (Analysis and Geometry of Metric Spaces)  
Title: *The Uryshon Universal Space and hyperconvexity*.
- 2009 Jan. **JMM, Washington, DC** (Special Session on Dynamical Systems)  
Title: *Some Results in Metric Trees*.
- 2008 Oct. **AMS Central Sectional, Michigan** (Nonlinear Analysis and Applications)  
Title: *Structural properties of metric trees*.
- 2006 Oct. **MAA at Cal-State Long Beach** (The Southern California-Nevada Section)  
Title: *Metric trees are everywhere*.

2004 Jan. **JMM, Phoenix, AZ** (Session on Fixed Points: Theory and Application)  
 Title: *Minimal Numerical Radius Extensions of Operators.*

2002 Oct. **MAA at Cerritos College** (The Southern California-Nevada Section)  
 Title: *Theorems of Hanh-Banach Type.*

• INTERNATIONAL CONFERENCES

2017 Aug. **The second USA-Uzbekistan conference on Analysis and Mathematical Physics**,  
 Urgench, Uzbekistan.

Jun. **Geometry of Banach spaces and related topics**, Krakow, Poland.

2016 Jun. **Memorial Conference for Prof. Terzioğlu**, Istanbul, Turkey

May **Annual meeting of Turkish Mathematical Society**, Ankara, Turkey

2015 Jun. **VI Jean Conference on Approximation Theory**, Ubeda, Spain

Jul. **International Conference on Fixed Point Theory & Applications**, Istanbul, Turkey

2014 Sep. **Al-Khwarizmi Conference on Mathematics and Technology**, Samarkand, Uzbekistan

2013 Sep. **First conference on Classical and Functional Analysis**, Azuga, Romania

Jul. **Positivity conference at University of Leiden**, Leiden, Netherlands

2009 Jul. **Banach Algebra Conference at the Banach Mathematical Center**, Bedlewo, Poland

Jun. **Function Space Conference at Jagiellonian University**, Krakow, Poland

• COLLOQUIUM TALKS

2018 **Claremont Center for Mathematical Sciences**, Colloquium.

2016 **California State University at Fullerton**, Seminar

2015 **Claremont Center for Mathematical Sciences**, Analysis Seminar

2015 **Claremont Center for Mathematical Sciences**, Applied Mathematics Seminar

2014 **California State University at Fullerton**, Seminar

2012 **University of Texas, El Paso**, Seminar

2011 **Southern California Association of Women in Math, UC Irvine**, Keynote Speaker

2009 **University of California, Irvine**, Analysis Seminar

2009 **Claremont Center for Mathematical Sciences**, Analysis Seminar

2008 **Oakland University**, Seminar

2008 **University of California, Riverside**, Seminar

2008 **University of Leeds, United Kingdom**, Analysis Seminar

**Teaching Experience**

see recent courses at <http://www.asumanaksoy.com>

1987–Now **Undergraduate Courses**

Calculus I, Intermediate Calculus II-III, Freshman Honors Calculus, Advanced Calculus I-II, Real Analysis I-II, Complex Analysis, Linear Algebra, Advanced Linear Algebra, Differential Equations, Engineering Mathematics, Mathematics of Finance.

1989–Now **Graduate Courses**

Measure Theory, Functional Analysis I-II, Banach Space Theory, Interpolation Theory and Fixed Point Theory.

**Memberships**

- American Mathematical Society (AMS)
- Mathematical Association of America (MAA)
- Association of Women in Mathematics (AWM)
- Phi Beta Kappa (PBK)

**Fellowships, Grants, and Awards**

- 2016 Presidential Award from CMC.
- 2013 Mathematical Association of America-Tensor Summa Grant for GEMS (outreach) program.
- 2010 Blais Grant for Software Lab through Claremont Center for the Mathematical Sciences (with Ali Nadim, Amy Radunskaya)
- 2009 Fletcher Jones Research Grant (with Ellis Cumberbatch).
- 2008 Blais Research Grant through CCMS (with Ellis Cumberbatch).
- 2008 Summer Fellowship, Claremont McKenna College.
- 2006 G. David Huntoon Senior Teaching Award, Claremont McKenna College.
- 2006 Distinguished College or University Teaching Award, Mathematical Association of America (MAA), Southern California-Nevada Section.
- 2006 Faculty Advisor for NSF-funded Research Experiences for Undergraduates (NSF-REU-Claremont).
- 2004 Summer Research for Minimal Projections, Claremont McKenna College.
- 2002 Summer Research Fellowship, Claremont McKenna College.
- 2000 The Roy P. Crocker Award for Merit, Claremont McKenna College.
- 1999 F.G. Research Institutes Research Fellowship.
- 1999 The Roy P. Crocker Award for Merit, Claremont McKenna College.
- 1998 Research Grant, Claremont McKenna College. Awarded to visit Jagiellonian University to do research with Professor G. Lewicki on problems related to  $s$ -numbers in Banach spaces.
- 1994 NATO-TOKTEN (Transfer of Knowledge through Expatriate Nationals) Grant. Awarded for a series of lectures on functional analysis to mathematics faculty and graduate students in the Middle East Technical University, Ankara, Turkey.
- 1983 The University of Michigan Fellowship. Awarded to conduct research in USA and Kaiserlautern Germany.
- 1982–1986 NATO Scholarship for Ph.D. Awarded through Turkish Scientific and Research Council to pursue a Ph.D. in mathematics

**Meetings Organized**

- 2018 AMS JMM at San Diego and AMS Western Sectional meeting at San Francisco.(Special Session on Advances in Operator Theory, Operator Algebras and Operator Semigroups)
- 2009-Now Atul-Vyas Memorial Lecture, CMC.
- 1990–Now Claremont McKenna College Analysis Seminar Organizer (year-round)
- 2005–2017 Southern California Functional Analysis Seminar
- 2015 Oct. AMS Western Sectional at CSUF (Special Session on Functional Analysis)
- 2013 Nov. AMS Western Sectional at UCR (Special Session on Analysis and Geometry of Metric Spaces)
- 2008 May AMS Spring Western Section Meeting, Claremont McKenna College
- 1997 Oct. Joint AMS and MAA Meeting at Claremont McKenna College
- Mar. MAA Southern California Section at San Diego University
- 1996 Oct. MAA Southern California Section at Cal State Fullerton

**Service**

- TO CMC AND THE CLAREMONT COLLEGES CONSORTIUM
- 2018–Now Board of Trustees Academic Affairs Committee.
- 2015–2017 Member APT of CMC
- 2015–2017 Member APT of Keck Science
- 2015–2017 Board of Trustees Finance Committee
- 2008–Now Organizer for Atul-Vyas Lecture series at CMC
- 2012–2015 Chair for the GEMS (outreach) program

- 2015 Speaker for the Athenaeum at CMC
- 2009-2013 Executive Committee member for APT of CMC
- 2011–2015 Executive Committee member for CCMS
- 2009–2011 Acting Director and Chair, Executive Committee for the Claremont Center for Math Sciences
- 2010 Director to Summer Research Group for Fletcher Jones, CCMS
- 2009–2010 Chair for Claremont Colleges Colloquium
- 2008–2013 Member, Executive Committee for APT
- 2006 Chair, Faculty Search Committee
- 2006 Member, Faculty Research Committee
- 2003–2005 Chair, Presidents Advisory Committee on Diversity
- 2004 Chair, Dean of Faculty Search Committee
- 2001 Chair, Dean of Faculty Search Committee
- 1999 Member, Presidential Search Committee for CMC
- 1998 Committee on the Quality of Education at CMC

- TO THE MATHEMATICS COMMUNITY

- 2011–2012 American Mathematical Society (AMS) Western Section Program Chair
- 2011–2012 American Mathematical Society (AMS) Committee on Committees
- 2005–2013 Organizer for Southern California Functional Analysis (SCFA) seminars
- 2008 External Reviewer, Grinnell College Mathematics Department
- 2006 Search Committee Member, Pomona College Mathematics Department
- 2002 External Reviewer, Cal State Polytechnic University, Pomona, Mathematics Department
- 2001 External Reviewer, Claremont Graduate University Mathematics Department
- 2000 Chair, Panel on Careers in Mathematics, Southern California Section of the MAA
- 1995–1997 Program Chair, Southern California Section of the MAA
- 1991–1994 Program Chair, Mathematics Colloquium of the Claremont Colleges

### Other Professional Activities

- Journals refereed:

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| American Mathematical Monthly                | Proceedings of the AMS                       |
| Turkish Journal of Mathematics               | South African Journal of Mathematics         |
| J. Mathematical Analysis & Applications      | International J. of Math. & Math. Sci.       |
| Nonlinear Analysis, Methods and Applications | Arabian Journal of Mathematics               |
| Central European Journal of Mathematics      | Journal of Fixed Point Theory & Applications |
| Archiv der Mathematik                        | Monatshefte Fur Mathematik                   |
| Involve                                      |  |
| Jaen Journal of Approximation                | Positivity Journal (POST)                    |

- 83 reviews for *Mathematical Reviews*.