

ASUMAN GÜVEN AKSOY, Ph.D.

Crown Professor of Mathematics and Roberts Fellow, Claremont McKenna College

CONTACT INFORMATION

Work:

Claremont McKenna College

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EDUCATION

- 1984 University of Michigan, Ann Arbor, Michigan
Ph.D., Mathematics
Dissertation Committee: M. S. Ramanujan, A. Shields, and P. Duren
Dissertation Title: *Approximation Schemes, Related s -Numbers and Applications*
- 1978 Middle East Technical University, Ankara, Turkey
M.S., Mathematics
Masters Thesis Chair: Tosun Terzioğlu
Masters Thesis Title: *Subspaces of Nuclear Fréchet Spaces*
- 1976 University of Ankara, Ankara, Turkey
B.S., Mathematics and Physics
Academic Distinction: Ranked 1st in graduating class

ACADEMIC EMPLOYMENT EXPERIENCE**Regular:**

- 2007- 2009 Chair, Department of Mathematics, Claremont McKenna College
- 1996- Present Professor, 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, Ann Arbor, Michigan
- 1976-1978 Teaching Assistant, Department of Mathematics, Middle East Technical University, Ankara, Turkey

Visiting:

- 2008 (Fall) Visiting Professor, University of Leeds, Leeds, United Kingdom
- 2005 (Spring) Visiting Professor, Banach Center, Warsaw, Poland
- 2002 (Summer) Visiting Professor, Jagiellonian University, Krakow, Poland
- 2001 (Spring) Visiting Professor, Department of Mathematics, Bogazici University, Istanbul, Turkey
- 2000 (Fall) Visiting Professor, Department of Mathematics, University of California-Riverside, CA
- 1994 (Summer) Visiting Associate Professor, Department of Mathematics, Middle East Technical University, Ankara, Turkey
- 1993-1994 Visiting Associate Professor, Department of Mathematics, California Institute of Technology (Caltech), Pasadena, CA
- 1983-1984 Visiting Research Assistant, Department of Mathematics, University of Kaiserslautern, Kaiserslautern, Germany
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RESEARCH AREAS

Banach Space Theory, Operator Theory, Approximation Theory, Interpolation Spaces, Fixed Point Theory
 Modular Spaces, Nuclear Spaces, Minimal Projections, Symmetric Spaces, Hyperconvex Spaces, Metric Geometry.

TEACHING EXPERIENCE**Undergraduate Courses:**

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

Graduate Courses:

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

FELLOWSHIPS, GRANTS AND AWARDS

- 2009 Fletcher Jones Research Grant through CCMS
- 2008 Blais Research Grant through Claremont Center for the Mathematical Sciences (CCMS)
- 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, 1991-1995, 1989, 1988	Summer Research Fellowship, Claremont McKenna College. Awarded to pursue research for mathematical problems in Banach spaces.
2000	The Roy P. Crocker Award for Merit, Claremont McKenna College
1999	F.G. Research Institute's Research Fellowship
1999	The Roy P. Crocker Award for Merit, Claremont McKenna College
1998	Research Grant, Claremont McKenna College. Awarded to go to Jagiellonian University in Poland 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 Kaiserslautern Germany
1982-1986	NATO Scholarship for Ph.D. Awarded through Turkish Scientific and research council to pursue a Ph.D. in mathematics

MEMBERSHIP

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

PUBLICATIONS

a. Doctoral Dissertation:

A. G. Aksoy, "*Approximation Schemes, Related s -numbers and Applications.*"

b. Masters Thesis:

A. G. Aksoy, "*Subspaces of Nuclear Fréchet Spaces.*"

c. Books:

A. G. Aksoy and M. A. Khamsi, *Nonstandard Methods in Fixed Point Theory*, Springer-Verlag, Universitext Series, 1990.

The aim of this book is to give a unified account of the major new developments inspired by Maurey's application of Banach space ultra products to the fixed point theory for nonexpansive mappings. The first third of the book is devoted to laying a careful foundation for the actual fixed point theoretic results which follow. Set theoretic and Banach space ultraproducts construction are studied in detail in the second part of the book, while the remainder of the book gives an introduction to the classical fixed point theory in addition to a discussion of normal structure. This is the first book that studies classical fixed point theory for nonexpansive maps from the view of nonstandard methods.

A. G. Aksoy and M. A. Khamsi, *A Problem Book in Real Analysis* (Springer-Verlag, Problem Books in Mathematics.)

The aim of this book is to teach Analysis through problem solving. It includes topics on: Logic and Set Theory, Real Numbers, Sequences, Limits of Functions, Continuity, Differentiability, Integration, Series, Metric Spaces, Fundamentals of Topology, Sequences and Series of Functions.

A.G. Aksoy and H. T. Nguyen, *Banach M-spaces and Fenchel-Orlicz Spaces of Vector-Functions* (In progress)

This book focuses on the theory, geometry and selected applications of Banach spaces measurable vector-functions. Namely, Banach M-spaces as Banach L_{∞} -modules and concrete Fenchel-Orlicz generated by convex functions of vector-variables.

d. Articles:

A. Aksoy and M. Nakamura, "The Approximation Numbers $a_n(T)$ and Q-precompactness," *Mathematica Japonica*, Vol. 13 1, No. 6, 1986, pages 827-840.

A. Aksoy, "The Radius of The Essential Spectrum," *Journal of Mathematical Analysis and Applications*, Vol. 128, No. 1, 1987, pages 101-107.

A. Aksoy, "Intermediate Spaces," *Turkish Journal of Mathematics*, Vol. 13. No.3, 1989, pages 79-90.

A. Aksoy, "Q-compact Sets and Q-compact Maps," *Mathematica Japonica*, Vol.36, No. 1, 1991, pages 1-7.

A. Aksoy, "A Generalization of n-widths," *Approximation Theory, Spline Functions and Applications*, Kluwer Academic Publishers, NATO-ASI Series. 1992, pages 269-278.

A. Aksoy, J. B. Baillon, "Measures of non compactness in Orlicz Modular Spaces," *Collect. Math.* Vol.44, 1993, pages 1-11.

A. Aksoy, L. Maligranda, "Lipschitz-Orlicz Spaces and the Laplace Equation," *Mathematische Nachrichten*, Vol.178, 1996, pages 81-101.

A. Aksoy, L. Maligranda, "Real Interpolation and Measures of Weak-noncompactness," *Mathematische Nachrichten*, Vol. 175, 1995, pages 5-12.

A. Aksoy, "s-numbers, Measure and Weak Measure of Noncompactness and Real Interpolation," *Bulletin of Allahabad Math. Soc.*, Vol. 8-9, 1997, 15-35.

A. Aksoy, G. Lewicki, "Modular Spaces and K-Widths," *Functional Analysis: (Eds.Dierolf/Dinen/Domvnski)*,

Walter de Gruyter Publishing, Berlin, 1996, pages 1-10.

A. Aksoy, G. Lewicki, "Diagonal Operators, s-numbers, and Bernstein Pairs" *Note di Matematica*, Vol. 17, 1997, pages 1-10.

A. Aksoy, M. Martelli, "Global Convergence for Discrete Dynamical Systems and Forward Neural Networks," *Turkish Journal of Mathematics*, Vol. 25, 2001, pages 345-354.

A. Aksoy, M. Martelli: "Mixed Partial Derivatives and Fubini's Theorem," *College Mathematics Journal of MAA*, Vol.33, 2002, pages 126-130.

A. Aksoy, M. Martelli, "Wave Equation, Mixed Partial Derivatives and Fubini's Theorem" *the American Mathematical Monthly*, Vol. 111, 2004, N.4, 2004.

A. Aksoy, H. O. Tyllii, "Interpolation of the Essential Spectrum" Orlicz Centenary Volume II, *Banach Center Publ*, 68, Polish Acad. Sci., Warsaw, 2005, 9-18.

A. Aksoy, M. A. Khamsi, "A selection theorem in metric trees" *Proc. of Amer. Math. Soc.* 134 (2006) No. 4, 2957-2966.

A. Aksoy, M. A. Khamsi, "Fixed Points of Uniformly Lipschitzian Mappings in Metric Trees," *Sci. Math. Jpn.* Vol. 65, (2007), No.1, 31-41.

A. Aksoy, B. L. Chalmers, "Minimal Extension and the Numerical Range," *Proc. of Amer. Math. Soc.* 135 (2007), No. 4, 1039-1050.

A. Aksoy, M. Ed-Dari, M.A.Khamsi, "On numerical index of vector-valued function spaces," *Linear and Multilinear Algebra*. 55 (2007), no. 6, 507-513.

A. Aksoy, M. S. Borman and A. L. Westfahl, "Compactness and measures of non-compactness in metric trees," *Proc. of the International. S On Banach and Function Spaces II, Kitakyushu, Japan, (2007) 1-16.*

A. Aksoy, B. Maurizi, "Metric trees, hyperconvex hulls and extensions," *Turkish J. Math.*, 32, (2008), no.2, 219-234

A. Aksoy, G. Lewicki, "Minimal Projections with respect to various norms" Submitted for publication

A. Aksoy, T. Oikhberg, "Some results in metric trees" Accepted for publication. Will appear in *Banach Center Publications* in 2010.

A. Aksoy, G. Lewicki, "Best approximation in numerical radius" submitted for publication

A. Aksoy, K. Kinneberg, "Compact n-widths in metric trees" submitted for publication

A. Aksoy, G. Lewicki, "A Limit Theorem for Numerical Index" in progress

***All publications can be viewed online at MathSciNet:**

<http://www.ams.org/mathscinet/search/publications.html?pg1=INDI&s1=24095>

- e. Seven reviews published on book "*Nonstandard Methods in Fixed Point Theory.*"
- f. Seventeen abstracts published.

g. **60 reviews published in the journal of *Mathematical Reviews*.**

***All reviews can be viewed online at MathSciNet:**

<http://www.ams.org/mathscinet/search/publications.html?pg1=RVRI&s1=24095&pg3=authreviews>

h. **Popular Publications:**

A. Aksoy, "Mathematics as a Creative Art," *World of Mathematics*, (in Turkish) Vol. 4, Issue 2, 1994.

A. Aksoy, "Logical Marriages, or Dihedral Group of Order 8," *World of Mathematics*, (in Turkish) Vol. 5, Issue 4, 1995.

A. Aksoy, "Fibonacci Sequences," *World of Mathematics*, (in Turkish) Vol. 6, Issue 6, 1995.

A. Aksoy, translated into Turkish the book, *Poetry of the Universe* by R. Osserman, Turkish edition, published in February 2001.

PROFESSIONAL ACTIVITIES

Referee for:

American Mathematical Monthly

Proceedings of the American Mathematical Society

Turkish Journal of Mathematics

South African Journal of Mathematics

Journal of Mathematical Analysis and Applications

International Journal of Mathematics and Mathematical Sciences

Nonlinear Analysis, Methods and Applications

Journal of Fixed Point Theory and Applications

Professional Meetings:

a. **Seminar Organizer for 7 Analysis Seminars (year-round)**

b. **Seminar Organizer for Southern California Functional Analysis (SCFA) Seminar**
2005-present
(See Departmental webpage for details)

c. **Meeting Organizer for MAA and Joint AMS-MAA Meetings**
- Mathematical Association of America (MAA)
- American Mathematical Society (AMS)

AMS Spring Western Section Meeting – held at Claremont McKenna College, May 3-4, 2008.

Joint AMS and MAA – held at Claremont McKenna College, October 4, 1997.

MAA, Southern California Section – held at San Diego University, March 2, 1997.

MAA, Southern California Section – held at Cal State Fullerton, October 19, 1996.

d. Invited talks at 21 International Conferences

Most recent:

Banach Algebra Conference 2009 at Banach Mathematical Center at Bedlewo, Poland, Poland, 2009.

Function Space Conference at Jagiellonian University, Krakow, Poland 2009.

e. Colloquium Talks

Most recent:

2009 University of California at Irvine

2009 CCMS Colloquium

2008 Oakland University

2008 University of California at Riverside

2008 University of Leeds in United Kingdom

f. AMS-MAA Talks

Most recent:

2009 JMM at Washington DC, Special session on Dynamical Systems, January 7th.

2008 American Mathematical Society, Central Section Meeting in Michigan, October 18. Title of the talk: “*Structural Properties of Metric Trees.*”

2006 Mathematical Association of America (The Southern California-Nevada Section) at Cal-State Long Beach, Oct. 21. Title of the talk: “*Metric trees are everywhere.*”

2004 American Mathematical Society (AMS) Meeting- Invited Session Speaker on topic “*Fixed Points,*” Phoenix, AZ, January 8.

2002 Southern California Section of Mathematical Association of America (MAA) - Invited Session Speaker, Cerritos College, October 12. Title of the Talk: “*Theorems of Hanh-Banach Type.*”

SERVICE (SELECTED, 1985-2009)

To the College

2007-2009 Chair, CMC Mathematics Department

2007-Present Member, APT/EC

2006 Chair, Faculty Search Committee

2006 Member, Faculty Research Committee

2003-2005	Chair, President's Advisory Committee on Diversity
2004	Chair, Dean of Faculty Search Committee
2001	Chair, Dean of Faculty Search Committee
1999-2000	Member, APT/ EC
1997-2000	Chair, CMC Mathematics Department
1999	Member, Presidential Search Committee for CMC
1998	Committee on the Quality of Education at CMC

To the Profession

2009-Present	Acting Director and Chair, Executive Committee for the Claremont Center for the Mathematical Sciences (CCMS), a joint center of the mathematics for all the Claremont Colleges
2008-Present	Member, Executive Committee of the Mathematics Departments of Claremont Colleges
1985-Present	Reviewer, <i>Math Reviews of American Mathematical Society</i>
2008	External Reviewer, Grinnell College Mathematics Department
2006	Search Committee Member, Pomona College Mathematics Department
2002	External Reviewer, California 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 Mathematical Association of America (MAA)
1991-1994	Program Chair, Mathematics Colloquium of the Claremont Colleges