Curriculum Vitae

Mohamed A. Khamsi

Contents

1 PERSONAL DATA AND EXPERIENCE RECORD

1.1 Personal Data

- Name : **Mohamed Amine Khamsi**
- Nationality : United States
- Address SA : Department of Mathematics and Statistics, KFUPM, Dhahran, Saudi Arabia
- Phone : Office +966 (03) 860-7006 ; Home +966 (03) 860-6141 ; Fax: +966 (03) 860 2340
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- E-mail : mohamed@utep.edu or drkhamsi@drkhamsi.com
- Web-addresses: faculty.kfupm.edu.sa/math/mkhamsi or www.drkhamsi.com

1.2 Academic Qualifications

- **1987**: Ph. D. in Mathematics, University of Paris 6, Jussieu, Paris, France
  `Advisor`: Prof. G. Godefroy, University of Paris 6, Paris, France
- **1984**: M.Sc. in Mathematics, University of Paris 6, Paris, France
- **1983**: B. Sc. in Engineering, École Polytechnique, Paris, France
- **1981**: Math Spé (Section M'), Lycée Louis Le Grand, Paris, France
- **1979**: Math Sup, Lycée Gay Lussac, Limoges, France
- **1978**: High School Diploma, Lycée Moulay Abdellah, Casablanca, Morocco

1.3 Areas of Research

- **Main**: Fixed Point Theory
- **Secondary**: Geometry of Banach Spaces and Operator Theory
- **Secondary**: Discrete Dynamical Systems
- **Secondary**: Logic Programming
- **Secondary**: Discrete Mathematics: Ordered sets and Trellises
- **Secondary**: Internet Mathematics Education

1.4 Employment History

- **2009-** Adjunct Professor, King Fahd University of Petroleum and Minerals, Saudi Arabia
- **2008-09** Director of Modular Calculus, University of Texas at El Paso, USA
- **2002-** Professor, University of Texas at El Paso, USA
- **2000-02** Visiting Professor, Kuwait University, Kuwait
- **1999-00** Professor, University of Texas at El Paso, USA
- **1995-99** Associate Professor, University of Texas at El Paso, USA
- **1994-95** Associate Professor, Kuwait University, Kuwait
- **1989-94** Assistant Professor, University of Texas at El Paso, USA
- **1988-89** Visiting Assistant Professor, University of Rhode Island, USA
- **1987-88** Visiting Assistant Professor, University of Southern California, USA
- **1985-86** Visiting Researcher, University of Missouri-Columbia, USA

1.5 Professional Societies

- **Member**: American Mathematical Society, International Federation of Nonlinear Analysts, La Sociedad Colombiana de Matematicas, Amicale des anciens de l'Ecole Polytechnique, Sigma Xi

1.6 Fellowships, Grants, Awards, Prizes, and Honors

- **1981-83** Fellowship, Ministère de la Coopération Française, France
- **1983-87** Fellowship, École Polytechnique, Paris, France
- **1996-98** Model Institution for Excellence Project (NSF): "S.O.S. Mathematics", funded, amount of about $ 140,000
- **1996-97** Model Institution for Excellence Project (NSF): "Reforming the Differential Equations Course", funded, amount of about $ 45,000
- **2005** College of Science, Distinguished Award for Research, University of Texas at El Paso
- **2007** College of Science, Distinguished Award for Research, University of Texas at El Paso

2 TEACHING EXPERIENCE

2.1 Courses Taught

• UNDERGRADUATE COURSES:

- Pre-Calculus
- Calculus I, II, and III
- Business Mathematics
- Differential Equations
- Linear Algebra and Matrix Algebra
- Introduction to Analysis I and II
- Principle of Mathematics
- Discrete Dynamical Systems

• GRADUATE COURSES:

- Measure Theory
- Functional Analysis
- Discrete Dynamical Systems: Introduction to Chaos
- Graduate Seminar: Introduction to Hilbert Spaces
- Graduate Seminar: Introduction to Fixed Point Theory
- Graduate Seminar: Newton's approximation and Fixed Point Theory

2.2 E-Learning Activities

- Co-creator of one of the most popular Mathematics website on the web: www.sosmath.com
- Developed webpages to supplement the reformed Differential Equations course
- Developed the Modular Calculus website with many online materials
- Posting of challenging problems for online discussion
- Posting of solution for difficult homework problems
- Active participant on the SOSMATH cyberboard

2.3 Consultanship

- Active consultant for Math Medics over Internet Mathematics Education

2.4 Curriculum Development

- Pre-Calculus: from traditional to Modular
- Calculus I: from traditional to Modular
- Differential Equations: from traditional to reformed
- Discrete Dynamical Systems: Graduate and Undergraduate (New)
- Fixed Point Theory (New)
- Functional Analysis (New)

3 RESEARCH

3.1 Research Papers

- In all papers, names of authors appeared in alphabetical order
- Papers with an asterisk are from my Ph.D. dissertation

[1] (*) M.A. Khamsi, "La propriete du point fixe dans les espaces de Banach avec base inconditionelle", Mathematische Annalen 277(1987), 727-734.

[2] (*) M.A. Khamsi, "James quasi-reflexive space has the fixed point property", Bull. Austral. Math. Soc. Vol. 39(1989), 25-30.

[3] (*) M.A. Khamsi, P. Turpin, "Fixed points of nonexpansive mappings in Banach lattices", Proc. A.M.S. Vol. 105(1989), 102-110.

[4] (*) M.A. Khamsi, "On the weak*-fixed point property", Contemporary Mathematic A.M.S., Vol. 85(1989), 325-337.

[5] (*) M.A. Khamsi, "Points fixes de contractions", Seminaire Initiation a l'Analyse Paris VI-VII, Vol. 26(86-87), 3-9.

[6] (*) M.A. Khamsi, "Normal structure for Banach spaces with Schauder decomposition", Canad. Math. Bull. Vol. 32-3(1989), 344-351.

[7] (*) M.A. Khamsi, "On normal structure, fixed point property and contractions of type-(gamma)", Proc. A.M.S., Vol. 106(1989), 995-1001.

[8] M.A. Khamsi, "On metric spaces with uniform normal structure", Proc. A.M.S., Vol. 106(1989), 723-726.

[9] M.A. Khamsi, W.K. Kozlowski, S. Reich, "Fixed point theory in Modular function spaces", Nonlinear Analysis, Vol. 14(1990), 935-953.

[10] S. Chutao, M.A. Khamsi, W.K. Kozlowski, "Geometrical properties and fixed point theorems in Orlicz modular spaces", Journal of Mathematical Analysis and Applications Vol. 155, No. 2, (1991) 393-412.

[11] M.A. Khamsi, S. Reich, "Nonexpansive mappings and semigroups in hyperconvex spaces", Math. Japonica, Vol. 35(1990), 467-471.

[12] J. Dye, M.A. Khamsi, S. Reich, "Random product of contractions in Banach spaces", Trans. A.M.S. Vol. 325,No. 1(1991) 87-99.

[13] M.A. Khamsi, "Nonlinear semigroups in modular function spaces", Math. Japonica Vol. 37, No 2(1992), 1-9.

[14] M.A. Khamsi, "Uniform Smoothness implies Super-Normal Structure property", Nonlinear Analysis, Theory, Methods and Applications, Vol. 19(1992), 1063-1069.

[15] M.A. Khamsi, M. Lin, R. Sine, "On the fixed points of commuting nonexpansive maps in hyperconvex spaces", Journal of Mathematical Analysis and Applications Vol. 168, No. 2(1992), 372-380.

[16] M.A. Khamsi, J. Nymann, "A strengthening of Leth and Malitz'uniqueness condition for sequences", Proc. A.M.S., V.118-1 (1993), 233-238.

[17] M.A. Khamsi, "Fixed point theory in Non-classical Banach spaces", Proceedings of the Second International Conference on Fixed Point Theory and Applications, Halifax, June 9-14, 1991, World Scientific, 130-136.

[18] M.A. Khamsi, "Nonstandard Methods in Metric Fixed Point Theory", Proceedings of the first world congress of nonlinear analysts, Tampa, August 19-26, 1992, Walter de Gruyter, Berlin-New York 1996, pages 3003-3012.

[19] M.A. Khamsi, V. Kreinovich, and D. Misane, "A new method of proving the existence of Answer sets for disjunctive logic programs: A metric fixed point theorem for multivalued maps", Proc. of

the Workshop on Logic Programming with Incomplete Information, Vancouver, British-Columbia, Canada 1993.

[20] M.A. Khamsi, "A Nonstandard Fixed Point Result in $L^1[0,1]$", Revista Colombiana de Mathematica, Vol. 27 (1993), 137-146.

[21] M.A. Khamsi, "Uniform noncompact convexity, fixed point property in modular spaces", Mathematica Japonica, Vol 40, No 3 (1994), 439-450.

[22] M.A. Khamsi, "On the stability of the fixed point property in l_p-spaces", Revista Colombiana de Mathematica, Vol. 28, No 1(1994), 1-6.

[23] M.A. Khamsi, D. Misane, "Compactness of convexity structures in metric spaces", Mathematica Japonica, Vol. 41, No2 (1995), 321-326.

[24] M.A. Khamsi, "Fixed Point Theory in Modular Function Spaces", Proceeding of the Workshop on Recent Advances on Metric Fixed Point Theory held in Sevilla, September, 1995, pages 31-55.

[25] D. Doser, M.A. Khamsi, V. Kreinovich, "Earthquakes and Geombinatorics", Geombinatorics, Vol. VI(1996), 48-54.

[26] M.A. Khamsi, "A convexity property in Modular function spaces", Math. Japonica, Vol. 44, No. 2(1996), 269-279.

[27] M.A. Khamsi, "On Uniform Opial condition and Uniform Kadec-Klee property in Banach and metric spaces", Nonlinear Analysis TMA, Vol. 26, No. 10(1996), 1733-1748.

[28] M.A. Khamsi, S. Swaminathan, "Normal structure property in generalized James spaces", Journal of Mathematical Analysis and Applications, Vol. 204 (1996), 765-773.

[29] F. Chaatit, M.A. Khamsi, "Uniform Kadec-Klee property in Banach lattices", Math. Japonica, Vol. 43, No. 2(1996), 357-364.

[30] M.A. Khamsi, V.Y. Kreinovich, "Fixed Point Theorems For Dissipative Mappings in Complete Probabilistic Metric Spaces", Math. Japonica., Vol. 44, No. 3(1996), 513-520.

[31] M.A. Khamsi, "KKM and Ky Fan Theorems in Hyperconvex Metric Spaces", Journal of Mathematical Analysis and Applications, Vol. 204 (1996), 298-306.

[32] M.A. Khamsi, "One-local retract and common fixed point for commuting mappings in metric spaces", Nonlinear Analysis TMA, Vol. 27, No.11 (1996), 1307-1313.

[33] M.A. Khamsi, D. Misane, "Disjunctive Signed Logic Programs", Fundamenta Informaticae, Vol. 32 (1996), 349-357.

[34] M.A. Khamsi, D. Misane, "Fixed Point Theorems in Logic programming", Annals of Mathematics and Artificial Intelligence, Vol. 21 (1997), 231-243.

[35] M.A. Khamsi, W.A. Kirk and C. Martinez, "Fixed Point and Selection Theorems in Hyperconvex Spaces", Proceedings of the American Mathematical Society, Vol. 128 (2000), 3275-3283.

[36] M.A. Khamsi, H. Knaust, N.T. Nguyen and M.D. O'Neill, "Lambda-Hyperconvexity in Metric Spaces", Nonlinear Analysis TMA, Vol. 43 (2001), 21-31.

[37] M.A. Khamsi, N.T. Nguyen and L. Valdez-Sanchez, "The AR-Property in Linear Metric Spaces", Topology and Its Applications, Vol. 109 (2001), 267-284.

[38] T. Dominguez-Benavides, M.A. Khamsi, S. Samadi, "Uniformly Lipschitzian Mappings in Modular Function Spaces", Nonlinear Analysis TMA, Vol. 46 (2001), 267-278.

[39] T. Dominguez-Benavides, M.A. Khamsi, S. Samadi, "Asymptotically Regular Mappings in Modular Function Spaces ", Scientiae Mathematicae Japonicae, Vol 53 (2001), 295-304.

[40] T. Dominguez-Benavides, M.A. Khamsi, S. Samadi, "Asymptotically nonexpansive mappings in Modular Function Spaces ", Journal of Mathematical Analysis and Applications, Vol. 265, No. 2 (2002), 249-263.

[41] M.A. Khamsi, B. Sims, "Ultra-Methods in Metric Fixed Point Theory ", Handbook of Metric Fixed Point Theory, Editors: W.A. Kirk and B. Sims, Kluwer Academic Publishers, Dordrecht, 2001.

[42] R. Espinola, M.A. Khamsi, "Introduction to Hyperconvex Spaces", Handbook of Metric Fixed Point Theory, Editors: W.A. Kirk and B. Sims, Kluwer Academic Publishers, Dordrecht, 2001.

[43] M.A. Khamsi, "Introduction To Metric Fixed Point Theory", International Workshop on Nonlinear Functional Analysis and its Applications, Shahid Beheshti University, Iran, January 20-24, 2002.

[44] M.A. Khamsi, "Sadovskii's Fixed Point Theorem without Convexity", Nonlinear Analysis TMA, Vol. 53, No. 6 (2003) 829-837.

[45] M.A. Khamsi, "On Asymptotically Nonexpansive Mappings in Hyperconvex Metric Spaces", Proceedings of the American Mathematical Society 132 (2004) 365-373.

[46] M. Budzynska, M.A. Khamsi, "Retracts of B_H^∞", Journal of Mathematical Analysis and Applications, Vol. 317, No.2, (2006) 707-713.

[47] M.A. Khamsi, M. Ed-Dari, "The numerical index of the L_p-space", Proceedings of the Amer. Math. Soc, Vol. 134 (2006), 2019-2025.

[48] A. G. Aksoy, M.A. Khamsi, "A selection theorem in metric trees", Proceedings of the Amer. Math. Soc, Vol. 134 (2006), 2957-2966.

[49] G. Aksoy, M.A. Khamsi, "Fixed Points of Uniformly Lipschitzian Mappings in Metric Trees", Scientiae Mathematicae Japonicae, 65(2007), 31-41.

[50] M. Ed-Dari, M.A. Khamsi, A. G. Aksoy, "On the numerical index of vector-valued function spaces", Linear and Multilinear Algebra, 55(2007), 507-513.

[51] M.A. Khamsi, Reflexive Metric Spaces and The Fixed Point Property, 7^{th} International Conference on Fixed Point Theory and its Applications, Held in Guanajuato, Mexico, July 17-23, 2005. Published by Yokohama Publishers Japan, 2006.

[52] N. Hussain, M.A. Khamsi, "Random Coincidence Point and Invariant Approximation Results in Hyperconvex spaces", submitted.

[53] M.A. Khamsi, "Quasi-Contraction Mappings in Modular Spaces without the Δ_2-condition", to appear in Fixed Point Theory and Applications.

[54] M.A. Khamsi, "Remarks On Caristi's Fixed Point Theorem", to appear in Nonlinear Analysis, Theory, Methods & Applications.

[55] M.A. Khamsi, "Selection Theorems for Multifunctions in Partially Ordered Sets", Submitted to Journal Order.

[56] N. Hussain, M.A. Khamsi, "On Asymptotic Pointwise Contractions in Metric Spaces", Submitted to Nonlinear Analysis, Theory, Methods & Applications.

[57] M.A. Khamsi, W. A. Kirk, "On Uniformly Lipschitzian Multivalued Mappings in Banach and Metric spaces", Submitted.

3.2 Books

[1] A. Aksoy, M.A. Khamsi, "Nonstandard Methods in fixed point theory", Springer-Verlag, 1990.

[2] R. Benkhalti, M.A. Khamsi, "Equations differentielles et leurs applications", Scientifika, France, 1995.

[3] M.A. Khamsi, W.A. Kirk, "An Introduction to Metric Spaces and Fixed Point Theory", John Wiley, New York, 2001.

[4] A. Aksoy, M.A. Khamsi, "A Problem Book in Real Analysis", to be published by Springer-Verlag, 2010.

3.3 Students Supervised

- `D. Misane`: Doctorat d'Etat (**1994**), Rabat, Morocco.
- `S. Samadi`: Ph.D. (**2001**), University of Sevilla, Spain.

3.4 Short Research Visits

- Université Claude Bernard, Lyon, France.
- University of Missouri-Columbia, USA.
- University of Iowa, Iowa, USA.
- Dalhousie University, Halifax, Canada.
- University of Sevilla, Spain.
- Universitat de Valencia, Valencia, Spain.
- University Mohamed V, Morocco.
- Universidad Catolica de Valparaiso, Valparaiso, Chile
- Behechti University, Tehran, Iran.
- Niigata University, Niigata, Japan.
- Instituto de Matematics, CIMAT, Guanajuato, Mexico.
- Universidad de Los Andes, Merida, Venezuela.
- Kyungnam University, Masau, South Korea.
- King Fahd University, Dhahran, Saudi Arabia.

4 SERVICES

4.1 Services to the Department, College of Science and University

- Library Committee
- Undergraduate Recruiting Committee
- Graduate Recruiting Committee
- High School Math Science Context Committee
- Hiring Committee
- Undergraduate Advisor
- Member of the Faculty Senate
- Executive Committee
- Evaluation Tenure & Promotion Committee
- CARPE Committee, University Senate
- Award Committee, College of Science
- LPAC Committee, El Paso Independent School District

4.2 Services to the Mathematical Community at Large

- Referee of:
  - Proceedings of the American Mathematical Society
  - Annales des Sciences Mathematiques du Quebec
  - Journal of Nonlinear Analysis, Theory, Methods and Applications
  - Journal of Mathematical Analysis and Applications
  - Houston Journal of Mathematics
  - Rendiconti Del Circolo Matematico Di Palermo
  - Mathematics of Operations Research
  - Kuwait University Scientific Journal
- Associate Editor: Fixed Point Theory and Applications
- Member of the Scientific Committee for the 8^{th} International Conference on Fixed Point Theory and its Applications

5 REFERENCES

• ADVISOR
Ph.D. Advisor: G. Godefroy Member of the "CNRS", and Institut de Mathematiques de Jussieu, Paris, France. Email: godefroy@math.jussieu.fr

• REFERENCES FOR RESEARCH
- Prof. B. Baillon, Univ. Lyon I, France. Email: baillon@jonas.univ-lyon1.fr
- Prof. J. Borwein, Dalhousie University, Canada. Email: jborwein@cs.dal.ca
- Prof. R. C. Bruck, University of Southern California, USA. Email: bruck@usc.edu
- Prof. T. Dominguez Benavidez, University of Sevilla, Spain. Email: ayerbe@cica.es
- Prof. B. Gamboa de Buen, CIMAT, Mexico. Email: gamboa@cimat.mx
- Prof. K. Goebel, University of Lublin, Poland. Email: goebel@golem.umcs.lublin.pl
- Prof. W. A. Kirk, University of Iowa, USA. Email: kirk@math.uiowa.edu
- Prof. A. R. Khan, King Fahd University, Saudi Arabia. Email: arahim@kfupm.edu.sa
- Prof. A. T. Lau, University of Alberta, Canada. Email: tlau@math.ualberta.ca
- Prof. E. Llorens-Fuster, University of Valencia, Spain. Email: enrique.llorens@uv.es
- Prof. S. Park, Seoul National University, South Korea. Email: shpark@math.snu.ac.kr
- Prof. S. Prus, University of Lublin, Poland. Email: bsprus@golem.umcs.lublin.pl
- Prof. B. Sims, University of Newcastle, Australia. Email: brailey.sims@newcastle.edu.au
- Prof. W. Takahashi, Tokyo Institute of Technology, Japan. Email: wataru@is.titech.ac.jp
- Prof. M. Thera, University Limoges, France. Email: thera@cix.cict.fr
- Prof. Hong-Kun Xu, University of Durban, South Africa. Email: hkxu@pixie.udw.ac.za

• QUOTATIONS
Here are statements extracted from previous reference letters written on my behalf by senior mathematicians:

- "Khamsi's research contributions place him among the leading scholars in the world in the subject of fixed point theory in nonlinear analysis... Khamsi has written numerous research articles, and his articles typically do much more than merely address peripheral problems lying on the border of theory developed by others. Often he solves specific problems that other researchers have found daunting... In all respects Khamsi holds himself to high standards, and he enjoys a worldwide reputation. His work is mentioned often in conference talks and his papers are cited frequently in the literature. In fact his work is cited in ten of the nineteen chapters in the *Handbook of Metric Fixed Point Theory*..." **Prof. W. A. Kirk, University of Iowa, USA, 2004. Prof Kirk is considered as one of the founders of Metric Fixed Point Theory**.

6 Narrative

6.1 Redesign of Differential Equations Course

Beginning in the Fall of 1996, Dr. Knaust and I taught two pilot sections of a redesigned Differential Equations Course in the new student computer lab of the Mathematics department. This pilot became the "standard" course starting the Summer of 1997. There are a number of issues that were addressed by our revision of the differential equations course:

[1] The use of technology as a tool for illustration, experimentation, and discovery served as a vehicle for changing the nature of the course from one where students passively received information to one where they actively participated in their education.

[2] The "non-linear revolution" that is occurring throughout science, engineering, and mathematics dictates that this course should present non-linear systems on the same footing as linear systems.

[3] Teaching students how to find explicit solutions to a number of carefully chosen equations is far less important than teaching them how to recognize a problem that involves differential equations.

Our students should be able to go through a mathematical modeling process, and interpret the mathematical results in terms of the original problem.

6.2 Mathematics on the Internet

In a joint project with three colleagues, we created a website "S.O.S. Mathematics" on the Internet (http://www.sosmath.com), where students can find material to review mathematical concepts taught both in high school and college. The informal style in which we deliver mathematical help and the easy access are the main reasons for our website's popularity among students, adult learners, parents and educators. Currently, about 200,000 Internet users visit S.O.S. Mathematics per month with over one million hits.

S.O.S. Mathematics is a website featuring review material in Algebra, Trigonometry, and Calculus, as well as more advanced topics such as Matrix Algebra and Differential Equations. Our material is not meant to be a cornucopia of complete web-delivered Mathematics courses. Instead, we aim in our website at students who want to refresh their memory of mathematical topics they have learnt in the past, or who want to supplement the material in a mathematics course they are currently taking. Consequently, most of our webpages contain short explanations of a mathematical concept followed by examples of typical problems with their solutions. At the end of a webpage the students usually find exercises to check their understanding of the material.

We are quite surprised at the diversity of our users. Besides our target population of lower-division college students, our site has attracted adult learners who are studying for professional examinations as well as hobby-mathematicians. Many parents seek help on our web site to assist their children with their homework chores.

In addition, the authors and other interested faculty in our department use the site heavily, both for students' review of prerequisite material and for in-class presentations by faculty. We have received numerous awards including designation as an approved site by the AAAS Science Netlinks. Our algebra site is included in the BBC Education Web Guide.