

CURRICULUM VITAE for Dr Mohamed Ben Haj Rhouma

Personal Information

1. Name : Mohamed Ben Haj Rhouma
2. Nationality : Tunisian
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Rolla, Missouri 65401, U.S.A.
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Education

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| 1995-1999 | Ph.D. in Applied Mathematics, University of Missouri, Columbia, U.S.A. |
| 1992-1995 | M.Sc. in Applied Mathematics, University of Missouri, Columbia, U.S.A. |
| 1983-1989 | Diploma of Ingenieur Principal in Industrial Engineering, Ecole Nationale d'Ingenieurs de Tunis, Tunisia. |

Employment

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| August 2012-Present | Assistant Professor, Department of Mathematics, Statistics and Physics
Qatar University, Doha-Qatar. |
| 2002-August 2012 | Assistant Professor, Department of Mathematics and Statistics
Sultan Qaboos University, Muscat, Oman. |
| 2001-2002 | Assistant Professor, Department of Mathematics and Statistics,
University of Missouri- Rolla, Missouri, U.S.A. |
| 1999-2001 | Postdoctoral fellow, Center for Dynamical Systems and Nonlinear
Sciences, Georgia Institute of Technology, Atlanta, Georgia,
U.S.A. |
| 1995-1999 | Research and Teaching Assistant, University of Missouri-
Columbia, Missouri, U.S.A. |

Awards and Recognition

Leaureate for the Industrial Engineering Department, Ecole Nationale d'Ingenieurs de Tunis, Tunisia, for the year 1989.

Ph.D. Scholarship from Tunisian Government and USAID 1992-1997.

The work I have done with my colleagues on shape recognition was the basis of a lecture series at the Geometric Spectral Theory meeting in Neuchatel, Switzerland, June 8-12, 2009.

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Service University Administration and Committees at Sultan Qaboos University

Chair of the Departmental Website Committee, 2003-2006

Member of the College of Science Website Committee, 2003-2006.

Safety Officer of DOMAS, 2006-2007.

Member of the College of Science Security and Safety Committee, 2006-2007.

Member of the Mathematics Olympiad Committee, 2007-2008.

Member of the Department Service Teaching Committee, 2007-2008

Member of the Department E-learning Committee, 2008-2010.

Member of the Department Teaching Committee, 2008-2010.

Member of the Department Curriculum Committee, 2010-Present.

Member course content revision committee of Pre-Calculus, Calculus I, II, and III, 2005-2006.

Course Coordinator for Multi-section courses such as Differential Equations for Engineers, Differential Equations for Science, Discrete Math for Computer Science, Foundations of mathematics.

Organizer of the Postgraduate Day February 2008.

Co-Chair of the Mathematica Gulf Conference 2004.

Chair of The Learning Technologies and Mathematics Middle East Conference which was held at Sultan Qaboos University, Muscat, Oman, March 31-April 2, 2007.

Evaluated three research proposals for the Deanship of Postgraduate Studies and Research SQU.

Editor in *Annual Review of Chaos Theory, Bifurcations and Dynamical Systems* created in 2010. www.univ-tebessa.dz/ARCTBDS/

Referee for The third International Conference on Teaching Mathematics ICTM3, held in Istanbul Turkey 2006.

Refree for Mathematical and Computer Modeling, Applied Math Letters, *MathSciNet*

Journal papers

Al-Salman, **Rhouma, M. B. H.** and Jarrah A., "On Integrals And Sums Involving Special Functions", *Missouri Journal of Mathematical Sciences*, Oct. 2011, pp 19.

Rhouma, M. B. H., Khabou M.A. and Hermi L, "Shape Recognition Based on Eigenvalues of the Laplacian", *Advances in Imaging and Electron Physics*, volume 167, (2011) pp 185-254.

AlSharawi Z. and **Rhouma, M. B. H.**, "The discrete Beverton-Holt model with periodic harvesting in a periodically fluctuating environment", *Advances in Difference Equations*, Art. ID 215875, (2010) 18 pp.

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AlSharawi Z. and **Rhouma, M. B. H.**, "The Beverton-Holt model with periodic and conditional harvesting", *Journal of Biological Dynamics*, volume 3, (2009) pp 463-478.

AlSharawi Z. and **Rhouma, M. B. H.**, "Coexistence and extinction in a competitive exclusion Leslie/Gower model with harvesting and stocking", *Journal of Difference Equations and its Applications*, volume 15, (2009) pp 1031-1053.

Khabou M.A., Hermi L and **Rhouma, M. B. H.**, "Shape recognition using eigenvalues of the Dirichlet Laplacian", *Pattern Recognition*, volume 40, (2007) pp 141-153.

Rhouma, M. B. H., El-Sayed, M. A. and Khalifa, Azza K. "On a (2, 2) rational recursive sequence", *Advances in Difference Equations*, (2005) pp 319-332.

Rhouma, M. B. H., "The Fibonacci sequence modulo π , chaos and some rational recursive equations", *Journal of Mathematical Analysis and Applications*, volume 310, (2005) pp 506-517.

Rhouma, M. B. H., "Closed form solutions of some rational recursive sequences of second order", *Communications in Applied Nonlinear Analysis*, volume 12, (2005) pp 41-58.

Rhouma, M. B. H. & Frigui H. "A biological approach to clustering data sets ", *Scientiae Mathematicae Japonicae.*, 58(2003), pp 485-494.

Rhouma, M. B. H. and Frigui H., "Self-Organization of Pulse-Coupled Oscillators with Application to Clustering", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 23(2001), 180-195.

Rhouma, M. B. H. and Chicone C., "On the continuation of periodic orbits", *Methods and Applications of Analysis*, volume 7, (2000) 85-104.

Refereed conference papers

Charabi Y., **Rhouma, M. B. H.** and Gastli A., "GIS-based estimation of roof-PV capacity energy production for the Seeb region in Oman", *2010 IEEE International Energy Conference and Exhibition, EnergyCon 2010*, Art. ID 5771717, pp. 41-44.

Rhouma, M. B. H., Hermi L. and Khabou M.A., "Laplacian and Bilaplacian Based Features for Shape Classification", *Proceedings of the 2009 International Conference on Image Processing, Computer Vision, and Pattern Recognition, IPCV 2009*, (2009) pp 615-619.

Khabou M.A., **Rhouma, M. B. H.**, and Hermi L, "Performance comparison of laplacian-based features", *Proceedings of the 2008 International Conference on Image Processing, Computer Vision, and Pattern Recognition, IPCV 2008*, (2008) pp 39-43.

Khabou M.A., **Rhouma, M. B. H.**, and Hermi L, "Feature generation using the Laplacian operator with Neumann boundary condition", *Proceedings of the 2007 Conference Proceedings - IEEE SOUTHEASTCON*, (2007) art. no. 4147535, pp. 766-771.

Frigui H. and **Rhouma, M. B. H.**, "A synchronization based algorithm for discovering ellipsoidal clusters in large datasets", in *Proceedings of the 2001 IEEE International Conference on Data Mining ICDM01*, (2001), pp. 8.

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Frigui H. and **Rhouma, M. B. H.**, "Clustering based on synchronization of pulse-coupled oscillators", *Fuzzy Information Processing Society 2000 NAFIPS 19th International Conference of the North American*, (2000), 128-132.

Other Publications

Rhouma, M. B. H., "Finite Mathematics Study Guide" published by Center for Distance and Independent Study, University Extension, University of Missouri.

Invited Presentations

Three-lecture Minicourse at the Geometric Spectral Theory Workshop, Institut de Mathematiques, Universite de Neuchatel, Switzerland , June, 2009. Title: "Shape Recognition Schemes Based on the Spectrum of the Laplacian ". *presented by my collaborator L. Hermi.*

Applied Sciences Meeting 2007, Muscat Oman November 2008. Title: "Shapes in 2 and 3 dimensions ".

First Private Schools Gathering 2007, Muscat Oman March 2007. Title: "Teaching Elementary Mathematics with Excel".

Second Mathematics Teachers Gathering in Muscat, Muscat Oman August 2006. Title: "Mathematical History".

Contributed Talks

International Conference on the Isoperimetric Problem of Queen Dido and its Mathematical Ramifications, Carthage, Tunisia, May 2010. Title: "One may hear the shape of a drum".

The 8th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Dresden , Germany, May 2010. Title: "One may hear the shape of a drum".

Progress on Difference Equations (PODE09), The Mathematical Research and Conference Center in Bedlewo, Poland, May 2009. Title: "On optimal ordering of cycles in Beverton Holt model".

International Conference on Differential and Difference Equations (DDEA 2008), Regional Centre of the Hungarian Academy of Sciences, Veszprem, Hungary July 2008. Title: "The effect of harvesting and stocking in a Leslie/Gower model".

The First Joint Meeting of the AMS and the Polish Mathematical Society, University of Warsaw, July-August 2007. Title: "Comparison between Neumann and Dirichlet Laplacian eigenvalues in shape recognition".

Summer School on Design and Control of Self-Organization, ICTP, Trieste Italy, July 2005. Title: "Self Organization of biological oscillators applied to data mining and vision".

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BIOCOMP2002, Topics in Biomathematics and Related Computational Problems, Vietri, Italy, June 2002. Title: "A biological approach to clustering".

Grants

Rhouma, M,B.H. (**Principle Investigator**), SQU Research Grant (IG/SCI/DOMS/11/18), 2011-2012, 1650 RO.

Rhouma, M,B.H. (**Principle Investigator**), SQU Research Grant (IG/SCI/DOMS/08/07), 2008-2009, 1800 RO.

Memberships

American Mathematical Society
Society for Difference Equations and its Applications,
Tunisian Scientific Consortium.

Courses Taught:

Intermediate Algebra
Precalculus
Calculus 1, 2 and 3
Finite Mathematics
Linear Algebra for Computer science
Differential Equations
Differential Equations for Engineers
Discrete Mathematics
Discrete Mathematics for Electrical and Computer Engineers
Discrete Mathematics for Computer Science
Multivariable Calculus and Linear Algebra
Foundations of Mathematics (logic + sets+ methods of proof)
Special Functions (graduate course)