

MARTIN F. ENGMAN IV

Address

Departamento de Ciencias y Tecnología
Universidad Metropolitana
P.O. Box 21150
San Juan, Puerto Rico 00928-1150
Telephone Number: (787) 766-1717 ext. 6110
email: mathengman@yahoo.com
<http://www.suagm.edu/umet/paginas/mengman/engman.html>

Education

Ph.D. Mathematics, University of New Mexico, 1990
M.S. Applied Mathematics, University of Missouri, 1978
B.A. Mathematics, University of Missouri, 1976

Articles

Spectral Geometry of Cosmological and Event Horizons of Kerr-Newman de-Sitter metrics, In preparation

Essential singularity of the S^1 -invariant trace functional at the constant curvature metric, In preparation

The Spectrum and Isometric Embeddings of Surfaces of Revolution, Canad. Math. Bull. Vol. **49** (2), 2006 p. 226.

Intrinsic Spectral Geometry of the Kerr-Newman Event Horizon, with Ricardo J. Cordero-Soto, J. Math. Phys. **47**, 033503 (2006).

Models for Dengue Transmission and Control, with F. Sánchez, C. Castillo-Chavez, and L. Harrington, in Mathematical Studies on Human Disease Dynamics: Emerging Paradigms and Challenges, pp. 311-326, Contemp. Math., 410, Amer. Math. Soc., Providence, RI, 2006.

A Note on Isometric Embeddings of Surfaces of Revolution, Amer. Math. Monthly **111** (2004), 251-255.

*Evolution of Fluconazole Resistance in *Candida albicans**, with A. Nnaemeka, A. Greenblatt, O. Ortega, and S. Wirkus; submitted for publication, Biometrics Unit Technical Report # BU-1528-M (2000); MTBI, Cornell University.

Sharp Bounds for Eigenvalues and Multiplicities on Surfaces of Revolution, Pacific J. Math., **186**(1) (1998), 29-37.

Trace Formulae for S^1 invariant Green's Operators on S^2 , Manuscripta Math. **93** (1997), 357-368.

New Spectral Characterization Theorems for S^2 , Pacific J. Math., **154(2)** (1992), 215-229.

Invited and Contributed Talks

Intrinsic Spectral Geometry of the Kerr-Newman Event Horizon, XXI SIDIM, Turabo, Puerto Rico, February, 2006.

Eigenvalue Multiplicities for the Laplacian on surfaces and Isometric Embeddings, Center for Non-linear Studies, Los Alamos National Laboratories, Los Alamos, New Mexico, August, 2003.

A Note on Isometric Embeddings of Surfaces of Revolution, XVII SIDIM, San Germán, Puerto Rico, February, 2002.

The Spectrum and Isometric Embeddings of Surfaces of Revolution, Workshop L^2 Methods in Geometry; January, 2000; Sarasota Florida.

Sharp Bounds for Eigenvalues and Multiplicities on Surfaces of Revolution, A.M.S. Meeting # 928; November, 1997; Albuquerque, N.M.

Spectra which contain Spherical Eigenvalues, 99th Annual Meeting of the A.M.S.; January, 1993; San Antonio, TX

The Spectrum of a Surface of Revolution, A.M.S. Meeting # 858; April, 1990; Albuquerque, N.M.

Student Research

Special Relativity: The 100th anniversary of $E = mc^2$ Wilnely Luna, Victor Iglesias. 2004

A Mathematical Approach to the Dynamics of a Bacterial Community in a Membrane-Coupled Bioreactor Wilnely Luna, Victor Iglesias, Iván Cao-Berg. Dec., 2003.

A Note on Isometric Embeddings of Surfaces of Revolution, Ivan Cao-Berg, Manuel Rivera, May, 2002.

- Faculty advisor for the following student poster presentations:

Gerardo Santana *Spectral Geometry of Cosmological and Event Horizons for Kerr-Newman-deSitter metrics*, UMET Undergraduate Research Symposium, San Juan, Puerto Rico, September, 2007.

Ricardo Cordero, *Intrinsic Spectral Geometry of the Kerr-Newman Event Horizon*, SACNAS Sept., 2005, Denver, CO. and AMS/MAA Joint Meetings, San Antonio, TX, January, 2006.

Ivan Cao-Berg, Manuel Rivera *A Note on Isometric Embeddings of Surfaces of Revolution*, UMET Undergraduate Research Symposium, San Juan, Puerto Rico, May, 2002.

Grant Support

AGMUS Institute of Mathematics (Co-PI) NSF Division of Mathematical Sciences (Award #0822404) 09/03/08-08/31/10, \$862,385.

Modeling Our Solar System PRSGC IDEAS-ER Grant, 2004, \$28,373.

Partially supported by EPSCoR of Puerto Rico, 1999

Partially supported by NSF/MIE Grant, 1998-2002

Travel Grant; NSF/CBMS Regional Conference: *Advances in Inverse Spectral Geometry*, 1996

Curriculum Development

Author of twelve new courses, program of study, course descriptions, and “pron-tuarios” for the Bachelors Degree in Applied Mathematics at UMET.

Author of Math 140, an intensive introduction to university mathematics.

Honors and Organizations

Efroymsen Memorial Fellowship, 1987-1988

“Top ICES” (Teaching Award) U.N.M.-Valencia, 1994, 1995

Member of the American Mathematical Society

Member of the Mathematical Association of America

Member of the Society for Advancement of Chicanos and Native Americans in Science

Areas of Interest

Spectral Geometry, Inverse Spectral Geometry, Analysis on Manifolds, Riemannian Geometry, Mathematical Physics, Mathematical Biology

Employment History

Universidad Metropolitana, Associate Professor (Catedrático Asociado): Fall 2004-Present

Universidad Metropolitana, Assistant Professor (Catedrático Auxiliar): Fall 1998-2004

Cornell University, Visiting Assistant Professor: Summer 2000

Universidad Metropolitana, Visiting Assistant Professor: Spring 1998

University of New Mexico, Lecturer III/Instructor: 1994-1997

University of New Mexico-Valencia, Instructor: 1992-1997

Sandia National Laboratories-Education Outreach Program, Instructor: Summer 1995

NASA Training Project @UNM, Instructor: Summer 1992

University of New Mexico, Instructor: 1990-1994

Organizational and Departmental Service

Reviewer for Math Reviews, AMS

Faculty Advisor of the UMET chapter of MAA

Faculty Advisor of the UMET Computer Science/Mathematics Club 2007-2008

Seminar Committee; 2003-2004, UMET

Library Committee; 2001-2003, UMET

Chairman, Seminar Committee; Spring 1998, UMET

Course Co-ordinator for Elements of Calculus; Spring 1997, UNM

Textbook Committee, Elements of Calculus; 1997, UNM

Course Co-ordinator for Intermediate Algebra; Fall 1995, UNM

Other Experiences and Skills

Computer Skills: UNIX, Microsoft Word, \LaTeX , MapleV, Fortran, MINITAB, HTML

Languages: English, Spanish, French

Hobbies: Scuba Diving, Baseball, Guitar, Snow and Water Skiing

References

Howard Fegan, Ph.D.
Department of Mathematics
Lehigh University
Bethlehem, PA. 18015-3174
Ph. 215-758-3730

Carlos Castillo-Chavez
Department of Mathematics and Statistics
Arizona State University
PO BOX 871804
Tempe, AZ 85287 - 1804
Email: chavez@math.asu.edu

Alex Stone, Ph.D., Chair,
Department of Mathematics
University of New Mexico
Albuquerque, New Mexico 87131
Ph. 505-277-4613

Wojciech Kucharz, Ph.D.
Department of Mathematics
University of New Mexico
Albuquerque, New Mexico 87131
Ph. 505-277-6263

Richard Metzler, Ph.D.
Department of Mathematics
University of New Mexico
Albuquerque, New Mexico 87131
Ph. 505-277-4613

William R. Dawes, Ph.D.
Sandia National Laboratories
MS 1351
Albuquerque, New Mexico 87185-1351
Ph. 505-844-1280